



## مجلة التربية الرياضية

مجلة علمية فصلية مُحكمة متخصصة

بعلوم الرياضة تصدر عن

كلية التربية البدنية وعلوم الرياضة

جامعة بغداد





جمهورية العراق  
وزارة التعليم العالي والبحث العلمي  
جامعة بغداد  
كلية التربية البدنية وعلوم الرياضة

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كلية التربية البدنية وعلوم الرياضة في جامعة بغداد

المجلد السابع والثلاثون

العدد الاول

السنة 2025

DOI: [https://doi.org/10.37359/JOPE.V37\(1\)2025](https://doi.org/10.37359/JOPE.V37(1)2025)

E-ISSN: 2707-5729

P-ISSN: 2073-6452

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تأسست عام (1990)

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رقم الإيداع في دار الكتب والوثائق العراقية (597) لسنة (1990)


(P-ISSN: 2073-6452)

(E-ISSN: 2707-5729)

تصميم الغلاف: د. ياسر وجيه قدوري

## تعليمات النشر في مجلة التربية الرياضية

أولاً: تعليمات عامة:

- مجلة علمية رياضية فصلية غير ربحية، متخصصة بنشر البحوث العلمية الخاصة بعلوم الرياضة، لأغراض النشر العلمي، تصدرها كلية التربية البدنية وعلوم الرياضة / جامعة بغداد.
- تعتمد المجلة سياسة التحكيم السري والمزدوج والوصول الحر للبحوث دون قيد أو شرط.
- يتم استخدام الأسماء وعناوين البريد الإلكتروني والهواتف في قاعدة بيانات المجلة للأغراض العلمية فقط الخاصة بالمجلة ولن تكون متاحة للجميع أو تستعمل لغرض آخر.
- تعدد مجلة التربية الرياضية الرخصة (CC BY 4.0)  (a Creative Commons Attribution 4.0 International license) وهي بذلك تحفظ حقوق الملكية الفكرية للباحثين الناشرين فيها، وفي الوقت نفسه تتيح للآخرين بتحميل ومشاركة وإعادة استخدام وتوزيع البحث في نطاق واسع. للمزيد من المعلومات، انقر على الرابط ادناه: <https://creativecommons.org/licenses/by/4.0/>
- تتم إجراءات المراجعة الأولية للبحث المرسل من قبل هيئة التحرير وإجراء الاستلال الاليكتروني، ويتم اعلام الباحث بأي مشكلة خلال الأسبوع الاول من استلام البحث.
- يتم إحالة البحث للتحكيم العلمي من قبل هيئة التحرير لمحكمين أثنين معتمدين من قبل المجلة وبشكل سري.
- تتم عملية التحكيم خلال مدة (3) اسابيع وفق تعليمات المجلة (ارشادات المحكمين).
- بالاعتماد على توصية المحكمين، يتم قبول البحث كما هو او قبوله بعد اجراء التعديلات او رفضه، ويتم اعلام الباحث بذلك.
- بعد الانتهاء من التحكيم، يتم طلب دفع رسوم النشر البالغة (120000) الف دينار عراقي. علماً إن المجلة غير ربحية والنفقات أعلاه لتغطية أجور التحكيم والنشر والترجمة فقط.
- يكون النشر للباحثين من خارج العراق مجاني وبشكل كامل ولحد نهاية سنة (2021).
- كل إجراءات تحكيم البحوث تكون الكترونياً اعتماداً على نظام المجالات المفتوحة (OJS).

## ثانياً: شروط كتابة البحث:

تتبع مجلة التربية الرياضية (JOPE) طريقة (IMRAD) في كتابة البحوث وهي ترمز الى الحروف الأولى لكلمات: المقدمة (Introduction). الطريقة والأدوات (Materials and Methods). النتائج (Results) و (And). المناقشة (Discussion). ورقة واجهة البحث: ويجب أن تتضمن الآتي:

- **عنوان البحث (Research Title):** يعد عنوان البحث الجزء المميز منه الذي يقرأه عدد كبير من الباحثين ويحتوي العنوان أيضاً اسم الباحث (الباحثين) وعناوينهم (طرائق التواصل معهم).
- **شروط عنوان البحث:**

- ✓ يحوي على عدد قليل من الكلمات كلما أمكن ذلك، و بما لا يزيد عن (12) كلمة.
- ✓ يكون واضح وسهل الفهم ولا يحتوي على المختصرات.
- ✓ يشرح محتويات البحث بدقة وبشكل محدد.
- ✓ ان لا يكون بصيغة استفهامية كما في المقالات الصحفية.
- ✓ يشير الى موضوع البحث وليس النتائج.

- **اسم المؤلف (المؤلفون) (Authors):** مؤلف البحث هو الشخص أو الأشخاص الذين أسهموا بشكل فعلي في تخطيط وتنفيذ البحث. ويتم تثبيت أسماء المؤلفين بتسلسل منطقي نسبة الى أهمية مشاركتهم في البحث، اذ يُعد الاسم الأول بالبحث هو كبير معدي البحث وبكلام آخر المؤلف الأول (Senior Author) في حين يتم ترتيب باقي المؤلفين نسبة الى أهمية وقدر مشاركتهم في إتمام البحث. يكون طالب الدراسات العليا المؤلف الأول في أطروحته او رسالته يليه المشرف الرئيس بوصفه المؤلف الثاني وهكذا، علماً ان المجلة تعتمد تسلسل الباحثين حسب ما هو مثبت في البحث المرسل للمجلة. يجب ادراج هامش يشير الى المعلومات الخاصة عن المؤلفين كافة للاتصال بهم بهدف التعاون او الاستيضاح او اي شأن يخص البحث ومجال الاختصاص، ويجب ملاحظة ان يكتب الأسم الثلاثي واللقب للمؤلفين مع ذكر عنوان العمل و وسيلة الاتصال (البريد الإلكتروني - رقم الهاتف) وباللغتين العربية والانكليزية.

- **مستخلص البحث (Abstract):** ينقل الملخص معلومات البحث القائم فعلاً مع مراعاة عدم استعمال عبارات الوعود (سوف يقدم، سوف يعرض.... وغيرها)، ويكون ملخص البحث بمعدل (150-250) كلمة ويكتب في فقرة واحدة باللغتين الإنكليزية والعربية. يبدأ الملخص بترتيب متسلسل بعرض الاهداف ثم توضيح الإجراءات المستعملة واهم النتائج المتضمنة حقائق جديدة

تتعلق بتحقيق الأهداف، وأخيراً الاستنتاجات الرئيسية ومستوى دلالتها (Sig). وتكتب أفعال جمل عرض الأهداف والمقدمة ومناقشة النتائج والاستنتاجات في الزمن المضارع، في حين تكتب الإجراءات والأختبارات والنتائج في الزمن الماضي. يجب أن لا يحتوي ملخص البحث على الآتي:

- ✓ الاختصارات (الأحرف المختصرة) إلا إذا كانت معيارية أو معروفة مسبقاً مثل (Vo2Max).
- ✓ الإشارة إلى الجداول أو الأشكال في متن البحث والاستشهاد بالمصادر.
- ✓ أي معلومات أو استنتاج غير موجود في متن البحث والجمل العامة والجمل المطولة أو المعقدة أو الملتوية (المراوغة).

- ✓ تجنب ذكر البيانات الكمية بشكل مفصل وكذلك المعالجات الإحصائية والمصطلحات الطويلة جداً.
- ✓ ذكر المتوسط الحسابي والانحراف المعياري لأعمار وأوزان وأطوال عينة البحث. مثال: (متوسط الطول) متر (± الانحراف المعياري).

- **الكلمات المفتاحية (Key Words):** يجب أن يتضمن البحث كلمات مفتاحية بعدد لا يتجاوز (6) كلمات، ويجب أن تكون محددة بالدراسة وغير الكلمات الموجودة في عنوان البحث، وعلى أن تكتب في نهاية ملخص البحث بفقرة منفصلة وباللغتين الإنكليزية والعربية.

- **المقدمة (Introduction):** تكون مقدمة البحث جيدة قصيرة نسبياً، تشرح أهمية الدراسة وتحديد أهدافها من خلال البحث في الأدبيات ذات العلاقة من مراجع ودراسات، ويكون ذلك عن طريق استعراض مختصر لهذه الدراسات والتي تكون ذات علاقة بمشكلة البحث والتي يجب أن لا تقل عن خمسة دراسات حديثة ومناسبة لتعزيز البحث، كما أن المقدمة تُعرف بالمصطلحات الخاصة أو المختصرات التي سيتضمنها متن البحث لاحقاً، ويفضل أن لا تتجاوز عدد الكلمات في مقدمة البحث عن (500) كلمة وأن لا تتضمن تكرار لعبارات أو مفاهيم ذكرت في أي موقع من الملخص، مع مراعاة تجنب العبارات الانشائية والجمل التي لا تضيف للقارئ معلومة مثل إعادة الحقائق والحالات البديهية.

- **الطريقة والأدوات (Materials and Methods):** أن الغرض من هذا القسم هو لعرض ما تم عمله، وكيف تم، وأين تم، وذلك بطريقة مباشرة وبسيطة فضلاً عن التعريف بكيفية جمع البيانات وعرضها وتحليلها. إذ يجب أن يوفر هذا القسم من البحث كل المعلومات الضرورية اللازمة للسماح للمؤلفين الآخرين للحكم على الدراسة والإفادة منها، ويجب مراعاة ترتيب

- الاجراءات الميدانية زمنياً مع توفير كافة المعلومات الضرورية فقط، وعلى وفق ذلك يتطلب ان يتضمن هذا القسم من البحث على الآتي مع أهمية تسلل الفقرات:
- ✓ منهج البحث وتصميمه المستعمل.
  - ✓ الوصف الدقيق لعينة البحث من حيث (الجنس والعمر والوزن.... وغيرها).
  - ✓ تصميم التجربة مع عدد مرات اجراء الاختبار او القياس وإيجاز الإجراءات المستعملة لاختذ العينات (إجراءات الاختبارت).
  - ✓ ذكر الأجهزة والادوات المستعملة مع مواصفاتها الفنية الدقيقة وعددها ومصدرها وطريقة العمل بها (الضرورية منها فقط غير شائعة الاستعمال). ويجب استعمال الأسماء العلمية للأجهزة بدلاً عن اسمائها التجارية مع ذكر أسماء الشركات المصنعة للجهاز واية معلومات تفيد القارئ.
  - ✓ وصف التعديلات اذا ما تم اجراءها على القياسات الروتينية (الاختبارات)، اما إذا ما تم استعمال اجراء جديد (اختبار جديد) فيجب ذكره وشرحه بالتفصيل.
  - ✓ توضيح طريقة اجراءات البحث من تجربة واختبارات ورقية، وعملية، وشفوية او على جهاز الحاسوب.
  - ✓ الطريقة الإحصائية (او/و) الرياضية المستعملة لتحليل وتلخيص البيانات.
  - ✓ يحق للمجلة ان تطلب من المؤلفين تفاصيل او معلومات إضافية عن أي جزء من أجزاء البحث. وبشكل عام يجب ان يضع المؤلفين بعين الاعتبار الأمور الآتية عند كتابته لإجراءات البحث:
  - ✓ لايجوز استعمال المختصرات (بأي لغة كانت) قبل تعريفها في ملخص البحث او مقدمته.
  - ✓ تحديد نظام وحدات القياس الدولية المستخدم في البحث، مثل (المتر، كيلوغرام، الثانية ... الخ)
  - ✓ توضيح جميع المواد المستعملة في الدراسة بحيث يمكن للقارئ استعمالها في بحوث مشابهة أخرى.
  - ✓ وصف اهداف واجراءات القياس لكل اختبار (اختبار قبلي - اختبار بعدي - اختبار احتفاظ ... وهكذا) .
  - ✓ وصف كل التقنيات والاختبارات المستعملة بذكر اسمها فقط اذا كانت معروفة وقياسية او ذكر التفاصيل في حالة كونها جديدة او تم اجراء تعديل عليها.
  - ✓ لا يجوز اضافة معلومات لا تمت بصلة بالنتائج، والتي يمكن ان تترك القارئ.
  - ✓ استخدام الافعال بصيغة الماضي في عرض اجراءات البحث.

• **النتائج (Results):** يُقدم هذا القسم من البحث المعلومات الجديدة التي توصل لها الباحث، لذا يعد على انه أساس (مركز) البحث. ويلاحظ ان مقدمة البحث والإجراءات صُممت للإجابة عن التساؤلات؛ لماذا وكيف وصل الباحث (الباحثين) لهذه النتائج والتي سيتم تفسيرها في قسم المناقشة، لذا فان قيمة البحث تكون بما يتضمنه من نتائج، ويجب ان يتم عرضها بطريقة واضحة جداً ومباشرة وباستعمال العدد الضروري من الكلمات دون اسهاب او اختصار، وعادة ما يكون عرض النتائج اسهل فهماً اذا ما تم ترتيب العرض على وفق تسلسل اهداف البحث التي تم ذكرها في مقدمة البحث.

إرشادات حول عرض نتائج البحث:

- ✓ أعرض نتائج البحث بشكل بسيط وواضح في جداول او اشكال وذلك لتسهيل فهمها ومقارنتها. ملاحظة ان الجداول تعرض أرقاماً دقيقة في حين ان الاشكال تظهر الاتجاهات ذات الخصائص ولا يجوز عرض ارقام الجداول نفسها في الاشكال.
- ✓ لا يجوز اعادة النتائج كتابةً بعد عرضها في الجداول أو الاشكال التوضيحية، ويمكن فقط الإشارة الى اهم ما مؤشر في الجداول او الاشكال (أي عدم استعمال العرض الكتابي للجدول).
- ✓ وثق واعرض فقط البيانات الضرورية بدلاً من الاسهاب والتكرار في عرض البيانات ولا تعرض بيانات كثيرة واختصرها بالتحليل الاحصائي ولخصها لعرضها في جداول او اشكال وذلك لتسهيل فهمها ومقارنتها.
- ✓ ضمن نتائج البحث بالنتائج السلبية (ما لم يتحقق) إن كان ذلك مفيداً لتفسير النتائج.
- ✓ عند كتابة النتائج يتم الإشارة الى الجداول أو الاشكال بارقامها (الجدول 1) (الشكل 1).

**المناقشة Discussion:** في هذا القسم من البحث يفسر الباحث (الباحثون) مضمون النتائج ودلالاتها والاثار المترتبة عليها. وتُبين المناقشة أهمية وقيمة العمل المنجز كما انها تربط كل أجزاء البحث معاً. ان مهارة الباحث (الباحثين) في تفسير النتائج الجديدة، على وفق الحقائق المعروفة باستخدام نتائج البحث هي دليل على التغيرات المبتكرة (الابداعية) للسلوك الملاحظ، ويجب ان تدفع حدود معرفة القارئ (توسع مداركه) وتثير حماسه. وعلى الباحث ان يلتزم بالاتي في مناقشته للنتائج:

- ✓ ناقش على ضوء معنوية النتائج.
- ✓ لا تكرر ما تم ذكره في الدراسات السابقة.

✓ تتضمن مناقشة النتائج تفسير اتقاقها او عدمه مع المعلومة او المعرفة في الدراسات المنشورة سابقاً.

✓ تدعيم النتائج التي توصلت اليها بأساس نظري علمي (ما هي الأسباب العلمية للنتائج المتحققة).

✓ اقترح بحوث مستقبلية مخطط لها اوبحوث بحاجة الى متابعة (دراسة).

✓ لا يجوز اضافة معلومات لم يتناولها البحث، وان يتم التعامل مع النتائج الموثقة في الدراسة الحالية فقط.

✓ تجنب التعميم والتخمين للنتائج والتي لم تؤكدھا الدراسة.

✓ تكتب المناقشة بصيغة المضارع والماضي، اذ تكتب المعارف المتوافرة من الادييات والأبحاث بصيغة المضارع، في حين تكتب مناقشة نتائج البحث الحالي بصيغة الماضي.

**الاستنتاجات (Conclusions):** الاستنتاجات ليست إعادة صياغة لنتائج البحث، انما هي مستنبطة منها. فالاستنتاجات تشير الى الخطوط العريضة للدراسات المستقبلية استناداً على نتائج الدراسة الحالية. ويمكن تخصيص فقرة مستقلة للاستنتاجات.

**الشكر والتقدير (Acknowledgments):** تسمح المجلة بتضمين كلمات الشكر والتقدير في نهاية البحث ويخصص لشكر المؤسسات والافراد الذين قاموا بمساعدة حقيقية للباحث لاجراء بحثه اذ يُقدم الشكر للشركة، او المؤسسة التي قدمت الأموال لدعم البحث، او المختبرات التي زودت الباحث بالادوات والأجهزة، او الى الأشخاص الذين قدموا للباحث النصيحة والمساعدة في جميع البيانات، او التحليل او أي أمر اخر مهم. كما ان هذا القسم يعد مكاناً لذكر اصل البحث وبكلام اخر اذ كان البحث مستلاً من رسالة ماجستير او أطروحة دكتوراه.

**المصادر (References):** تتضمن قائمة المصادر كل الاستشهادات المعتمدة في متن البحث فقط وبطريقة (APA) الإصدار السادس حصراً وفق نظام (Microsoft Word 2010) صعوداً أو برنامج (Mendeley) أو (EndNote). ان الاستشهادات النصية في متن البحث يجب ان تتطابق تماما مع قائمة المصادر.

**الملاحق (Appendix):** يمكن ادراج أي معلومات تخص البحث المهمة منها حصراً ضمن الملاحق، إذ تحتوي الملاحق على تفاصيل المنهاج التدريبي او البيانات او الجداول الكبيرة (الجداول المعيارية) أو ادوات البحث مثل الاستبيانات وبرامج الحاسوب المستعملة او الأجهزة المصنعة والتي يجب عرضها وشرحها لاهميتها والتي لا يمكن ادراجها ضمن متن البحث بسبب كبر حجمها.

### جدول توضيحي يلخص طريقة امراد (IMRAD)

ت	القسم	الغرض او الهدف
1	العنوان	عن ماذا البحث.
2	المؤلفون (الباحثون)	أسماء وانتماءات المؤلفين.
3	الكلمات المفتاحية	الكلمات غير الموجودة في العنوان والتي توصف البحث.
4	الملخص	شرح قصير عن ذلك البحث.
5	المقدمة	لماذا هذا البحث؟ والمشكلة وما هو غير المعلوم واهداف البحث؟
6	الأدوات والإجراءات	كيف تم اجراء البحث؟
7	النتائج	ماذا وجدت؟
8	المناقشة	ماذا يعني ذلك؟ وما التالي؟ وتفسير النتائج والتوجه المستقبلي.
9	الاستنتاجات	الاثار المحتمليه (الممكنة)
10	الشكر والتقدير	لمن ساعدوك وكيف؟ وما هو مصدر التمويل؟
11	المصادر	تفاصيل عن استشهادات البحث.
12	الملاحق	المواد التكميلية.

### ثالثاً: شروط استلام البحث لغرض النشر في مجلة التربية الرياضية:

- ✓ أن لا تزيد عدد كلمات البحث عن (2500-3000) كلمة.
- ✓ أن يطبع البحث بنظام (Microsoft Word 2010) صعوداً بحجم خط (12) لمتن البحث و (14) غامق للعناوين الرئيسية وبنوع (Simplified Arabic) للغة العربية و ( Times New Roman) للغة الإنكليزية بابعاد الصفحة القياسية (عمودي - 2.54×3.17 سم). وبمسافة منفردة بين الاسطر و (1) بين الفقرات.
- ✓ أن يثبت اسم الباحثين الكامل والصحيح باللغتين العربية والإنكليزي اسفل عنوان البحث، في حين تثبت معلوماتهم (الشهادة، والقابهم العلمية ومكان عملهم ووسيلة الاتصال بهم البريد الالكتروني ورقم الهاتف مع المفتاح الدولي) في هامش الصفحة الاولى.
- ✓ ترقم صفحات البحث إلكترونياً أسفل ووسط الصفحة.
- ✓ تكون أبعاد الصور او الاشكال متناسقة وباسعمال الماسح الضوئي حصراً وبدقة عالية.

- ✓ يكتب رقم الجدول وعنوانه بشكل مختصر ووافي اعلى الجدول في حين يكتب رقم وعنوان الصورة او الشكل في الأسفل وبشكل ومختصر ووافي.
- ✓ ينشر البحث باللغة الإنكليزية بعد ان يتم ترجمته من قبل المجلة يمكن ارسال البحوث او يمكن ارساله باللغة الإنكليزية.
- ✓ تطبع الأرقام بالصيغة العربية حصراً (0 1 2 3 4)، وعند استعمال الاقواس لا يتم ترك مسافة بين الاقواس مثل: (2540)، وعدم ترك مسافة قبل علامات الترقيم مثل الفارزة، او النقطتين، او النقطة. مثال: التدريب الرياضي، التعلم الحركي، علم النفس الرياضي.
- ✓ لا يجوز استعمال برامج الترجمة الفورية او مواقع الانترنت للترجمة للغة الانكليزية مثل (google translate) وغيرها.
- ✓ استعمال المصطلحات العلمية المعروفة والمتداولة، وعلى الباحثين المقدمين لبحثهم باللغة العربية ادراج المصطلحات العلمية باللغة الإنكليزية في متن البحث.
- ✓ الاستشهاد بالمصادر يكون وفق أسلوب (APA) الإصدار السادس حصراً وفق نظام (Microsoft Word 2010) صعوداً أو برنامج (Mendeley) أو (EndNote).
- ✓ يجب ان تتطابق الاستشهادات النصية في متن البحث تماماً مع قائمة المصادر.
- ✓ لا يقبل الاستشهاد من المواقع الاليكترونية العامة والضعيفة.
- ✓ يقبل الاستشهاد من المواقع العلمية الرصينة الرصينة بالاعتماد على البحوث المنشورة المجالات المحكمة والكتب العلمية والرسائل والاطاريح الجامعية المحلية او الدولية.
- ✓ يجب أن لا تقل الاستشهادات بالمصادر العلمية عن (25) مصدر رصين وبواقع (50%) من البحوث العلمية كحد أدنى، و (50%) كحد أعلى من الكتب العلمية.
- ✓ يجب ان تكون المصادر حديثة (اخر خمس سنوات)، مع وجود بعض الاستثناءات الضرورية.

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## The effect of the concentration strategy for serious creativity on productive thinking, performance and accuracy of volleyball transmission skill among students

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2229](https://doi.org/10.37359/JOPE.V37(1)2025.2229)

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**Article history:** Received 4/ November/2024 Accepted 26/ November /2024 Available online 28/ March /2025

### Abstract

This study aims to build a volleyball produced thinking, preparing educational exercises in volleyball with a focus strategy for serious creativity, and to identify the strategy of focusing for serious creativity in productive thinking and the performance and accuracy of the skill of transmitting volleyball for students, and the two assumptions were that there are statistically significant differences between the results Tribal and posttests for the experimental and controlled research groups in productive thinking and the performance and accuracy of the skill of volleyball, and there are statistically significant differences between the results of the dimensional tests of the experimental and controlled research groups in productive thinking and the performance and accuracy of the skill in volleyball, and the experimental approach was adopted by the design of the experimental and control groups, on ( 70) A student from the fourth preparatory grade from the exception of the excelling representing (42,424 %) of this society, A scale for the volleyball produced and the employment of the strategy vocabulary was built with educational exercises and applied in the practical lesson in volleyball by (3) practical lessons for performance and (1) lesson for its accuracy and a total of (4) lessons, at the rate of lesson (1) one per week, and it continued for a period of (4 Weeks, and the search procedures for the duration of (12/2/2024) continued until (3/25/2024) and after the completion of the research experience, the results were addressed with (SPSS) system to form the conclusions and recommendations that the employment of educational exercises for volleyball with the vocabulary of the focus strategy for serious creativity in practical lessons Fourth preparatory students, Its application helps in improving the level of volleyball produced, and in improving the performance and accuracy of the transmission skill facing the bottom of the volleyball for students who study it, and by superiority over their peers who study without it, and it is necessary when adopting mental measurement, especially the volleyball produced for each student in lessons The process to support improving the performance and accuracy of the transmission skill facing from the bottom in volleyball, and it is necessary not to exaggerate the importance of the cognitive structure and focus on practice and repetition in improving the performance and accuracy of the transmission skill facing from the bottom in volleyball in the

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center of good use of focus for serious creativity in drawing motor programs for that skill performance and accuracy.

**Keywords:** the focus strategy for serious creativity, productive thinking, performance and accuracy of

### Introduction:

Volleyball skills serve as the cornerstone for practicing the game, distinguished by their diversity and cohesion. It is evident that every offensive skill is matched by at least one defensive skill. For instance, the execution of a serve is countered by the performance of a reception skill. Additionally, serving is an essential component that acts as the starting point of the match (Nouri, 2023, p. 434).

Moreover, "volleyball requires a broad and varied awareness, reflected in the court dimensions, the number of players, and the point-scoring system. As a result, players need the ability to analyze and think quickly in different game situations" (Najm & Abdul Kareem, 2022, p. 463).

The researcher posits that during practical volleyball lessons, students are required to observe, interact with their observations, and apply them in accordance with the lesson's objectives. This necessitates a focus on students' thinking processes and the proper direction of their ideas. Thinking plays a crucial role in shaping their reactions to the interactive educational environment in these practical lessons and activates the cognitive structure necessary for successful skill execution.

Given that "an individual's surrounding environment has a clear impact—or in some cases dictates—their thought process, a psychologically healthy environment fosters sound thinking. Conversely, an environment with weak components or unstable events may lead to disruptions in an individual's thought processes" (Mikhail, 2022, p. 42).

The significance of addressing thinking lies in finding appropriate solutions to pressing theoretical and practical problems faced by individuals in both natural and societal contexts. This persistent need drives continuous exploration for new methods and approaches to overcome challenges. Thus, thinking as a cognitive process is a fundamental element of the intellectual structure individuals possess. It is characterized by its social nature and systemic functioning, allowing it to interact with other cognitive processes, such as perception, imagination, and memory. Additionally, it influences and is influenced by emotional, affective, and social aspects of personality (Rezouqi et al., 2019, p. 11).

Productive thinking is defined as "a type of thinking that combines creative and critical thinking skills to generate new ideas" (Hurson, 2008, p. 45). It is also described as "a systematic scientific tool that integrates self-organization, innovative thinking, and critical thinking skills. Through it, individuals engage effectively and qualitatively with their environment, enabling them to achieve novel outcomes that deviate from the conventional" (Rezouqi et al., 2019, p. 15).

Furthermore, productive thinking is identified as "a set of mental processes or activities that encompass both critical and creative thinking patterns to produce new and effective ideas. These reflect the learner's ability to acquire thinking skills critically and creatively with minimal time and effort" (Hazza, 2018, p. 117).

Productive thinking is defined as a form of thinking aimed at generating new and innovative ideas or solutions, emphasizing creativity and analysis to achieve useful and novel



outcomes. It is fundamental in fields like entrepreneurship, design, and problem-solving. The characteristics of productive thinking can be summarized as follows: (Runco, 2014, p. 17)

- **Creativity:** The ability to think outside the box and generate unconventional, innovative ideas.
  - **Analysis:** The capability to systematically analyze information and data for a deeper understanding of the problem.
  - **Flexibility:** The skill to adapt approaches or methods when necessary, avoiding rigid or conventional thinking.
  - **Curiosity:** A persistent desire to learn and explore.
  - **Perseverance:** The determination to continue working on an idea or problem until a solution is achieved.
  - **Critical Thinking:** The ability to objectively evaluate ideas and solutions to identify the best option.
  - **Organization:** The skill to structure ideas and information effectively to reach desired results. The significance of productive thinking in a learner's life lies in enhancing their ability to solve problems and avoid dangers by making inferences and analyses. (Al-Qahtani, 2021, p. 181)
- Productive thinking is also seen as a systematic approach to problem-solving and decision-making, focusing on finding creative and practical solutions to various challenges. The principles and practices that contribute to developing productive thinking include: (Kaufman & Other, 2019, p. 2)
1. **Clear Goal Setting:** Clearly understanding what needs to be achieved to guide thinking toward appropriate solutions.
  2. **Information Gathering:** Conducting research and collecting relevant data for a better understanding of the problem.
  3. **Creative Thinking:** Employing techniques such as brainstorming to generate innovative and unconventional ideas.
  4. **Option Analysis:** Evaluating available options against defined criteria to select the optimal solution.
  5. **Planning and Execution:** Developing a clear action plan for implementing the chosen solution and following through with its execution.
  6. **Evaluation and Improvement:** Assessing outcomes post-implementation and making necessary refinements.

The researcher posits that incorporating productive thinking into volleyball practical lessons acts as a cognitive support mechanism, guiding skillful performance and serving as a criterion for evaluating students' responses and their ability to achieve educational goals. This minimizes distractions or wasted efforts during the application of educational tasks in practical lessons.

Studies highlight the correlation between thinking and muscular activities in individuals. Increased engagement in thinking is often associated with heightened muscular contractions, and vice versa. Relaxation is observed when the individual is not actively thinking. (Abu Jado & Noufel, 2010, pp. 38–39)

Activating the student's role during lessons allows meaningful participation in activities, moving them beyond a passive recipient role. (Abd Ali & Jabbar, 2022, p. 3)

Research also underscores the principle that the brain operates on a "use it or lose it" basis, emphasizing the necessity of fostering thinking to maintain cognitive activity. (Nadia, 2012, p. 213)



The researcher further emphasizes the critical role of cognitive factors and mental frameworks in volleyball skill performance. This necessitates exploring teaching strategies that enhance thinking and showcase learner creativity, such as the **Focused Strategy for Serious Creativity. Creativity as a Core Component of Productive Thinking**

Creativity is described as "a complex mental process driven by the desire to explore and deviate from traditional methods, resulting in ideas and solutions characterized by seriousness, originality, and flexibility. It focuses on producing innovative, meaningful outputs that enable learners to solve problems hindering their progress uniquely and effectively." (Al-Masry, 2017, p. 268)

The educational process aims to enable learners to generate multiple solutions to problems and expand their search for creative and unconventional ideas. This approach enriches the teaching and learning experience, supporting skill retention and practical application in lessons.

### **Teaching Strategy Implementation**

In volleyball lessons, applying a focused strategy for serious creativity begins with clear articulation of the focal point of the task. The instructor outlines the stages or sections of the skill and emphasizes details of execution. Students are guided to direct their attention toward achieving the set objectives, learning to regulate their focus, timing, and the steps necessary for task execution.

This approach includes three types of discipline:

1. **Focus Discipline:** Ensuring clarity in the student's thinking process to achieve desired results through concentrated efforts.
2. **Method Discipline:** Employing structured procedures during focus to implement the necessary steps.
3. **Time Discipline:** Adhering to a specified timeframe to maintain concentration and efficiency during task execution.

By integrating strategies tailored to productive thinking and creativity, instructors can foster skill improvement and encourage innovative problem-solving in practical volleyball lessons.

Over 80% of the experts agreed to retain the items, their alternatives, the scoring key, and the scale instructions without any deletion, merging, modification, or addition to the items.

- **Pilot Testing of the Scale:** The researcher conducted a preliminary trial of the scale on Monday, February 12, 2024, after finalizing its initial draft. This trial involved the exploratory sample of five students to address any potential obstacles in its application and to ensure that students could comprehend the scale's items, alternatives, and response instructions. The average response time was calculated at eight minutes. This trial highlighted the importance of reassuring the research sample that their performance on the scale would not affect their success in the practical volleyball lesson.
- **Item Discrimination Testing:** The researcher assessed the discrimination power of the scale items by applying the paper-based version to a statistical analysis sample of 90 students. The upper and lower groups method was employed, selecting 27% of the total sample size for each group based on the descending order of scores for each item. Each group consisted of 24.3 students, rounded to 44 students per group. Differences between the scores of the upper and lower groups were statistically tested using the *t-test* for independent samples. The results are summarized in Table 1:

**Table 1:** Results of the Discrimination Power Analysis for Productive Thinking in Volleyball Scale Items.

**Table (1): Results of the Discriminatory Power of the Items in the Productive Thinking Scale in Volleyball**

**Table (1): Results of the Discriminatory Power of the Items in the Productive Thinking Scale in Volleyball**

Item	Group	N	Mean (M)	SD (±)	ttt	Sig	Statistical Significance	Item Discrimination
1	Upper	24	2.71	0.464	10.569	0.000	Significant	Distinctive
	Lower	24	1.29	0.464				
2	Upper	24	2.67	0.482	15.221	0.000	Significant	Distinctive
	Lower	24	1.04	0.204				
3	Upper	24	2.75	0.442	15.56	0.000	Significant	Distinctive
	Lower	24	1.08	0.282				
4	Upper	24	2.83	0.381	15.166	0.000	Significant	Distinctive
	Lower	24	1.17	0.381				
5	Upper	24	2.79	0.415	15.261	0.000	Significant	Distinctive
	Lower	24	1.13	0.338				
6	Upper	24	2.88	0.338	22.755	0.000	Significant	Distinctive
	Lower	24	1.04	0.204				
7	Upper	24	2.63	0.495	13.263	0.000	Significant	Distinctive
	Lower	24	1.08	0.282				
8	Upper	24	2.71	0.464	10.07	0.000	Significant	Distinctive
	Lower	24	1.33	0.482				
9	Upper	24	2.79	0.415	15.261	0.000	Significant	Distinctive
	Lower	24	1.13	0.338				
10	Upper	24	2.92	0.282	18.088	0.000	Significant	Distinctive
	Lower	24	1.17	0.381				
11	Upper	24	2.75	0.442	12.454	0.000	Significant	Distinctive
	Lower	24	1.21	0.415				
12	Upper	24	2.96	0.204	17.18	0.000	Significant	Distinctive
	Lower	24	1.25	0.442				
13	Upper	24	2.83	0.381	18.088	0.000	Significant	Distinctive
	Lower	24	1.08	0.282				
14	Upper	24	2.88	0.338	17.944	0.000	Significant	Distinctive
	Lower	24	1.13	0.338				
15	Upper	24	2.92	0.282	16.678	0.000	Significant	Distinctive
	Lower	24	1.21	0.415				
16	Upper	24	2.71	0.464	12.579	0.000	Significant	Distinctive
	Lower	24	1.17	0.381				
17	Upper	24	2.33	0.482	12.099	0.000	Significant	Distinctive
	Lower	24	1.04	0.204				
18	Upper	24	2.96	0.204	12.1	0.000	Significant	Distinctive
	Lower	24	1.67	0.482				

Here is the well-formatted and translated text:

An item is considered **distinctive** if the significance value (Sig) is **less than** (0.05) at the significance level of (0.05) and with degrees of freedom (46).

The researcher verified the **internal consistency** of the Productive Thinking in Volleyball Scale by calculating **Pearson's simple correlation coefficients** between the score of each item and the total score of the scale. This was done using the same data from the previous application on the construction sample, which consisted of **90 students**. The results are shown in **Table (2)**:

**Table (2): Internal Consistency of the Productive Thinking in Volleyball Scale**  
**Table: Correlation Coefficients Between Item Scores and the Total Scale Score**

Item	Correlation Coefficient (rrr)	Sig	Item	Correlation Coefficient (rrr)	Sig
1	0.667*	0.000	10	0.756*	0.000
2	0.737*	0.000	11	0.591*	0.000
3	0.654*	0.000	12	0.733*	0.000
4	0.662*	0.000	13	0.589*	0.000
5	0.844*	0.000	14	0.566*	0.000
6	0.761*	0.000	15	0.751*	0.000
7	0.689*	0.000	16	0.548*	0.000
8	0.557*	0.000	17	0.639*	0.000
9	0.604*	0.000	18	0.794*	0.000

- An item is considered **consistent** if the significance value (Sig) is **less than** (0.05) with degrees of freedom (88) at a significance level of (0.05).
- The reliability of the **Productive Thinking in Volleyball Scale** was verified by calculating the simple **Cronbach's Alpha coefficient**, using the same scores from the previous application on the construction sample of **90 students**. The reliability coefficient was found to be **0.859**, confirming reliability at the significance level of (0.05) and degrees of freedom (88).
- The researcher confirmed the suitability of the scale for the research sample by statistically analyzing the scores to determine the value of the normal distribution. This was based on the same scores from the application on the construction sample of **90 students**. The results are presented in **Table (3)**:

**Table (3): Final Statistical Parameters and Normal Distribution of the Scale**

Construction Sample Size	Number of Items	Total Score	Measurement Unit	Mean (M)	Standard Deviation (SD)	Skewness Coefficient ( $\alpha$ )
90	18	54	Score	28.9	4.176	0.182

**Notes:**

- The distribution is considered **normal and moderate** if the skewness coefficient ( $\alpha$ ) lies within the range of (1 +) after completing this procedure, the researcher finalized the **Productive Thinking in Volleyball Scale** in its final form (Appendix 1), with a total score ranging from **18 to 54** and a hypothetical mean of **36**.



To measure the accuracy and performance of the serving skill, the researcher adopted a test (Appendix 2), where the students' performance in this test was recorded and evaluated as detailed below.

### **Development of Educational Exercises Using the Focus Strategy for Serious Creativity in Volleyball Practical Lessons:**

#### **1. Content of Educational Exercises:**

- The exercises designed for the experimental group included **individual exercises** at a rate of **4–5 exercises** per practical lesson.
- Each exercise lasted between **10–15 minutes**.
- To align with the focus strategy, all students were given **1–2 minutes** for group discussion and dialogue, which was allotted only before the first exercise in the practical session.
- This focused on teaching the underhand serving skill in volleyball.

#### **2. Implementation in Practical Lessons:**

- The strategy was applied during the **main section** of the volleyball practical lesson for 4th-grade preparatory students in both the **educational** and **practical** aspects for the experimental group.
- Each lesson was conducted **once a week**, as per the scheduled curriculum, with a total duration of **45 minutes**.
  - The main section lasted **30 minutes**, with the preparatory section lasting **10 minutes**, and the concluding section (**5 minutes**) left for the teacher without researcher intervention.
- The total duration allocated for these strategy exercises was **180 minutes** over the entire series of lessons.

#### **3. Distribution of Lessons:**

- A total of **4 practical lessons** were allocated: **3 lessons for skill performance** and **1 lesson for accuracy**.
- Lessons were conducted at a rate of **1 per week**, over a period of **4 weeks**.

#### **4. Execution of Educational Exercises:**

The practical application of the focus strategy for serious creativity involved the following activities:

- The teacher listens to students' ideas about the underhand serving skill and its accuracy.
- A visual aid (flex board) is prepared, illustrating the components of the skill in one corner of the volleyball court. Students focus on key points and categorize their ideas about skill execution and accuracy.
- Students exchange ideas on improving their skill execution and accuracy.
- The teacher enhances mental focus by noting important points on the flex board for students to consider during group discussions in a cooperative learning format.
- When inappropriate observations are made, the teacher helps students refine their focus by setting specific goals. Goal-setting aims to generate ideas and improve focus discipline during the strategy's application.

#### **Research Implementation:**

After completing the preparation phase, the research experiment began with **pre-tests** at **10:00 AM on Monday, February 19, 2024**.

- The pre-tests included the **Productive Thinking Scale** and the **Accuracy Test for Underhand Serving**, with each student's performance recorded.
- Evaluations were conducted by **three assessors** to measure the technical performance of the skill.

The **focus strategy for serious creativity** was then applied to the experimental group, while the control group followed the conventional method as per their regular practical lessons.

- This phase lasted from **Monday, February 26, 2024**, to **Monday, March 18, 2024**, in the closed gymnasium at Al-Mutafawiqeen High School.
- The experiment concluded with **post-tests** conducted on **Monday, March 25, 2024**.

**Data Analysis:**

After completing the experiment, the results were analyzed using the **SPSS** software to calculate:

- Percentage
- Mean
- Standard deviation
- **Levene's test** for variance homogeneity
- **t-test** for independent samples
- **t-test** for dependent samples.

**Results:**

**Table (4)** illustrates the pre-test results between the experimental and control groups.

		Test and Group	nnn	Mean (M)	Std. Dev. (SD)	(Liven)	t	)Sig(	)Sig	iffer
Productive Thinking in Volleyball	Experimental	34	4.956	28.53	34	1.922	0.170	1.125	0.265	sig
	Control	36	3.881	29.72	36					
Performance of the Serving Skill	Experimental	34	1.274	2.12	34	1.444	0.234	0.121	0.904	sig
	Control	36	1.105	2.08	36					
Accuracy of the Serving Skill	Experimental	34	1.998	13.35	34	0.325	0.571	0.24	0.811	sig
	Control	36	2.158	13.47	36					
	Experimental									

The difference is significant if (Sig) > (0.05) at a significance level of (0.05) and a degree of freedom of (68), the unit of measurement is (degree)

Test and group		Test and Group	Mean (M)	Std. Dev. (SD)	(Live n)	(sig)	)t(	(sig)	Difference
Productive	Experimental	Pre	28.53	4.956	12.029	4.957	14.149	0.000	Not significant
			40.56	1.078					
	Control	post	29.72	3.881				0.000	

Thinking in Volleyball			36.31	1.91						<b>Not significant</b>
Performance of the Serving Skill	Experimental	<b>Pre</b>	2.12	1.274	5.941	1.254	27.629	0.000	<b>Not significant</b>	
			8.06	.547						
	Control	<b>post</b>	2.08	1.105	3.75	1.663	13.533	0.000	<b>Not significant</b>	
			5.83	1.108						
Accuracy of the Serving Skill	Experimental	<b>Pre</b>	13.35	1.998	14.441	2.163	38.931	0.000	<b>Not significant</b>	
			27.79	0.77						
	Control	<b>post</b>	13.47	2.158	8.972	2.962	18.178	0.000	<b>Not significant</b>	
			22.44	2.144						

Table (6) shows the post-test results between the experimental and control groups:

Test	Group	nn	Mean (M)	Std. Dev. (SD)	t	Sig	Difference
Productive Thinking in Volleyball	Experimental	34	40.56	1.078	11.382	0.000	Significant
	Group	36	36.31	1.91			
Serving Skill Performance	Experimental	34	8.06	0.547	10.553	0.000	Significant
	Group	36	5.83	1.108			
Serving Skill Accuracy	Experimental	34	27.79	0.77	13.732	0.000	Significant
	Group	36	22.44	2.144			

The difference is significant if (Sig) > (0.05) at a significance level of (0.05) and a degree of freedom of (68), the unit of measurement is (degree)

**Discussion:**

From reviewing the results in Table (5), it is clear that the students in both research groups (experimental and control) showed improvement in their productive thinking in volleyball, as well as their performance and accuracy in the underhand serve skill, in the post-test compared to the pre-test results. When reviewing the post-test comparison results in Table (6), it is evident that the experimental group outperformed their counterparts in the control group across all dependent variables. The researcher attributes these improvements and the experimental group's superior performance to their application of the Serious Creativity Focus Strategy, which helped the students develop productive thinking geared towards enhancing their skill performance and accuracy. This enabled them to approach skill performance and its accuracy



with deeper thinking, supporting the cognitive structure involved in performing the skill. The students were able to assimilate and connect these details to fully execute the skill as required. The instructional scenarios for each exercise were designed to increase the level of this thinking, considering that each situation demanded diverse solutions. This allowed the students to focus on the details of skill performance, while providing feedback to gather, categorize, and analyze ideas. Students were encouraged to prioritize and select the most important ones to meet the educational scenario's requirements. (Kadhim, 2024) The exercises, using this strategy, simulated the actual conditions of the physical education volleyball lesson, facilitating practice and practical application, compared with the model presented through the flex that contains key points on performance details and overcoming common mistakes. (Kadhim, 2023)

Furthermore, reviewing the performance through group dialogue to increase creativity levels in performance helped focus on spatial accuracy, particularly in the fourth unit, which involved many repetitions during practice. The students relied on comparisons to complete the task according to the model presented through the flex, to minimize common mistakes in skill performance and accuracy. This was further supported through collaborative dialogue based on the correct performance criteria for the underhand serve skill. The Serious Creativity Focus Strategy allows for student collaboration, activating their engagement and enabling them to focus on performance details, thus enhancing practical practice and application. The strategy's elements enable students to both perform and evaluate their skill performance alongside their peers, contributing to achieving the lesson's practical goals in a cooperative, creative environment that emphasizes clarity in presentation, boosting their ability to assess their practice and application of the educational exercises based on the strategy, which is fundamental to the observed improvement. (Kazim et al., 2019)

As stated by Al-Qahtani (2021, p. 186), "Utilizing productive thinking in education leads to a deeper and more comprehensive understanding of the content, transforming knowledge acquisition from a passive mental process into an active one. It aids in better comprehension of the content and connecting its components, leading to more precise and novel ideas and results." Similarly, Capranica & Others (2020, p. 165) state, "When diverse ideas and innovative experiences are shared, an environment conducive to innovation in applying volleyball skills is created, where students can draw inspiration from others' ideas to try new and effective methods." Ribeiro & Others (2021, pp. 161-170) note that "The exchange of knowledge and experiences between learners and teachers involves managing and organizing the transfer of valuable knowledge and experiences among the individuals involved in the lesson, whether they are students or teachers." Moreover, Al-Mutrifi (2018, p. 33) mentions that "The roles of the teacher in activating teaching strategies include being a presenter, observer, stimulator, organizer of the learning environment, facilitator of relationships, and a reference for learning and theory-building."

Furthermore, Harvey & Others (2019, p. 485) highlight that "Group discussions can be organized where learners exchange experiences and advice, with instructors guiding the discussion and providing technical supervision. Team performance indicators can be used and regularly assessed to measure continuous improvement and identify areas needing development." Crotty & Others (2018, p. 619) emphasize that "Shared knowledge can bring together various team members, enhancing their integration." Schunk (2012, p. 113) states, "Information processing theorists focus not on external conditions, but on the mind, which is seen as an information processing system responsible for connecting, arranging, and organizing new knowledge in meaningful ways."



Additionally, Al-Kubaisi & Hasson (2014, p. 111) state that "When learning is active, most students do most of the work, using their minds to study ideas, solve problems, and apply what they've learned. Active learning is fast-paced, fun, and engaging—it is a personal immersion in learning something well, helping them listen, see, ask questions, and discuss with others. Most importantly, students need practice—they explore ideas, try skills, and perform tasks based on their current knowledge or what they need to discover." Carmen & Others (2017, p. 42) assert, "Performance thinking leads to the activation of new connections between neurons, facilitating the brain's ability to make new mental processes, allowing the mind to work more efficiently, widely, and effectively."

Moreover, Mustafa (2019, p. 127) explains, "Teaching motor skills requires continuous assessment and feedback. Students' performance is evaluated, constructive comments are provided, and suggestions for improvement are made to enhance their motor and skill development. Active learning in motor skill learning promotes systematic thinking, developing skills in inference, analysis, and critical thinking through experiments, practical activities, analyzing results, and learning from mistakes. It depends on integrating different skills and developing thinking skills, with students guided to develop plans to achieve goals and apply various skills to attain the desired results."

#### **Conclusions and Recommendations:**

1. The productive thinking scale in volleyball is suitable for 4th-year preparatory students and is valid for its intended purpose, with scientific foundations and measurements that ensure its acceptance.
2. The application of volleyball drills based on the Serious Creativity Focus Strategy in practical lessons is appropriate for 4th-year preparatory students.
3. Applying volleyball drills using the Serious Creativity Focus Strategy improves students' productive thinking in volleyball, leading to superior performance compared to peers without it.
4. The application of volleyball drills using the Serious Creativity Focus Strategy enhances the performance and accuracy of the underhand serve skill in volleyball for students who practice it, leading to superior results compared to peers without it.
5. It is essential to incorporate mental measurement, especially productive thinking in volleyball, for each student in practical lessons to support improvement in the performance and accuracy of the underhand serve.
6. It is important not to overemphasize cognitive structure but instead focus on practice and repetition to improve the performance and accuracy of the underhand serve skill through the effective application of the Serious Creativity Focus Strategy in developing the movement programs for this skill and its accuracy.

**Appendix (1) Illustrates the Productive Thinking Scale in Volleyball**

No.	Statement Items	Response Options
		Always Applies to Me
1	I am able to think of the best way to complete the performance and accuracy of the volleyball serve.	
2	I can utilize the information provided by the teacher and peers to complete the performance and accuracy of the volleyball serve.	
3	I find myself capable of overcoming obstacles in the performance and accuracy of the volleyball serve.	
4	I accept ideas that help me complete the performance and accuracy of the volleyball serve.	
5	I find myself distinguished in thinking about how to perform and ensure the accuracy of the volleyball serve.	
6	I possess the ability to predict my results in the performance and accuracy of the volleyball serve.	
7	I can explore new movements that support my performance of the volleyball serve and its accuracy.	
8	I can utilize my previous thinking and information about the performance and accuracy of the volleyball serve when applying new exercises for this skill.	
9	I can perceive the details of the performance and accuracy of the volleyball serve.	
10	I have rational ideas about overcoming common mistakes in the performance and accuracy of the volleyball serve.	
11	I care about listening to my peers' guidance after performing and ensuring the accuracy of the volleyball serve.	
12	I can direct my thinking to correct my performance of the volleyball serve and its accuracy.	
13	I can diagnose my mistakes instantly when performing the volleyball serve and its accuracy.	
14	I am aware of what I perform in the sections of the volleyball serve and its details.	
15	I aim to generate new ideas that facilitate the performance and accuracy of the volleyball serve.	
16	I can evaluate my overall performance of the volleyball serve and its accuracy.	

No.	Statement Items	Response Options
17	I trust my thinking, which makes it easier for me to perform and ensure the accuracy of the volleyball serve.	
18	I can evaluate my peers at each stage of performing and ensuring the accuracy of the volleyball serve.	

### Appendix (2) Illustrates the Tests of Performance and Accuracy of the Underhand Serve in Volleyball

#### First: Accuracy Test of the Serve to a Divided Court (4 Zones) (Abbas et al., 2012, p.33)

- **Objective of the Test:** Measure the accuracy of the underhand serve.
- **Tools:** A volleyball court divided into areas, each marked with a number indicating the score value for that zone, three volleyballs, as shown in Figure (3).
- **Performance Specifications:** The test subject stands in the designated area to perform the serve and must execute the serve legally, ensuring it crosses the net into the court.
- **Conditions:**
  - The test subject performs three warm-up serves before starting the actual test.
  - The test subject completes 10 serve attempts.
  - Foot faults and net errors are scored as zero.
- **Scoring:**
  - The total score is the sum of the points corresponding to the zones where the ball lands.
  - If the ball touches a court line, the higher score of the adjacent zone is awarded. The maximum score is 40 points.
- **Unit of Measurement:** (Points).

#### Figure (1) Illustrates the Plan for the Serve Accuracy Test

#### Second: Technical Performance Test of the Serve (Hassanein, 2001, p.247)

- **Objective of the Test:** Measure the technical performance of the serve.
- **Tools:** A volleyball court and three volleyballs.
- **Performance Specifications:** The test subject stands in the designated area to perform the serve and must execute the serve legally, ensuring it crosses the net into the court.
- **Conditions:**
  - The test subject performs three warm-up serves before starting the actual test.
  - The test subject completes three serve attempts.
- **Scoring:**
  - The performance in the three attempts is evaluated by experts, with the best attempt being considered. The score distribution is as follows:
    - Preparatory phase: 3 points.
    - Main phase: 5 points.
    - Concluding phase: 2 points.
- **Unit of Measurement:** (Points).

#### Figure (2) Illustrates the Plan for the Underhand Serve Performance Test



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## The Reality of Smart Leadership in the Iraqi Basketball Federation in Organizing Tournaments and Matches from Workers' Perspectives

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2058](https://doi.org/10.37359/JOPE.V37(1)2025.2058)

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Article history: Received 19/ March /2024 Accepted 3/ April /2024 Available online 28/ March /2025

### Abstract

This study aimed to identify the level of smart leadership in organizing basketball tournaments and matches from the point of view of those working on its management. A descriptive correlational design was used to guide his study. The limits of the research community are represented by those working on the management of the Iraqi Basketball Federation championships including (head and members of sub-federations, committees, local referees, coaches, and administrators of clubs) for the sports season (2023-2024) in 14 Iraqi governorates, except Kurdistan Region (N = 557). The main research sample is 267 individuals who were selected for application who account for (47.935%) of this community. After determining the measurement tool, the researchers conducted the survey by applying the smart leadership scale in organizing basketball tournaments and matches on the members of the application sample by conducting the main survey on them and directly measuring them in a collective and individual manner for the period from December 3<sup>rd</sup>, 2023 to January 4<sup>th</sup>, 2024. After collecting the data and statistically processing it with the SPSS, the conclusions and recommendations were that the tournaments and matches organizers of the Iraqi Basketball Federation have a positively acceptable level of smart leadership from the point of view of those working on managing the Iraqi Basketball Federation championships. The point of view of those working on managing the Iraqi Basketball Federation championships has achieved an advanced level of organizational intelligence among those in charge of organizing the Iraqi Basketball Federation tournaments that raise the level of smart leadership they have.

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The point of view of those working on managing the Iraqi Basketball Federation championships has achieved an advanced level of organizational intelligence among those responsible for organizing the Iraqi Basketball Federation tournaments that raise the level of smart leadership they have. Raising the level of smart leadership in organizing basketball tournaments and matches requires increased attention to supporting emotional intelligence, according to the point of view of those working on managing the Iraqi Basketball Federation's championships. It is necessary to work to empower those responsible for organizing the Iraqi Basketball Federation championships to raise the level of emotional intelligence because of its importance in raising the level of smart leadership for them. The Iraqi Basketball Association needs to take care in accrediting qualified academics specialized in sports management, adopting opportunities to develop the capabilities of those responsible for organizing the Iraqi Basketball Federation championships.

**Keywords:** Smart Leadership, Tournaments Organization, Iraqi Basketball Federation

### Introduction

Empowering others to be able to do what is necessary in the right way at the right time, cultural and cognitive capabilities that the leader must possess including knowledge, science, behavioral and social skills, and experiences in communication and positive communication with those around him/her, and that big dreams do not turn into a wonderful reality through one person, leadership is a collective effort and exemplary leaders enable others to act, they promote cooperation, build trust and enable others to do good work. (Abdul Raheem, 2015, p. 2). Leadership is defined as "the social roles or functions that the individual (leader) uses during his/her interaction with other members of the group, and the leader is known for his/her power and ability to influence others and direct their behaviors to achieve the group's goal, by improving social interaction among members, maintaining group cohesion and facilitating resources for it, or exerting influence by one member of a group or organization over other members to help a group or organization achieve its goals." (Siham, 2018, p. 22). Leadership is also defined as "the process of moving individuals toward a goal, and it is the process of influencing people and directing them to achieve the goal." (Marwan, 2016, p. 2)

Smart leadership is defined as "the joint dialogue between the leader and his/her followers in order to achieve the common vision for the future of the organization and set goals, effectively, and this process takes place within one organized team that shares the same organizational values and culture.



This process is also affected by the general environment surrounding the administrative formation or it is the leadership style that is based on designing an effective organizational structure and directing administrative bodies to achieve their goals through participatory leadership and social intelligence, taking into account the culture of administrative body and individual capabilities or a set of basic skills that the leaders follow in smart administrative bodies. The first skill of these is risk avoidance and proactivity in order to achieve the requirements of stakeholders of the organization, preventive thinking, personal responsibility, recognition and correction of mistakes. (Saja, 2016, p. 36)

"The word (intelligence) in Arabic includes discernment and kindling, as it is derived from the verb "get smart" and "someone gets smart" means increased understanding and kindling or increased cognitive mental powers for him/her." (Khalil, 2010, p. 111)

"Individuals differ in the amount of intelligence that they are born with, as well as differ in the nature of the intelligence they possess, and differ in how they develop their intelligence as most individuals take a path according to the combination of types of intelligence to solve different problems. The smart individual is characterized as he/she faces the problems encountered in life by the following: (Green, 2015, 49)

1. The most alert, the quickest to understand than others.
2. The most able to learn, the fastest in it, and the most able to apply what he/she has learned to solve problems.
3. The most able to perceive among objects, words, and numbers of relationships.
4. The most capable of innovation, good behavior, and making alternatives to achieve his/her goals.
5. The most able to foresee the results of his/her work.

Thus, smart leadership is defined as "the set of skills that the leader possesses that help him/her to preventive thinking and avoiding risks, and to be proactive to achieve the requirements of the working interest of his/her administrative body, and to assume personal responsibility for all events." (Susan, 2019, p. 22)

Leadership sport is defined as "the process by which a member of an organized sports group directs the behavior of athletes or members of a sports group to push them with a sincere desire toward achieving a common goal among them." (Mohammed, 2005, p. 16)



The concept of sports leadership does not differ from the general concept of leading individuals in any other administrative body, except for the nature of privacy according to the type of sports administrative body and the arrival of this leader in the administrative position that gives him/her the authorities through which he/she can demonstrate the traits and characteristics of his/her leadership for this administrative body.

The researchers define sports leadership as a kind of influential relationship that links the head of the sports administrative body with subordinates and needs personal characteristics that enable the leader to strongly influence subordinates. Also, when dealing with the content of smart leadership, despite the different opinions that dealt with the study of human intelligence in that a high percentage of it is determined by the inherited natural predisposition, but the environment, the nature of the assignment of work, and the responsibility assumed by the federation contributing to the management of tournaments require improving intelligence to meet the requirements of sports administrative work.

Intelligence, in its vital role, is considered inherent to leadership and a major requirement for it, because of the role of the intelligence in wisdom and sophistication to control the variables of events, formulate goals, formulate policies, and plan the necessary to manage the work in the sports institution,

It is necessary to pay attention to the workers responsible for organizing local tournaments and matches and support this interest by studying the variables relevant to the various aspects of their work including smart leadership in organizing basketball tournaments and matches, to achieve cooperation, participation, and interest that leads to innovation, and to face challenges and events in order to achieve the ambition of the Federation. This can only be done through the cohesion and stability of individuals in the application of regulations and laws and good performance to achieve the goal, the optimal utilization of available resources, and achieving the best organization by paying attention to those working on the management of tournaments to increase their efficiency to reach an appropriate competitive environment in which all the elements for success are available. All this must or requires the coherence of smart leadership that must be characterized by those working on organizing tournaments and matches, as local tournaments are subject to laws, regulations, dates, and timings that require them to be communicated, clarified or informed to all those concerned with these tournaments, and those



in charge of managing them may assume the bulk of the responsibilities and abide by internal laws and regulations.

As well as following up and communicating changes in regulations and amendments to laws during the duration of competitions, or sudden events with changes in circumstances that lead to changing dates, which requires continuous work to improve the level of organization through academic administrative and sports support.

A study was conducted (Hana Khaled Al-Raqqad and Aziza Abu Dayyeh) titled (Emotional Intelligence among Academic Leaders in Jordanian Public Universities and its Relationship to Organizational Citizenship Behavior among Faculty Members), which aimed to identify the degree to which academic leaders in official Jordanian universities practice emotional intelligence and its relationship to their organizational citizenship behavior. To achieve the objective of the study, the questionnaire was used to measure the emotional intelligence of academic leaders, and to measure the organizational citizenship behavior of faculty members. The study was conducted on a sample of all academic leaders at the University of Jordan, Yarmouk University, and Mutah University, by (288) and (7373) faculty members at the University of Jordan, Yarmouk University and Mutah University who were randomly selected. The study included an independent variable which is the degree to which academic leaders practice emotional intelligence, a dependent variable which is the degree to which faculty members practice organizational citizenship behavior, and a mediating variable which is the workplace.

The study results revealed a high degree of availability of emotional intelligence among academic leaders in public Jordanian universities, as well as a high degree of availability among faculty members for organizational citizenship behavior in Jordanian public universities. The results also displayed a statistically significant positive correlation between leaders' practice of emotional intelligence and their organizational citizenship behavior (Hana & Aziza, 2012).

A study was also conducted (Fouad Hammoudi Al-Attar, Hazem Rabh Najm Al-Ghunaimawi, and Jassim Rahi Kazim) entitled (Smart Leadership and Its Role in Achieving Organizational Prosperity: An Analytical Study in the Wasit Health Department), which aimed to identify the influence of smart leadership in dimensions represented (emotional intelligence, spiritual intelligence, rational intelligence) in achieving organizational prosperity in dimensions



represented by (innovation, intellectual capital, organizational agility) in the Wasit Health Department. A descriptive correlational design was used in this study. A sample of employees was selected in the Wasit Health Department, and the researchers used a questionnaire for data collection. The researchers handed out 44 questionnaires; of which 40 ones were valid for analysis. The researchers concluded there is a lack of a significant effect of emotional intelligence in organizational prosperity, the top management in the administrative body neglected the employees by not involving them in the decision-making process and its implementation, and the low ability of top management to form the participants to support and develop smart leaders to achieve a distinguished level of organizational prosperity (Fouad et al., 2020).

The importance of smart leadership lies in "creating, sustaining, inspiring the vision, and implementing this vision in partnership with the team. This type of leadership contributes to solving many of the problems left by the industrial era in the world, and this new model of leadership helps to solve huge problems, whether economic, political, technological, and other than what we face today." (Mcshane & Von, 2008, p: 104)

The importance of smart leadership can also be clarified by its interest in "the future of human society in organizations and the maintenance of the basic processes of the desired change in order to shape the future through joint leadership with employees and the development of knowledge for the purpose of developing and improving the basic capabilities of employees by introducing improvements in the culture of administrative body to implement the changes necessary to achieve its goals."

Smart leadership is also a vital process for managing the organization, which results in significant effects on the behavior of the individual and helps him to think soundly, organized and creative, in a way that achieves a competitive advantage for the organization, so it is necessary for organizations to pay attention to the role of smart leadership in the decision-making process." (Chase & Jacobs, 2011, p: 10)

Hence, the importance of this study lies in the following two directions: The first direction: the necessity to know the reality of smart leadership in organizing basketball tournaments and matches, and then provide scientific support to increase their adequacy, to overcome or face difficulties based on providing a theoretical framework from the current study. The second



direction: seeking to provide results and recommendations for that support and assistance, which may contribute to upgrading the organization of basketball tournaments and matches to better levels that keep pace with modernity in the organization adopted in the progress in the field of global sports management.

As the workers in organizing local basketball championships seek to continue excellence and with intelligence in leading and managing these championships, as the members of these sports administrative bodies aim at the same time to enhance the lead of the level of teams in international competitions later, and that the nature of the work and objectives of these workers go parallel to the availability of smart leadership of the vision of the Basketball Federation in organizing local tournaments. The researchers noted the need to support smart leadership to organize tournaments this federation holds, as it is impossible to predict the level of availability among those responsible for them unless they subject to objective diagnostic measurement according to the determinants of measurement and evaluation in sports sciences. Therefore, reaching the scientific truth requires working on building measurement tools to apply the methodology and the necessary steps. This measurement must be based on the determinants of accurate diagnosis of what the formations of the Iraqi Basketball Federation require to know the actual reality of the phenomenon and then explore the strengths and weaknesses of several related areas, to ensure the continuity of the development of leading tournaments that require those working on them to deal efficiently represented by expertise, capabilities, and administrative skills and optimally employ them to solve problems or events arising on the functioning of the tournament system by scientific methods.

Thus, the research problem lies as researchers' attempt to answer the question of what is the reality and level of smart leadership in organizing basketball tournaments and matches among those in charge of organizing them from the point of view of workers? This study aims to identify the level of smart leadership in organizing basketball tournaments and matches from the point of view of those working on its management.

### **Methods and Materials**

A descriptive correlational design was used to guide this study. The limits of this study community are represented by those working on the management of the Iraqi Basketball Federation championships, represented by (the head and members of the sub-federations,

committees, local referees, coaches, and administrators of clubs) for the sports season (2023-2024) of (14) Iraqi governorates, except for the governorates of the Kurdistan Region of Iraq, whose total number is (557) individuals, as displayed in Table (1):

**Table 1. Description of study population**

Study population	Description of the details of the distribution of community members representing the total research sample						
	Head and members of the sub-federations	Central Referees Committee	Central Competitions Committee	Central Information Committee	Local referees	Teams coaches, their assistants, and managerial	total
Tournaments leadership workers	53	3	5	6	90	400	557
Percent	9.515%	0.539%	0.898%	1.077%	16.158%	71.813%	100%

Some fractions of percentages are rounded

As they were randomly selected for the poll sample (20) individuals (3.591%) from their total community of origin represented by the various formations of workers working on the management of the Iraqi Basketball Federation championships. It was also chosen for the main application sample, whose members are determined by the methodological procedures by applying the scale under research to find solutions to the current problem studied, as their number reached (267) individuals (47.935%) of the original community. Khairiya (2023) scale for smart leadership, specialized in the subject of the research and its sample, was adopted, to which the foundations and scientific processes were conducted for a sample of the same

community, and it did not exceed (6) months, as displayed in Appendix (1) and its structure is shown in Table (2).

Table 2. Structure of the smart leadership scale in organizing basketball tournaments and matches in its final form

Scale subdomains	No. of items	Alternatives	Correction key	Total degree extremes	Hypothetical mean
The intelligence of rational wisdom	7	Agree always, Agree sometimes, Do not agree	3 2 1	7-21	14
Strategic Intelligence	7			7-21	14
Organizational Intelligence	7			7-21	14
Practical intelligence	7			7-21	14
Emotional intelligence	7			7-21	14
Total	35			35-105	70
The scale contains (4) guiding instructions to answer the paragraphs					

The researchers conducted the survey by applying the smart leadership scale in organizing basketball tournaments and matches, on the members of the application sample specified in (267) individuals represented by those working on the management of the Iraqi Basketball Federation championships for each of (the head and members of sub-federations, committees, local referees, coaches of clubs, and administrators). By conducting the main survey on them and measuring them directly in a collective and individual manner by investing their presence in the Iraqi Basketball Federation, with the cooperation of its administrative formations in completing the task of researchers. This survey continued for the period from December 3<sup>rd</sup>,

2023 to January 4<sup>th</sup>, 2024, and after each respondent finished his answer, the paper scale forms were withdrawn from him, and then the following steps were taken:

First Step: Calculating the weight score of each item for the selected alternative by means of the triple correction key for the scale items.

Second Step: Collecting the scores of the weights of the items to identify the total score of the field separately from each other, and the total score obtained by the respondent individual in the scale.

Third Step: Tabulation of scale data in special paper forms in preparation for statistical treatments.

### Statistical measures

Data were analyzed using the statistical package for social sciences (SPSS) IBM for Windows, version 26. The frequency, percent, arithmetic mean, standard deviation, and independent-sample t-test were used.

### Results

Table 3. The results of comparing the arithmetic mean with the hypothetical mean of the scale

Application sample number	No. of items	<i>t</i>	Total degree	Hypothetical mean	Arithmetic mean	Std. dev.	Mean difference between means	Sig.	Sig.
267	35	105	70	79.24	11.211	9.24	13.467	0.000	Sig.

The difference is significant when  $p < 0.05$  with a degree of freedom  $(n-1) = 266$  with a significance level of 0.05, the measurement unit is degree

Table 4. Results of comparing the arithmetic mean with the hypothetical mean for each range of the scale

Subdomains	No. of items	Total degree of	Mean	Arithmetic mean	Std. Dev.	Mean difference	<i>t</i>	Sig.	Inf.	Order
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		subdoma in								
The intelligence of rational wisdom	7	21	14	15.54	2.14	1.54	11.753	0.000	Sig .	Third
Strategic Intelligence	7	21	14	15.68	2.25	1.68	12.187	0.000	Sig .	Second
Organizational Intelligence	7	21	14	18.72	1.949	4.72	39.534	0.000	Sig .	First
Practical intelligence	7	21	14	14.76	2.386	0.76	5.206	0.000	Sig .	Fourth
Emotional intelligence	7	21	14	14.55	3.056	0.55	2.924	0.004	Sig .	Fifth

Statistical difference is significant when p-value is  $< 0.05$  with a degree of freedom of  $(n-1) = 266$  and a significance level of 0.05 and a measurement unit (degree)

### Discussion

Referring to the results of the scale in Table (3), it is clear that the positive level of smart leadership in organizing basketball tournaments and matches appears from the point of view of the application sample of workers in the management of the Iraqi Basketball Federation championships, represented by (chair and members of sub-federations, committees, local referees, coaches of clubs, and administrators).

It is noted from the results of Table (4) that the opinions of the application sample display that the arithmetic means of all five subdomains exceeded the values of the hypothetical mean for each of them, which means that the level of the subdomains of the intelligent leadership scale in organizing basketball tournaments and matches were positive for the required level of all of them. So, (Kadhim, 2023) the results indicate that the difference higher than the comparison between the hypothetical mean and the arithmetic mean of these areas topped by the field of organizational intelligence ranked first in these positive results. The lowest difference was for



the subdomain of emotional intelligence, which ranked fifth, and none of these five subdomains witnessed a weakness in the level. The researchers attribute the emergence of these results to the fact that the answers of the members of the application sample were attracted to their agreement always about considering those responsible of managing tournaments and matches the various material capabilities available in the implementation of the annual curriculum for managing competitions, and they always set a timetable that suits its implementation to enable them to control the follow-up of the workers' tasks in implementing the annual curriculum for competition management with feelings of friendliness toward workers who do not agree with them in implementing the items of the annual curriculum for competition management. They always rely on a database when setting realistic to implement the annual planning for the management of competitions, and sometimes agree that those in charge of managing tournaments and matches take into account the capabilities of workers in implementing the annual curriculum for competition management, and assume the responsibilities entrusted to them in implementing the items of the annual curriculum for competition management. These different trends helped in the emergence of the positive level of smart leadership in organizing basketball tournaments and matches from the point of view of the application sample of workers managing the Iraqi Basketball Federation championships. Many research and studies have confirmed that "the long-term success of administrative bodies requires them to possess smart characteristics at the organizational level, and these characteristics must be characterized by leadership and precedence over others" (Siriwardanagea & Oduor, 2010). It is also "important for the leader to have leadership qualities, and there is no doubt that the acceptance and satisfaction of subordinates with their leader stems from his/her possession of leadership qualities and skills, which are the secret to effective leadership." (Tariq, 2002, p. 18)

"Listening is a direct reason for communication and building trust between the leader and subordinates based on the subordinates' perception of their leader's behavior, which displays attention, interest, and good prophetism toward them, because if the subordinates realize that their leader is listening, they will be more likely to sense communication between them and contribute to building harmonious relations between the two parties" (Khorakian & Other, 2018, p:219). "Predicting the future, rapid changes, and intense competition are what make it more difficult to predict administrative results of what will be the case in the future, and



administrative formations in order to achieve leadership, they must have flexibility, leadership, and culture" (Bilal, 2011, p. 99). Moreover, "influence is the focus of the leadership process, which is based on the conviction of subordinates, rather their fear or submission to an individual or his/her authority, (Jawad Kadhim, M., & Salman Ahmed, 2016) and it is necessary to accept from those who exercise the leadership role (leader) and from individuals (subordinates) who have agreed that the leader exercises the role of leadership at a certain time and situation" (Salah, 2008, p. 136).

The researchers also attribute the emergence of the results of the lower difference for the subdomain of emotional intelligence, which ranked fifth, to the fact that the answers of the members of the application sample were attracted to their agreement sometimes those in charge of managing tournaments and matches avoid making any decision at the moment of their emotion, sometimes they remedy their emotions with deliberation when making decisions, sometimes they understand the mistakes of those working on the implementation of the competition management curriculum by directing them immediately, (Kadhim, 2024) and sometimes they face complex problems when solidly applying the annual competition curriculum. They need attention to alleviate the emotions of workers in various difficult situations and to build beliefs of tolerance and assimilation among those working to manage the application of the annual curriculum for competitions and to examine the implementation of decisions adopted in quick and difficult situations for evaluation. These different trends helped reduce the positive level of smart leadership in organizing basketball tournaments and matches from the point of view of the application sample of those working on managing the Iraqi Basketball Federation tournaments. "The continuous interaction of the individuals with their external environment earns them certain relationships with things, phenomena, and events, which makes their lives filled with various emotions of joy and pleasure, awe, fear, anger, and hatred.

Emotions arise through the individuals' interaction with the experiences to which they are exposed, as they cannot be repelled or stopped, although they may cause the individuals to feel unable to control and control behavior." (Mohammed, 2009, p. 193) "Emotion management is represented by the individuals' ability to control their feelings and negative reactions, the high levels of self-confidence, their objective honesty, their ability to assume responsibility for their



job performance, their ability to deal with environmental and societal variables and adapt to them, and their ability to accept new and creative ideas."

These abilities express themselves in the individuals' ability to control their reactions and emotions, these emotions are like the wind that drives the ship, and may expose it to danger sometimes, but the ship does not move without it, meaning if individuals can learn how to control their emotions and feelings, and control them, they have come a long way by organizing their emotions (themselves) and have the possibility of living life (Salama & Taha, 2006, p. 60). Also, "leaders must adopt a system of vigilance in observing others' emotions, which is one of the characteristics of a successful leader to raise the competitive advantage of administrative formation" (Adeleke, 2013, p: 4). As "the perception of these feelings reactions of the individuals and their responses to different situations and their influence on their decision-making process and includes the dimension of the individuals knowledge of their strengths and weaknesses, (Kadhim & Mousa, 2024) who do not know themselves for what they are, cannot judge the behavior of other individuals. In other words, individuals should have sufficient knowledge of their feelings, motives, and emotions so that they can understand others. Emotionally intelligent leadership significantly contributes to providing a good organizational climate that encourages employees to do their utmost to improve the level of performance of the administrative formation as a whole. Enthusiasm leads to higher employee performance, and management formations whose leaders have emotional intelligence skills achieve higher effectiveness than others." (Salama and Taha, 2006, p. 60).

### **Conclusions and Recommendations**

In light of the findings of the current research, the following conclusions and recommendations were reached:

1. Those responsible for organizing the tournaments and matches of the Iraqi Basketball Federation have a positively acceptable level of smart leadership from the point of view of those working on managing the Iraqi Basketball Federation championships.
2. The point of view of those working on managing the Iraqi Basketball Federation championships has achieved an advanced level of organizational intelligence among those responsible for organizing the Iraqi Basketball Federation tournaments that raise their level of smart leadership.



3. Raising the level of smart leadership in organizing basketball tournaments and matches requires increased attention to supporting emotional intelligence, according to the point of view of those working on managing the Iraqi Basketball Federation's tournaments.
4. It is necessary to work on empowering those responsible for organizing the Iraqi Basketball Federation tournaments to raise the level of emotional intelligence because of its importance in raising the level of smart leadership in them.
5. It is necessary to work to support those responsible for organizing the Iraqi Basketball Federation championships by involving them in the leadership preparation courses held by the Scientific Welfare Department at the Ministry of Youth and Sports.
6. The Iraqi Basketball Federation must pay attention to relying on qualified academics specialized in sports management, adopting opportunities to develop the capabilities of those responsible for organizing the Iraqi Basketball Federation championships.

**Appendix 1. Displays the scale of intelligent leadership in organizing basketball tournaments and matches**

**First: The intelligence of rational wisdom:**

Item	Always agree	I agree sometimes	I don't agree
The organizers of tournaments and matches are working to bring the views closer to agree on the vision.			
The organizers of tournaments and matches help meet the needs of maintaining tasks within the basketball competition hall.			
The organizers of tournaments and matches contribute to the formation of positive beliefs among various employees.			
The organizers of tournaments and matches act wisely with objections to the various facts of events.			
Organizers of tournaments and matches avoid quick judgments on available evidence by adopting the best possible means to verify it.			
Organizers of tournaments and matches study the expected events to develop proactive treatments to reduce their occurrence.			
The leaders of the organizers of tournaments and matches have the qualifications to apply rational wisdom.			



<b>Second: Strategic Intelligence:</b>			
The organizers of tournaments and matches believe in the participation of everyone in the strategic decision-making process.			
The organizers of tournaments and matches study the process of strategic decision-making before implementing its application.			
The organizers of tournaments and matches determine the responsibilities of each of the employees to implement the strategic decision.			
The organizers of tournaments and matches work to implement the annual curriculum of the competitions in an atmosphere of employee satisfaction.			
Organizers of tournaments and matches are shy away from speculating on the responses of workers in different circumstances.			
Tournament organizers and matches continue to be responsible without delay when faced with a difficult situation.			
Organizers of tournaments and matches are able to reconcile different opinions when making decisions.			



<b>Third: Organizational Intelligence</b>	<b>Always agree</b>	<b>I agree sometimes</b>	<b>I don't agree</b>
The organizers of tournaments and matches take into account the various financial resources available in the implementation of the annual curriculum for the management of competitions.			
The organizers of tournaments and matches set a timetable suitable for the implementation of the annual curriculum of competitions.			
The organizers of tournaments and matches take into account the capabilities of workers in implementing the annual curriculum for managing competitions.			
Those in charge of organizing tournaments and matches are able to control the follow-up of the tasks of workers in the implementation of the annual curriculum for managing competitions.			
Those in charge of organizing tournaments and matches express feelings of affection towards employees who do not agree with them in implementing the vocabulary of the annual curriculum for competition management.			
The organizers of tournaments and matches have the responsibilities entrusted to them in implementing the vocabulary of the annual curriculum for the management of competitions.			
Organizers of tournaments and matches rely on a database when setting realistic goals for the implementation of annual planning for competition management.			
<b>Fourth: Practical Intelligence</b>			
The organizers of tournaments and matches deal logically with realistically various unforeseen events in the management of competitions.			
The organizers of tournaments and matches distribute responsibilities fairly among employees when implementing the management vocabulary of the annual curriculum of competitions.			
Organizers of tournaments and matches accept the logical perspectives of employees to develop the various capabilities required for the success of competition management.			
Organizers of tournaments and matches discuss emergency problems with employees flexibly.			
I trust the fairness of those in charge of organizing tournaments and matches when dealing with those			



working on the management of the application of the annual curriculum for competitions.			
	Always agree	I agree sometimes	I don't agree
Organizers of tournaments and matches understand the feelings of those who manage the application of the annual curriculum of competitions to control them in various situations.			
Those in charge of organizing tournaments and matches are characterized by logical tolerance for some of the mistakes of those working on the management of the application of the annual curriculum for competitions.			
<b>Fifth: Emotional Intelligence:</b>			
Organizers of tournaments and matches avoid making any decision at the moment of their emotions.			
Organizers of tournaments and matches manage their emotions with deliberation when making decisions.			
Those in charge of organizing tournaments and matches understand the mistakes of those working on the implementation of the competition management curriculum by directing them immediately.			
Those in charge of organizing tournaments and matches are interested in alleviating the emotions of workers in various difficult situations in the management of competitions.			
Those in charge of organizing tournaments and matches are interested in building beliefs of tolerance and assimilation among those working to manage the application of the annual curriculum for competitions.			
Tournament and match organizers face various complex problems when applying the annual competition curriculum rigorously.			
The organizers of tournaments and matches study the implementation of decisions made in quick and difficult situations to evaluate them.			



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## Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2222](https://doi.org/10.37359/JOPE.V37(1)2025.2222)

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**Article history:** Received 18/ October/2024 Accepted 2/ December/2024 Available online 28/ March /2025

### Abstract

The aim of the research is to: Get to know Effectiveness of using technology judgment (VAR) in football from the point of view of Iraqi Premier League referees for the 2023-2024 season To identify the extent to which governance technology contributes (VAR). The researcher used the descriptive approach in the research procedures as it is an appropriate approach. To achieve research objectives, Questions were raised Is purification a rule? (VAR) It was effective in the development of the Iraqi Premier League, is it purifying the referee? (VAR) She had a positive interaction with the match referees. be a scale Effectiveness of using technology judgment (VAR) from 10 poverty at When he reached the research community consisted of 400 judges in the Iraqi judiciary. The exploratory experiment amounted to 50, representing 12.5% of the total sample, while the research sample amounted to 200, representing 50% of the total sample. Researchers concluded the rule of technology (Var it had a positive impact on developing the Iraqi Premier League, and it also helped referees develop their level of knowledge in how to make decisions. It also helped in giving confidence to referees in managing difficult matches that have a great deal of intensity in their football atmosphere. It helped players in reducing violent interventions that are difficult for the referee to watch due to the speed of the matches. The researchers recommended Develop technical judgment (Var) And its workers, providing the necessary infrastructure for it, and developing legal knowledge related to technology. Var, referees introduce technology Var Intensive courses and workshops to develop the electronic aspect, include it in the academic curriculum, especially in the faculties

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of physical education and sports sciences, and provide technical courses. Var Inside Iraq by the Iraqi Football Association. Educating the Iraqi public with knowledge about the technology Var.

**Keywords:** VAR Football referees, Iraq Premier League

## Introduction

Football has recently developed significantly in all areas., Because the game has become fast and requires many technical matters, including technical matters to deal with the situations that occur This is it Apart from the matches that are a decisive factor in the game, most countries in the world He did Tech dish (VAR) had a positive impact on developing the game and making its competitive spirit run smoothly. VAR technology is one of the best innovations that facilitated the game's progress in the right way. It helps referees make important fateful decisions by referring to the video to avoid anything that could affect the outcome of the match, such as calculating penalty kicks, expulsion and offside cases, and reviewing the situation closely more than once before making a decision. Football refereeing has its own requirements, especially to help it keep pace with the developments that occur within the match. I became The game has a speed of performance, if it is relied upon in big matches as well as for some countries on (VAR) in solving some problems in arbitration, And it can Saying that system VAR, Which was done Mention it In a way frequent in ball foot Global in Recently The last one is one from Most important Technologies Systems used in Organizations ball foot a lot To the point that system VAR he system Technology guarantees return The Rulers to decision Correct from during to watch Decisions Wrong that It was completed Take it During the match on Screen time Other, Therefore protection The difference from Damages Materialism And moral that may Speak, it's technology. VARI raised Questions A lot of what he types from Benefit From him and what will be she has on ball foot or what she the effects that It will be It has rulers. ball foot gesticulates she Changes that Decisions will happen The Rulers Iraq used the technology (VAR) has recently been used in the Iraqi Premier League for the 2023-2024 season, and it is in a state of development in terms of preparing development and training programs and courses for referees to integrate this technology with other countries. If it becomes one of the most important factors in the success of international leagues as well as in the tournaments held by (FIFA)..If Iraq becomes one of the countries to which the technology has been added (VAR) Recently, This contributed to Make the Iraqi Football League The More views Whether locally or abroad, the Iraqi Premier League has become of great importance in Arab countries due to the developments in the infrastructure of stadiums, the introduction of electronic systems in television broadcasting, and the addition of high-tech cameras. All of this has helped other countries turn to this more than good experience in the rise of the Iraqi Premier League. In addition, to that, this is the research will work to identify the aspects Of importance in how deal Rulers ball foot according to technique (VAR), and what is it? Part Most importance in system VAR, which will Adapt with this order, And the workshops Presenter For the rulers from before Union Iraqi For



the ball The foot that contributed to the introduction of technology (VAR), How to Reviews and Ratings Rulers ball foot About the system VAR existing,

**goalA Search:** Scale setting Effectiveness of using technology judgment VAR) in football from the point of view of Iraqi Premier League referees for the 2023-2024 season To identify the extent to which governance technology contributes (VAR). Get to know effectiveness of using technology judgment VAR) in football from the point of view of Iraqi Premier League referees for the 2023-2024 season Research problem: Is the technology of governance (VAR) It was effective in the development of the Iraqi Premier League; is the refereeing technology (VAR) She was supportive with the match officials.

### Previous studies

- 1- **study Jochim Spitz et al. (2021) entitled "The Impact of Technology on Video Assistant Refereeing (VAR) on decision-making in the Football Referees Association** The research aims to suggest the use of technology to improve decision-making in sports officials. The research aims to implement the video assistant referee (VAR) VAR) In football, one example of how technology can be used to assist decision-making, although its impact is still unknown. In 2,195 competitive football matches in 13 countries, the video assistant referee (VAR) conducted 9,732 checks for potential match-changing incidents. Of the sample, 795 showed that the predictive probabilities of making the correct decision after intervention were VAR was significantly higher than the initial referee decision, with accuracy increasing from 92.1% to 98.3%. The results have implications for the current debate about the introduction of technology in football and may help to establish guidelines regarding the use of technology across other sporting and professional fields.
- 2- **The study of "Lago Peñas Carlos" (2019) entitled "How does the Video Assistant Referee (VAR) modify the game in elite football?" aimed to identify how the introduction of the VAR system affects the game in elite football. The sample consisted of 1024 matches played in the Italian League and the German League during the season before and after the implementation of the VAR system. The following variables were recorded for each match: fouls, goals, offsides, penalties, playing time in the first half, playing time in the second half, total playing time, red cards and yellow cards. Match statistics were obtained from the website. (www.whoscored.com) (Whoscored") A generalized linear model and a paired z-test were used to compare seasons before and after the implementation of VAR. There was a decrease in the number of fouls, errors and yellow cards after the implementation of VAR. Meanwhile, there was an increase in the number of minutes added to playing time in the first half and the full match, but not in the second half. These results may help coaches, players and managers to better understand the effects of VAR on professional football and identify strategies to improve match refereeing.**
- 3- **The study of "Kabai Alliance, Paul Larkin, Abel Torriola" (2021) entitled "The Impact of Video Assistant Referee (VAR) on Match Performance Variables in Men's FIFA World Cup Championships" aimed to identify the impact of Video Assistant Referee (VAR) on match performance variables in FIFA World Cup championships, where VAR technology was used, and those played during the 2014 World Cup (n = 64)**

where VAR technology was not used. The following performance variables were recorded and analyzed for each match played: goals, penalties, corner kicks, yellow cards, red cards, offsides, playing time during the first half, playing time during the second half, and total playing time. After the introduction of VAR technology, there were significant increases in the number of penalties. In addition to playing time during the first and second half and total playing time. In contrast, a significant decrease in the number of offsides was observed after the implementation of VAR. The current results have practical implications for improving the guidelines for the implementation of video assistant referees in FIFA World Cup competitions.

4- **A proposed study to develop the performance of the video assistant referee (VAR) technology in the Prince Mohammed bin Salman Cup for Professionals.**

The aim of the research is to propose a study to develop the video assistant referee (VAR) technology in the Prince Mohammed bin Salman Cup for Professionals through developing and qualifying both (qualifying the video assistant referee (VAR referee), beneficiaries of the VAR technology, tools and devices for the VAR technology) in the Prince Mohammed bin Salman Cup for Professionals. The researcher used the descriptive approach with the analytical method. The researcher selected the research sample randomly from those working and interested in the field of football in the Saudi Arabian Football Federation and some in the Kingdom of Saudi Arabia, where the sample size reached (244) individuals, and the size of the basic sample reached (214) individuals while the size of the exploratory sample reached (30) individuals who were selected from within the research community and from outside the basic sample of the research. The most important results of the research were:

- 1- Develop plans and programs to qualify the video assistant referee.
- 2- The Saudi Football Federation is partnering with other federations to qualify the video assistant referee.
- 3- The Federation provides an electronic portal that provides guidelines, support and training on video assistant referee technology (VAR).VAR) with different patterns of beneficiaries.
- 4- The Federation provides technicians, administrators and technicians to clarify the role and responsibilities of the video assistant referee technology (VAR).VAR) for beneficiaries.

5- **The study of "Ghafar Saad Issa" (2011) entitled "The effect of arbitration courses in evaluating the performance of football referees"** with the aim of identifying the level of modernity and clarifying the information and negative and positive aspects of the course that the participants in the course receive. The researcher used the experimental method and the sample size was 16 referees and they were chosen in an organized manner and the most important results were that the arbitration courses contributed to the emergence of significant differences.

6- -6 The study of "Aziz Al-Sharif" (2016 AD) entitled "A proposed administrative organization for the professionalization of football referees in the Kingdom of Saudi Arabia" with the aim of identifying the importance of the professionalization of Saudi referees. One of the most important conclusions recommended by the researcher was convincing the higher authorities in the state of the importance of having an official



position in the Ministry of Civil Service with the title of professional football referee, similar to the professional player, and starting privatization, which creates great opportunities for marketing and sports investment for referees.

- 7- 7. Study "Mohammed Adam 2019m titled "reality Use Technologies Modern in administration And refereeing matches ball foot In the league Sudanese Excellent", With the aim of Recognition on reality Use Modern technologies in administration And arbitration Matches ball foot In the league Sudanese Excellent, use researcher Descriptive approach And he reached size Sample 60 trainer from Rulers Premier League And it was from Most important Results that Benefit from Technologies Modern in clarification The Q I saw And analysis Results For all Participants Without loss Make mistakes easy Technology on Viewers And followers to understand decisions Arbitration. Which Contributes in love And the spread of play, Technologies Modern Contribute in justice Competition, Technologies Modern in ball foot Reduce From the riot that It is happening a result For some Errors Arbitration.

**Search procedures**

**Research community:** The research community consists of football referees of the Iraqi Football Association.

**Research sample:** The researcher selected the research sample randomly in the field of football in the Iraqi Federation, and the sample size reached 400) Ruling, The basic sample size was (200) to rule for Football in the Iraqi Federation. Kamal in Table 1.

**Table 1 shows the research community, the exploratory experiment, and the research sample.**

Scale	Research community	Exploratory experiment	percentage	Research sample	percentage
Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season	400	50	12.5%	200	50%

**Exploratory experiment**

The researchers distributed the scale form consisting of 20 items to a sample outside the research. The number of 50 and a percentage of 12.5%, with the assistant team (Appendix 4) to know the following: -

- 1. Ease and difficulty of paragraphs.
- 2. Time taken to answer the paragraphs.
- 3. The right tools to fill out the form.
- 4. Form distribution mechanism.

The researchers concluded through the exploratory experiment that all paragraphs (1, 2, 3) were appropriate. However, the mechanism for distributing the form faced difficulty in distributing it. Therefore, the researchers distributed the form electronically to the main experiment sample by creating a form using the program (google form) And send the form link electronically through the program (WhatsApp), to the referees (by one of the members of the assistant work team, as he is a referee and a lecturer at the college (Mr. M. Laith Farhan Faraj).

**Scientific basis of the scale:** Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season

**First: The experts' truthfulness:**

The researchers used the following methods (a form to determine the validity of paragraphs of Arabic and foreign sources, a data entry form, and statistical methods specific to the study). Specify Measure of effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season on The way to conduct a survey of previous studies, if the scale is from (20 Poor Rah) (Appendix 1) The answer alternatives included a five-point Likert scale (very large, large, medium, small, very small) for the scale. The scale was presented to teachers and specialists to determine its validity and suitability for the study. (Appendix No. 3) The scale was adopted by Research students As shown in argument No. 2.

**Table 2 shows the validity of the scale items by the experts.**

Measure of effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season							
Significance	Ka value table	Kai value Calculated	percentage	Not suitable	percentage	It is suitable	Paragraphs
moral	3.84	11	%0	0	100%	11	1
		11	%0	0	100%	11	2
		11	%0	0	100%	11	3
		11	%0	0	100%	11	4
		11	%0	0	100%	11	5
		7.36	9.1%	1	90.90%	10	6
		7.36	9.1%	1	90.90	10	7
		4.45	18.2%	2	81.80%	9	8
		7.36	9.1%	1	100%	10	9
		11	%0	0	100%	11	10
		11	%0	0	100%	11	11
Non-moral		7.36	81.80%	9	18.2%	2	12
		7.36	63%	7	36.36%	4	13
		7.36	90%	10	9.1%	1	14

		5.45	54.54%	6	45.45%	5	15
		4.45	81.81%	9	27.27%	3	16
		11	100	11	0	0	17
		4.45	81.81%	9	27.27%	3	18
		5.45	54.54	6	45.45%	5	19
		6.36	63.63	7	36.36	4	20

### How to correct the scale paragraph alternatives:

After verifying the validity of the alternatives and the paragraphs with low proportions of the scale were deleted. Accreditation The paragraphs nominated by the experts number (10 paragraphs) (Appendix 2). According to the five-point Likert scale method, which was represented by (very large, large, medium, small, very small), Since the scale is an ordinal scale, the scale was corrected by assigning an appropriate score to each paragraph according to the respondent's answer through the correction key, which is the tool by which the examiner reveals the answers that indicate the existence of the result being measured. Table (3) shows this. Thus, the limits of the scale scores were (the highest score that can be obtained is 50, and the lowest score that can be obtained is 10), while the hypothetical mean was (30).

as Table 4 shows the hypothetical means. Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season.

Table 3 Weights of answer alternatives

Answer	Too big	Big	Medium	Few	Very little
the weight	5	4	3	2	1

Table 4: Scale score limits Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season

Description of the scale	Highest level of scale	lowest scale	Hypothetical mean of the scale
Effectiveness of using purification rule VAR	50	10	30

### Scientific foundations of the scale:

Firstly: Content Validity (Validity of Experts and Specialists): -

This type of validity was confirmed by the researchers conducting a questionnaire distributed to the arbitrators. The researchers took into account the specialists' suggestions and made some modifications to some paragraphs of the axes, revealing the validity of the scale and



the alternatives specific to the scale, in addition to the paragraphs specific to the scale. Effectiveness of using technology judgmentVAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season Private for each field by Ka value2To nominate it for use.

Second: Tool stability:- The researchers based their practical procedures on preparing a scale (Effectiveness of using technology judgmentVAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season ) And the use of special statistical methods, by calculating the Cronbach's alpha coefficient, where the total coefficient of stability reached (0.899), which is considered a high value and qualifies it for the purpose of the study, as shown in the table below.

**Table 5 shows the value of the Cronbach's alpha reliability coefficient. For scaleAnd the total score.**

The axis	Cronbach's alpha	Number of	Sample
The first axis (practical)	0.899	10	400
Total score	899		

**(Discrimination ability):**

This was achieved by researchers in identifying the extent to which each paragraph of the scale has the ability to discriminate, i.e. each paragraph has the ability to discriminate and the high level of sample responses and the lower level of them, as it was identified by relying on the use of this method for the sample of statistical analysis of the scale, as it was mentioned(Adnan )Analytical statistics is the analysis of collected and summarized data for the purpose of reaching results that help in making specific decisions about phenomena. It helps researchers in the stages of testing hypotheses, verifying their validity, predicting, and reaching conclusions. The researchers relied on the scientific practical steps to prepare the scale (Effectiveness of using technology judgmentVAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 seasonThe researchers used statistical methods using the program (spssv25).

GCountries6: It shows the arithmetic mean and standard deviation of the upper and lower groups, the calculated value and the value of (SIG) Scale (Effectiveness of using technology judgmentVAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season )

Paragra ph number	Upper limit 27%		Minimum 27%		value (t) Calcul ated	value sig	Moral significance
	S	±A	S	±A			
1	1.850	0.944	1,600	0.680	1.305	0.000	Featured

2	2.700	0.571	2.850	0.875	3.537	0.000	Featured
3	3.510	0.688	2.900	0.852	2.649	0.000	Featured
4	4.2000	0.833	3,550	1.190	2,000	0.000	Featured
5	3.400	1.005	3.100	1.020	3.434	0.000	Featured
6	4,200	0.951	2.850	1.182	3.979	0.000	Featured
7	4.100	1.020	2.850	1.182	3.579	0.000	Featured
8	5,000	1.747	2.750	0.850	5.178	0.000	Featured
9	4.600	0.940	2,800	0.695	3.158	0.000	Featured
10	3.510	0.827	2,700	0.864	2.890	0.005	Featured

After analyzing the results of the paragraphs **For scale** Scale (Effectiveness of using technology judgment VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season), The calculated value of (t) for each paragraph ranges between (305.1 - 6.088) and it was compared with the value of (SIG) at a significance level of (0.05) and a degree of freedom of (80), and the results of the statistical analysis showed that the rest of all the paragraphs of the scale enjoyed their ability to discriminate and had a moral significance. By calculating the Cronbach's alpha coefficient, the total coefficient of stability was (0.899) It is considered a high value and qualified for the purpose of study, as shown in the table.5.

#### Internal consistency of the scale

The researchers extracted the internal consistency coefficient by relying on the value of the correlation coefficient (Pearson) between the score of each paragraph and the total score of each axis.

**Table 7 Shows the correlation coefficient between the statement score and the total score. Effectiveness of using technology judgment VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season**

Internal consistency of a scale Effectiveness of using technology judgment VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season			
T	Paragraph link to axis	valuesi g	Significance
1	**0.565	0.000	Morale
2	**0.387	0.001	Morale
3	.544**0	.0050	Morale



4	0.220*	0.001	Morale
5	0.265*	0.21	Morale
6	.602**0	0.000	Morale
7	.617**0	0.000	Morale
8	.400**0	0.004	Morale
9	.272**0	.0010	Morale
10	.236**0	.0130	Morale

After completing internal consistency Effectiveness of using technology judgment VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season (0.005 - 0.001)

Show results:

Table 8 shows the arithmetic mean and standard deviation of the scale. Effectiveness of using technology judgment VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season

Paragraph	Arithmetic mean	Standard deviation	Standard error
1	4.135	0.959	0.067
2	4.240	0.857	0.060
3	4.010	0.961	0.067
4	3.990	0.997	0.070
5	3.815	0.977	0.069
6	3.840	1.004	0.071
7	3.875	1.002	0.0706
8	3.770	1.030	0.072
9	3.820	1.083	0.076
10	3.845	1.070	0.075

Table 9 shows the results of the arithmetic means, percentages and frequencies for each item of the scale. Effectiveness of using technology judgment (VAR) in football from the point of view of the Iraqi Premier League referees for the 2023-2024 season

T	Paragraphs		too big	Big	Medium	Few	Very little	Arithmetic mean	Standard deviation	Repetition
1	Help judge the use of technology (VAR) in making fair decisions in the Iraqi Premier League	Sample	94	47	40	14	5	4.135	0.959	2
		200								
		%								
2	Help judge the use of technology (VAR) increases the confidence of referees in making decisions in the Iraqi Premier League	Sample	95	69	26	9	1	4.240	0.857	1
		200								
		%								
3	Help judge the use of technology (VAR) In critical situations, the referee can make the correct and appropriate decisions in the Iraqi Premier League.	Sample	78	61	42	16	3	4.010	0.961	3
		200								
		%								
4	Help judge the use of technology (VAR) in reducing wrong decisions in the Iraqi Premier League.	Sample	81	56	44	18	1	3.990	0.997	4
		200								
		%								
5	Help judge the use of technology (VAR) in giving confidence to the referees of the Iraqi Premier League.	Sample	62	58	57	19	4	3.815	0.977	9
		200								
		%								
6	Help judge the use of technology (VAR) to reduce	Sample	67	56	53	21	3	3.840	1.004	8

	violent interventions in the game in the Iraqi Premier League.	200									
		%	33.5%	28%	26.5%	10.5%	1.5%				
7	Help judge the use of technology (VAR) in the players' focus on performance more than objecting to the referees' decisions in the Iraqi Premier League.	Sample	70	51	50	19	10	3.875	1.002	5	
		200									
		%	35%	25.5%	25%	9.5%	5%				
8	Help judge the use of technology (VAR) in increasing the success of refereeing levels	Sample	63	57	45	25	10	3.770	1.030	10	
		200									
		%	31.5%	28.5%	22.5%	12.5%	5%				
9	Help judge the use of technology (VAR) in developing referees' performance.	Sample	71	53	36	29	11	3.820	1.083	7	
		200									
		%	35%	26.5%	18%	14.5%	5.5%				
10	Help judge the use of technology (VAR) in giving the psychological factor to the referees during	Sample	73	51	41	21	14	3.845	1.070	6	
		200									
		%	36.5%	25.5%	20.5%	10.5%	7%				
weighted mean		3.934									
Standard deviation		0.736									
Standard error		0.052									



### Discussion of results:

Through Table No. 8-9 for the scale of effectiveness of using purification VAR We notice that the arithmetic means of the scale items all have high quality of arithmetic means and standard deviation, if the weighted arithmetic means of the scale as a whole reached 3.934 and the standard deviation of the scale as a whole reached 0.736, this shows that all the scale items have very good value. The arrangement of the scale items according to the arithmetic means of the scale was from the highest value to the lowest value. (Majid, S., & Jawad, 2023)

Paragraph two Help judge the use of technology VAR) by increasing the confidence of referees in making decisions in the Iraqi Premier League obtained the highest arithmetic mean if it reached 4.240 and its standard deviation reached 0.857, it came in first place, so this indicates that the effectiveness of using the VAR technology referee had a distinctive role in giving confidence to referees in making decisions and giving the referee freedom to make decisions, the first paragraph helped the referee use the VAR technology in making fair decisions in the Iraqi Premier League obtained an arithmetic mean of 4.135 and a standard deviation of 0.959, as it came in second place. The researchers attribute this to the fact that the VAR technology referee decisions had a great impact on leading the matches well without many errors that reflect a negative image of the matches, as these decisions make the players more comfortable in the course of the match. The third paragraph helped the referee to use (VAR) technology in critical situations. The referee can make the right and appropriate decisions in the Iraqi Premier League. It got an arithmetic mean of 4.010 and a standard deviation of 0.961, so it came in third place. The researchers attribute this to the fact that the decisions of the (VAR) referee had roles for the field referees in avoiding critical mistakes that cause tension for the players, as well as on the course of the matches by helping the referees in giving appropriate decisions for situations that are difficult for the field referees to cover due to the fast pace of the match. The fourth paragraph helped the referee to use (VAR) technology in reducing wrong decisions in the Iraqi Premier League. (Kadhim, 2023) It got an arithmetic mean of 3.990 and a standard deviation of 0.997, so it came in fourth place. The researchers attribute this to the fact that the assistant referee (VAR) led to a reduction in the mistakes made by the field referees in the matches because the match has a large coverage by the (VAR) referee. Paragraph Seven: The referee of using (VAR) technology helped the players focus on performance more than objecting to the referees' decisions in the Iraqi Premier League. It got an arithmetic mean of 3.785 and a standard deviation of 1.002 in the fifth place. The researchers attribute this to the players' awareness that the match is being covered by the referee of (VAR). If it reduces the psychological pressure on the players and does not feel nervous, it leads to calmness and not rushing into objections and good focus on the performance in the match. Paragraph Ten: The referee of using (VAR) technology helped in giving the referees the psychological factor during the matches in the Iraqi Premier League. It got an arithmetic mean of 3.845 and a standard deviation of 1.070, as it came in the sixth place. The researchers attribute this to giving the referees confidence in the matches to manage the matches without tension and make the appropriate decisions for each case. Paragraph Nine: (Kazar & Kazim, 2020) The referee of using (VAR) technology helped in developing the referees' performance. It got an arithmetic mean of 3.820 and a standard deviation of 1.083, and it came in the seventh place. The researchers attribute this to the technical review (VAR) in some cases helps them to develop their level of performance in the arbitration process as well as distinctive expressive feedback for the referees to avoid some decisions in the upcoming matches. Paragraph 6: The referee of the technology of using (VAR) helped reduce violent interventions in the game in the Iraqi Stars League, if it got



an arithmetic mean of 3.840 and a standard deviation of 1.004, it came in eighth place. The researchers attribute this to the fact that reducing violent interventions by players and their awareness of the presence of (VAR) during matches contributes greatly to reducing these interventions because (VAR) translates the movements from the start of the match to the final whistle, which makes the player avoid these violent interventions. Paragraph 5: The referee of the technology of using (VAR) helped in giving confidence to the referees of the Iraqi Stars League. (Issa et al., 2024)

It got an arithmetic mean of 3.815 and a standard deviation of 0.977, and came in ninth place. The researchers attribute that all matches in which there is technology (VAR) has a positive impact on referees, as it is considered a basic factor for referees in making difficult decisions and referring to this technology to ensure critical situations that make matches tense and charged by the players, so this technology is very important for the referee. Paragraph 8: The referee's use of VAR technology helped increase the success of refereeing levels in the Iraqi Premier League. It obtained an arithmetic mean of 3.770 and a standard deviation of 1.030, coming in tenth place. The success of referees depends primarily on the development of science and knowledge in refereeing cases and internal and external refereeing courses and direct follow-up of the latest refereeing developments by the Football Association. This technology does not replace referees, but rather is considered an examiner of certain cases that referees overlook during matches due to the speed of the match.

#### **Recommendations and conclusions:**

##### **The researchers concluded:**

- The rule of technology (Var) had a positive impact on developing the Iraqi Premier League, and it also helped referees develop their level of knowledge in how to make decisions. It also helped in giving confidence to referees in managing difficult matches that have a great deal of intensity in their football atmosphere. It helped players in reducing violent interventions that are difficult for the referee to watch due to the speed of the matches.

##### **Recommendations:**

- Researchers recommend, in developing a technical rule ((Var) and its workers, providing the necessary infrastructure for it, and developing legal knowledge related to technology. Var, referees introduce technology Var Intensive courses and workshops to develop the electronic aspect,
- Introducing it into the academic curriculum, especially in the faculties of physical education and sports sciences.
- Giving technical courses Var Inside Iraq by the Iraqi Football Association.
- Educating the Iraqi public with knowledge about technology Var



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## The effect of the four-pillar strategy on the performance of the transmission and preparation skills in volleyball

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DOI: [https://doi.org/10.37359/JOPE.V37\(1\)2025.2247](https://doi.org/10.37359/JOPE.V37(1)2025.2247)

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**Article history:** Received 29/ January/2025 Accepted 10/ February/2025 Available online 28/ March /2025

### Abstract

The aim of the research is to prepare practical volleyball lessons by using the four pillars strategy for middle school students, and to identify the effect of the four pillars strategy in performing the transmission and volleyball skills in the second intermediate students, to assume that the two researchers assume that there are no statistically significant differences between the results of my skill performance tests Sending and preparing tribal and remote volleyball for the experimental and controlled groups, and there are no statistically significant differences between the results of the performance of the transmission and preparation skills of the volleyball between the two experimental and control groups, and the research community available in the second -grade middle -grade students persistently in the morning study in the high school for boys within the secondary school within Forms of the General Directorate for Baghdad Education/ Rusafa for the academic year (2023/2024), The total number of (180) students, who are inherently distributed to the six study people, the application sample of the number of (40) random students in the two divisions (A) and (C) represented (22,222 %) of the origin society, and after preparing the performance tests The skill and preparation of practical lessons in this strategy was applied after tribal tests by experimenting with a period of (8) weeks at a rate of (1) one lesson per week and for each skill (4) consecutive weeks, and then conducting dimensional tests and processing the results automatically with a system (SPSS) so that the conclusions and recommendations are to apply The strategy of the four pillars in practical physical education is suitable for middle school students, and helps in improving the performance of the transmission and preparation skills of their volleyball, and they outperform the improvement level of the performance of these two skills for students who study without them, and it is necessary to increase interest in modernizing teaching strategies

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in active learning and employ their applications In the lesson of physical education by adopting individual differences to suit the age and level of middle school students, It is necessary to include the applications of the strategy of the four pillars in the preparation courses and training in the General Directorates of Training and to introduce teachers to how to employ them in practical lessons of volleyball because of their positive returns to the skill factor for second-grade intermediate students.

**Keywords:** Four Pillars strategy, Transmission skill, Preparation skill, Volleyball

### Introduction

The Four Pillars Strategy is one of the important teaching strategies that has been proven Modern teaching and education Its effective ability to bring about an unprecedented change in the educational process, especially the strategies for the stages of basic education through which the student's personality is built, as applying different strategies in schools would help provide the student with a large number of important and basic skills that help him .To become a successful and positively influential person in society in the future Strategies are considered one of the most important factors for the success of the teaching process, as Sahab Ismail, 2021, p. 2, believes that the teaching process is the cornerstone of desired behavior among individuals and the acquisition of knowledge, values, customs, and other behavioral patterns, as students must not be allowed to be only passive recipients, but rather productive individuals in their cooperative groups by urging them to actively participate in learning, to interact with their colleagues, explain to them what they have learned, and to listen. For their points of view, and encouraging each other, it is based on the principle of organizing students into small groups that are not homogeneous in terms of abilities or scientific background to complete joint tasks with better success depending on the group's cooperation. This is consistent with the opinion of (Haneen Maysam, 2023, 66), which believes that active participation in learning with colleagues and encouraging each other makes the educational material attractive and exciting, which makes them cooperative and productive in groups.

Also“ ,the Four Pillars Strategy reduces the period of time in which the teacher presents information to the students, reduces the teacher's effort in following up and treating the weak student, and reduces some of the teacher's work, such as feedback, because this work will be for the entire class session) ”.Homs 2017, 43(

“The Four Pillars Strategy works to train students to create questions and answer them as well. It also aims to get students out of the daily routine that makes them bored, and to help them interact and share information among themselves ”.(Al-Dulaimi 2022, 10) It also agrees with the opinion of (Jinan Sakr, 2021, 7), which believes that the wider the information storage space is, the more it provides an opportunity for the answers and questions to be more correct and gives the student learner more opportunities to control his knowledge without restricting the channels for receiving information.

Also“ ,the processes that students use during their research and investigation, such as defining the problem, imposing hypotheses, inquiring, and analyzing data, reach results that help develop and improve their levels of organization of thinking about knowledge ”. (Mustafa 2019, 127) This is consistent with the opinion of (Safa Abdel Karim, 2022, p. 4) that the process of thinking and the method of conjuring information from a set of facts or rules, and this mechanism builds a positive attitude towards requests and works to acquire information and thus pushes them to generate ideas and acquire knowledge.

“ Processing information in the form of questions stimulates students ’motivation to consider the context of their previous experiences and daily life situations, which increases the possibility of storing information in long-term memory and makes it easy to use it in the future and in various situations) ”.Afana and Al-Khazandar 2009, 140(

Likewise“ ,the Four Pillars Strategy helps in preparing the learning resources necessary to carry out the lesson tasks and activities, so that the student can be informed about the design of the lesson activities in an organized and clear manner, and in identifying the materials, tools, and supporting means to accomplish the educational tasks, and pay attention during the formation and identification of topics in the learning environment, and adhere to the tasks of the lesson activities distributed uniformly) ”.Muhammad 2017, 107(

“The Four Pillars Strategy works to stimulate learners ’motivation towards learning and towards the scientific subject, train them in the skill of deciding and expressing opinions, distinguishing between alternative answers, working to build and develop social relationships through learning in cooperative groups, encouraging self-learning for each learner, training in confronting and solving problems, training learners in behavioral systems and practicing the democratic style of interaction during the lesson, and giving learners an appropriate opportunity to practice thinking) ”.Mosleh 2019, 32(

It also depends success teacher In the four pillars strategy of delivery content The curriculum in following road teaching is used Through her Activities And methods To attract attention educated people ,And make them They love Article Scientific, and yearn To her ,and education all Of them how He thinks ,And how Share Effectively in Strategic steps education Active ‘ Which It turns In it Learner from the condition Negativity to Movement and activity) .Wrigley & Mosely 2022, 108(This is what you see (Sahab Ismail, 2022, 57), which refers to the role played by the faculty member in education in general. It is a very important role because it is one of the pillars of the educational process and is the key to knowledge and science for the student. To the extent that he possesses scientific and educational experiences and effective teaching methods, he can produce outstanding and creative students .

The importance of the research lies in the use of the Four Pillars strategy in the educational field. It is a serious scientific attempt to use the strategy in performing volleyball skills for second-year intermediate students, as it is one of the active learning strategies that encourages the student to participate actively and positively, trains him to practice thinking skills, and communicate purposefully with his peers, which is reflected in improving his

level of academic achievement and life skills and increasing cognitive motivation. There are many educational benefits of the Four Pillars strategy derived from its basic idea and its integrated steps that are organized. It contains ideas that belong to active learning with its various strategies, and employing the educational pillars provides the student with an appropriate opportunity to make decisions and train her in these skills through the options available to him to move between the pillars according to his desire and inclinations and in proportion to his abilities. In light of this, the student's performance in the four educational pillars can contribute to enhancing various aspects of his personality, which can be defined as follows: (Abu Sakina and Al-Safti, 2011, p. 103)

Providing the student with the necessary experience, skills and methods to perform the skills.

Enriching the student's cognitive and cognitive experience regarding the components of the physical education lesson.

Providing the student with behavioral systems that are linked to simple practices and perceptions of the researched skills.

Enhancing the student to develop the skills of cooperation, participation, and interaction with others.

Developing the student's social skills by providing him with some concepts, information and experiences.

Providing the student with the opportunity to practice the democratic style of interaction in the lesson.

Volleyball is also one of the competitive group games that occupies the forefront in terms of its spread in the world and has evolved from a game for spending leisure time into an Olympic game that requires high physical and skill requirements. This game depends on basic skills as an important base upon which this game is built to advance the level of performance. Therefore, attention must be directed to the stages of learning it, as it requires a lot of effort and practice in order to master it, so using the four pillars strategy can have a major and effective role in developing the two skills under discussion.

The two researchers noticed, through their field experience in the field of teaching various sports, especially volleyball skills, that there is difficulty in performing the serving and preparation skills among second-year middle school students, which prompted them to use a strategy or try to find a new strategy, which is the four pillars strategy, and try to employ it in directing the physical education lesson to answer the questions :

Is it possible, using this four-pillar strategy, to add an element of suspense and excitement to the lesson delivery mechanisms?

Is it possible to use the four pillars strategy to give the student an opportunity, accustom him, or teach him to participate effectively in the lesson?

Is it possible to deviate with this strategy from the traditional methods known in the process of teaching volleyball skills?

The aim of this research is to prepare practical volleyball lessons using the Four Pillars strategy for second-year intermediate students, and to identify the effect of the four-pillars strategy on the performance of the serving and preparation skills in volleyball among the second-intermediate students. Thus, the two researchers assume that there are no statistically significant differences between the results of the pre- and post-tests of the performance of the serving and preparation skills in volleyball for the experimental and control groups, and there are no statistically significant differences between the results of the tests of the performance of the two serving and preparation skills in volleyball between the two groups. The experimental and control groups.

### **Method and procedures:**

The problem of the current research imposed the adoption of the experimental approach with an experimental design with two equal experimental and control groups with precise precision for the pre- and post-tests. The available research population was determined by the students of the second intermediate year who are continuing their work in morning study at the Outstanding Boys High School within the formations of the General Directorate of Education in Baghdad/Al-Rusafa II for the academic year (2023/2024), the total number of which is (180) students, and they are naturally distributed into six study groups, the reasons for which were the reasons for their orientation. The two researchers requested to conduct the research on them due to the cooperation of the administration and the volleyball teachers with the researchers, and to ensure the presence of the students in their work hours, in addition to the fact that they are students of the research problem and that similar experimental studies were not conducted on them in conjunction with the current research procedures, and to fulfill the requirements of the field procedures, (10) students were randomly selected for the exploratory sample from the various academic divisions, representing a percentage of (5.555%) of the original population. The application sample, which numbered (40) students, was chosen randomly in the two divisions (A). And (C) represent (22.222%) of the original population. Also, the requirements of the experimental design with the experimental and control groups imposed the selection of one of the two branches of the main research sample at random to be Division (A), the experimental group with a number of (20) students, and the other as Division (C), the control group with a number of (20) students.

To measure the performance of each of the two skills, the test is filmed to evaluate the tester's performance in the three attempts by experts after the total score for the performance of the best attempt is approved. The distribution of the total score for the test is as follows:

Preparatory section: grade.(3)

Main section: its grade is.(5)

The final section: its grade is.(2)

In order to prepare the practical lessons for the research experiment, the two researchers reviewed the type of methods and exercises used in the physical education lesson followed with the students of the second intermediate grade in high school for outstanding students. It included the preparation of practical lessons to teach the performance of the two researched skills by focusing on the applications of the four pillars strategy in the educational and practical aspects of the main section of the lesson, as follows:

**Educational aspect:**

In this aspect, the focus was on focusing on the students' understanding and awareness to develop mental habits that activate their role in receiving information about performance in a positive way and giving them time to think about the explanations and presentations they receive by providing opportunities for discussion to motivate them to acquire educational experiences effectively and interact, to develop a spirit of taking responsibility for skill learning by strengthening cooperation among them in an atmosphere enriched with knowledge of performance in the educational environment for the volleyball physical education lesson. At the end of this aspect, the teacher identifies the four corners of the half of the volleyball court. Outside an area (9 x 9) to be at the end of the center corners (1), (2), (4), and (5) represent the four corners outside the court's boundaries, with a distance of (1) meter from each corner.

**R Practical aspect:**

The teacher distributes posters for the stages of skill performance to teach the specific skill before the beginning of the practical aspect of the lesson. These posters, which are affixed to the four blackboards, are required to be attractive and motivating, as well as to excite the students, and to be available to each one of them.

The teacher poses a question at the beginning of each educational exercise, and this question has four answer options distributed among the four corners specified in the corners of the volleyball court. The nature of this question requires that it be provocative for the students, stimulate their thinking, and suit their perceptions, their age and academic stage, and their level in performing the two skills investigated.

The teacher asks the students to focus on the appropriate option in each of the four pillars to provide them with knowledge of what they actually need to learn to perform the skill, and to reduce common errors in each section of the skill identified in the lesson.

The teacher gives two (2) minutes of time before the students begin to perform the educational exercise to discuss among themselves in each of the four corners why they are heading to this corner .

Students choose the appropriate information about the exercise and begin applying and practicing one exercise for (4) consecutive minutes, so that the time allocated for each exercise and the aforementioned discussion time is (6) minutes, and the transitional rest between one exercise and another is (15) seconds, for the time of this educational aspect of (25) minutes, which contains (4) educational exercises.

The progression from easy to difficult was taken into account in the sequence of educational exercise tasks, so that students start from exercises without a ball to exercises with a ball.

Equity between groups of students was taken into account in the practical applications of performing the exercises.

Care was taken to allow democratic discussion between the students and their group leader to choose each of the four pillars.

The development of self-reliance for each student was taken into account to explore and apply on their own and accept guidance and informational support from peers in an atmosphere of cooperation and meaningful learning that stimulates their role in the practical lesson.

u The teacher moves between the four pillars, directs the pace of group discussions, and controls their progress without deviating from the framework of the topic under study, and provides students with continuous feedback on this educational aspect.

Also, in accordance with the determinants of the experimental design of the research by ensuring the line of initiation of the results of measuring and testing the performance of the two skills for the equality of the two research groups, their tests were administered in the Outstanding Boys High School to test the dependent variables, on the students of the experimental and control research groups, a total of (40) students at exactly nine o'clock in the morning on Thursday, corresponding to the date (3/7/2024), as the two skill performance tests (sending and preparing) were applied and they were photographed with a camera. Video, and video footage was shown to measure skill performance on three assessors, so that the student's performance in each of the two skills would be evaluated according to the approved evaluation form with grades (3: for the preparatory section, 5: for the main section, 2: for the final section). The data for the tests of the pre-dependent variables were statistically processed with the Levene test to verify the homogeneity of variance and to fulfill the conditions of parametric statistics for using the test) t-test (for unrelated samples to verify the equality of the two research groups in the results of these dependent variables, as will be mentioned below with the results of the research, as the two researchers applied the vocabulary of the four pillars strategy to the students of the experimental group in a period of (8) consecutive weeks of time from the second semester of the academic year (2023-2024), at a rate of (1) one lesson per week according to what was allocated in their schedule, bringing the number of lessons to (8) practical lessons, and for each skill (4) of them. Practical lessons, as it included applications of the teaching plan with this strategy, starting on Monday, corresponding to (3/11/2024), and ending on Monday, corresponding to (4/29/2024), as the components of the Four Pillars Strategy were applied in the educational and final aspects, and the two researchers did not interfere with the details of the preparatory and final sections of the practical lessons in volleyball, which are left to their school in the same secondary school, and the number of educational exercises prepared by the researcher reached (40). (20) exercises were devoted to performing each skill, distributed in one

practical lesson (4) exercises. Also, the physical education teachers in the high school for outstanding students applied the educational exercises using the four pillars strategy, and the two researchers were content to supervise and follow up on the lessons of the experimental group students, while the students of the control group studied using the educational methods followed by them in the lesson. The total time of the practical lesson was (45) minutes, divided into (10) minutes in the preparatory section. The main section is (30) minutes, the educational part is (5) minutes, and the applied part is (25) minutes by reducing the time of the educational aspect in accordance with the Four Pillars strategy, and the final section is (5) minutes. As for the students of the control group, they were content with the methods followed with them in the lesson without the two researchers interfering in their teaching, and contented themselves with their follow-up to facilitate these lessons with the same time period and on the same days as the experimental group, and after completing the application of the Four Pillars strategy in the practical lessons of volleyball over a period of (8) weeks. In consecutive studies, and under the same conditions as the pre-tests, these post-tests were applied to the students of the experimental and control groups, numbering (40) students on Tuesday, corresponding to (4/30/2024.)

Also, after the end of the research experiment, the results were processed automatically using the statistical bag system) SPSS (version) V ,(28by finding each of the following values: percentage, arithmetic mean, standard deviation, and test) To live (for homogeneity of variance, and test) t-test (For uncorrelated samples, test) t-test (For correlated samples.

**Results:**

table (1) shows the results of the pre-tests between the two groups

Test and group				A	Liven	ay(	t	ay(	he diffe renc e
Perfor m the transmission skill	em piricism	0	.55	.14 6	.419	.521	.257	.799	ot a sign
	Th e female officer	0	.65	.30 9					
Perfor m the	em piricism	0	.35	.30 9	.408	.527	.483	.632	ot a sign

preparation skill	The female officer	0	.15	.309					
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The measurement unit is (score). The difference is not significant if (Sig) > (0.05) at a significance level (0.05) and a degree of freedom.(38)

table (2) shows the results of the pre- and post-tests for the two groups

Testing	Group	Comparison		A	F	Say(	he difference		
perform the transmission skill	Experimental	previous	.55	.146	.7	.455	7.525	.000	al
		the next	.25	.716					
	The female officer	previous	.65	.309	.65	.424	1.46	.000	al
		the next	.3	.923					
perform the preparation skill	Experimental	previous	.35	.309	.6	.429	7.525	.000	al
		the next	.95	.605					
	The female officer	previous	.15	.309	.35	.843	.128	.000	al
		the next	.5	.946					

The unit of measurement is (score). The difference is significant if (Sig) (0.05) < at a significance level of (0.05) and a degree of freedom of.(19)

Test and group		Number		A	t(	Say(	he difference
perform	Experimental	20	.25	.716	.462	.000	al

the transmiss ion skill	The female officer	2	.3	.923			
P erform the preparati on skill	em piricism	2	.95	.605	.759	.000	al
	The female officer	2	.5	.946			

table (3) shows the results of the posttests between the two groups

Unit of measurement (degree), difference Significant if (Sig) (0.05) < at a significance level (0.05) and degree of freedom (3.8)

**Discussion:**

The researchers attribute the emergence of these results in the improvement of the performance of the two research groups ’transmission and preparation skills and the superiority of the students of the experimental group over their peers in the control group in the post-tests to the positive role of their application of educational exercises according to the vocabulary of the four pillars strategy and the sequence of its steps with the teacher’s support for them in stimulating motivation through motivating questions in an atmosphere of freedom and activating the roles by using multiple explanatory posters in this classroom environment and for the students to benefit from the skill content contained in these posters, which they were keen to The two researchers applied it in a way that suits the specificity of the age and level of the students, especially since this display of the stickers in the four corners was available to each student and continued to be displayed during the duration of the practical aspect of the main section of the lesson, which required them to interact in this teaching strategy with the teacher’s directions, the location of fellow students, and the content of the explanatory posters for his questions. This distribution helped in the multiplicity of educational situations to practice the skillful performance of the transmission and preparation skills, and the nature of the educational tasks in this strategy requires the students to choose The most correct pillar to focus on during performance is to provide a space of freedom to discuss the pillar they chose, which supported the cognitive structure so that every student is familiar with the requirements for skill performance, in a simplified or uncomplicated manner. (Kadhim, 2024b) The two researchers also attribute these results to suiting the number of times the educational exercise is performed with an atmosphere of suspense and excitement to reduce the boredom that confuses their thinking with the information provided about the performance, whether by the questions it raises in them or what the educational posters present in the four pillars or the teacher’s directions and clarifying them with continuous feedback in the educational aspect. (Moayd et al., 2019) From the practical lesson, to the role of the applied practice of these regular educational exercises in the strategy, and the number of educational lessons for the students of the experimental group, the content of which was directed towards the specific or required duty of avoiding distractions or movements accompanying the performance, and all of this placed the student in educational situations that require that his mental processes be activated for

the purpose of fulfilling the requirements of applying the steps of this teaching strategy on the one hand and the requirements of the skillful performance of the skills of serving and preparing for volleyball on the other hand, and with a cognitive motivation stimulated by excitement, suspense, and the diversity and multiplicity of educational situations, (Abdulhussein et al., 2024) and this Interaction and participation in the practical applications of the strategy, which helped them to increase the stimulation of the mind and increase their ability to process the information presented to them in the applications of the educational tasks of this strategy, to increase their ability to contemplate knowledge of the skill performance and to realize what is contained in the details of this performance due to the improvement of the processes of controlling and controlling thinking in making decisions to choose one of the four pillars and according to the changing situations in the educational exercises included in this strategy, (Abdulhussein & Adnan, 2024) which helped to increase readiness, which is a necessary requirement for improving skill performance, and enables the student to effectively use the mind to coordinate between the parts of the body. To demonstrate skill performance in accordance with the correct determinants that are devoid of accompanying movements, sense of place, (Kadhim et al., 2021) and control of the timing of this coordination between body movements to be purposeful in achieving the purpose of the skill, and that the educational situations with the Four Pillars Strategy achieved training of the mind by appropriately matching the number of times of performance for each educational exercise, (Easa et al., 2022) which was prepared by adopting the principle of diversification by the availability of elements of excitement and suspense to activate the student and increase the opportunity for his effective participation with a desire and willingness for the information about performance to be interpreted carefully to be used in practice and application as a basis for improving performance. Skilled.(Kadhim, 2024a)

“The four pillars strategy gives a kind of vitality, movement and activity while applying it in the classroom, which eliminates the boredom that students may feel. It can focus on all students, and focus on all of them in the class and ensure that they all participate in the activity, (HalahAtiyah et al., 2024)in addition to the possibility of using this strategy for evaluation during the lesson and knowing the extent of the students ’comprehension. It can also be used in their final evaluation) ”.Nasser 2018, 4(

Also“ ,it is not possible to ignore the basic knowledge necessary for the skill, provided that there is no exaggeration in increasing interest in the role of that knowledge as a component of the skill, considering that the component of actual performance applications is the most important in the skill, and one of its conditions is that it be done quickly, masterfully, (Kadhim, 2024) effectively, with little effort, and at little cost) ”.Al-Hayek 2018, 144)

“The Four Pillars Strategy reduces the time used to understand, relate, and memorize the educational material, develops the skills of comprehending the main idea, increases focus to achieve total comprehension, stimulates self-learning, and activates the role of the learner to be the focus of the educational learning process) ”.Zaire 2013, 184(

Also“ ,thinking about performance leads to the activation of new connections between nerve cells, easily through new paths that it did not have before, and in a way that helps provide a new possibility for the mind to create more mental actions, and in a way that leads the mind to work with better potential, and more widely and efficiently) ”.Carmen & Other 2017, 42(This is in addition to encouraging students to think, especially innovative

thinking, and to activate all mental processes that would be important in raising the level of the learning process, and this agrees with the opinion of (Donia Ali Abdel Hussein. Najla Abbas Al-Zuhairi, 2024, 193) who believes that The practice of mental processes and perception has an impact on growth and development, and this practice cannot be achieved without training and exercise that works to attract the learner's mind in order to practice the skills inherent in it, as it highlights his mental development, which places him in a rich, stimulating, and sound environment that contains a set of experiences, trends, and stimuli appropriate to the age of each learner.

Also“ ,teachers can invest in the excitement and motivation of the learners, so that we direct them to planned educational situations so that they accept it, motivated by activity, and work to continue this activity until the learning process takes place within a plan that includes precisely defining the goals to be taught, arousing the excitement and motivation of the learners towards achieving specific goals, maintaining interaction between the learners and teachers, ensuring that learning occurs, and accurately evaluating the goals ”. )Ghazi 2016, 84)

“Working in educational corners works to organize skill performance and divide educational situations in an organized and sequential manner, which helps students focus attention, understand each part of the skill, and learn it easily) ”.Zaire 2018, 149(

Learners can be taught with the Four Pillars Strategy, evaluated, and their rate of academic progress measured. When implementing its steps, learners feel enjoyment and movement, and teaching with this strategy is appropriate for all academic levels) ”.Al-Yassin 2021, 1)

Also“ ,employing the educational pillars provides a student with an appropriate opportunity to make a decision and train him in this skill through the options available to him to move between the pillars according to his desire and inclinations and what is appropriate to his abilities. In light of this, the student's learning in the pillars can contribute to enhancing various aspects of the student's personality) ”.Abu Sakina and Al-Safti, 2011, p. 103)

#### Conclusions and recommendations:

-1Applying the Four Pillars strategy in a practical physical education lesson is appropriate for second-year intermediate students.

-2Applying the Four Pillars strategy in a physical education lesson helps improve the performance of the volleyball serve and preparation skills among second-year intermediate students, and they outperform the improvement in the level of performance of these two skills among students who study without them.

-3It is necessary to increase interest in the modernity of teaching strategies in active learning and employ their applications in physical education lessons, adopting individual differences to suit the age and level of second-year intermediate students.

-4It is necessary to include applications of the Four Pillars Strategy in preparation and training courses in the General Training Directorates, and to familiarize teachers with how to employ it in practical volleyball lessons because of its positive returns on the skill factor of second-year intermediate students.

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## Design of composite attention test according to optimal accuracy zones for crushing players (16-18 years) in volleyball

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2178](https://doi.org/10.37359/JOPE.V37(1)2025.2178)

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**Article history:** Received 9/ June/2024 Accepted 10/ June/2024 Available online 28/ March /2025

### Abstract

The research aims to build and codify the composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball and find levels and standard grades for them, where the researchers used the descriptive approach in the survey method to fit with the research problem and represented the research community with middle school students in a secondary school in Karrada School for Distinguished (Directorate of Education Rusafa II), which numbered (93) students from the regular students in attendance and the research sample was represented by (30) students and were identified In a deliberate way, the sample of legalization was represented by (30) students, where the researchers concluded that the composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball achieved the purpose for which it was designed and the researchers reached the development of grades and standard levels of the composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball and the researchers recommended the adoption of the composite

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attention test according to the optimal accuracy areas for the players Overwhelming beating (16-18 years) in volleyball and prepared by researchers.

**Keywords:** Design and build test, composite attention, optimal accuracy zones, for crushing players (16-18 years), volleyball.

### Introduction

Tests are one of the most important things that contribute to improving sports achievement and development Performance By creating and applying new tests or developing known and used tests by Specialists-The choice of troupes To participate in school or sectoral tournaments needs to use appropriate tests and can be applied to achieve the goal and be appropriate In terms of understanding, assimilation and application With all the details Testers here We must resort to tests that have effective specifications when applied, and in light of that, we can decide whether they are accepted or not, which makes it easier for us to choose students For the volleyball team who possess the best level of overwhelming hitting skill among their colleagues and the rule promises to form the members of the volleyball team, (By means of measurement, we reach information that can be based on making judgments about the situation of individuals and groups and estimating the future potential of individuals in various areas of human behavior and this study is a scientific attempt to build and codify the composite attention test according to the optimal accuracy areas for crushing players (16-18 years) in volleyball (Al-Zuhairi, 2022). of attention compound according to the areas of optimal accuracy players hit overwhelming (16-18 years) in volleyball carried out a lot of distractions or the difficulty of implementation in schools Governmental Because she needs tools for her with high cost or for not being realistic for the real atmosphere of play during the match This leads to the consumption of time and effort, and through the access of researchers to references, sources and various scientific studies related to test batteries in some international countries, they found that a wide range of composite attention tests according to the optimal accuracy areas for the players of the overwhelming beating in these countries and most of them need special capabilities to conduct this battery, so the researchers decided to build a test that shortens time and effort and achieves the goal of the research to build a composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball and IGAD Standard levels for crushing players (16-18 years) in volleyball. A related study is the study of (where This study refers to the importance and role of tests and measures in physical education because of their large and clear role in giving an indication Real The results it gives indicate the level of performance performed by the laboratory. (Ahmed, 2021), As shown by a study and (Amish, 2021) study (Saleh, 2021)The proper testing process does not depend only on personal experience, but also needs to follow scientific methods in this by relying on scientifically based tests and measures to reach the real results of performance that qualify them for physical performance and artistic For the practiced activity and shortening the time and effort, and the study that (Rashid, 2091) Emphasizes Tests and metrics are one of the most important factors to identify the level of performance as well as to know the effectiveness of



the tests, and a study that emphasizes the need to review the tests and make some appropriate adjustments to them in line with the development in the world. (Al-Shibli, 2010)

### **Method and tools:**

Researchers use descriptive approach survey method for its suitability to the research problem (The descriptive approach includes the study of current facts related to the nature of the phenomenon, and these descriptive studies are not limited to knowing the characteristics of the phenomenon, but go beyond that to know the variables and factors that cause the existence of physical education sciences phenomenon. (Gharaibeh, 2008) Represent the research community Preparatory school students at Al-Karrada School for Distinguished Students (Rusafa Second Directorate of Education) The number of (93) student of regular students in attendance As for the research sample, it was represented in (30) student They were intentionally determined. And either sample Legalize It was in (30) A student from the same Research Community, (The research community and its sample One of the things that must be taken into account in the field of research is the selection of the sample that represents a real representation of the research community, as it represents a model that includes part or part of the units of the original community concerned with the research, as it is representative of it. so that it It carries its common characteristics, and this model or part enriches the researchers from studying all the units and vocabulary of the original community. This is also confirmed ( (Kandilji, 2008) The descriptive research methodology, which is defined as the method that describes a phenomenon according to a specific research plan that includes describing phenomena, collecting facts and information about them, and evaluating these phenomena in the light of what they should be, and in light of the standards of and The steps you should have. (Al-Mahdi, 2019).

#### **Exploratory experiments:**

Go Researchers conducting exploratory experiments To get to know On the obstacles to work, and stand on the details of the test in terms of the method of performance of the test and measurements of the research under study and the exploratory experiment (Practical training for the researcher and the Supporting Team To find out for himself the pros and cons that meet him during the tests For the possibility of avoiding them in the future that the construction and codification of the composite attention test according to (Hassoun, 2018) Precision Zones Optimal For Overwhelming Strike Players (16-18 years) in Volleyball Researchers must follow Specific and precise steps that lead to achieving the goal of the test and after reviewing a group of sources, studies and various research that are concerned with designing the tests Composite attention in terms of construction, design and technicians, as well as conducting some personal interviews with experts and specialists, where a form was distributed to the experts containing two tests for compound attention according to Precision Zones Optimal For players to smash in order to choose The most suitable of the two tests and as mentioned in the appendices The test was selected Second (Khamees et al., n.d.)

The researchers conducted the first exploratory experiment in which the test was applied to the members of the exploratory sample, which numbered (6) students from the same research community from the regular students in the attendance study and in the presence of the assistant



work team on (2/29/2024) the volleyball court of Karrada High School for the distinguished and from outside the research sample, and the purpose of this experiment was the following:

- Identify the obstacles that may accompany the process of testing the efficiency of the assistant work team.
- Discover the extent of the difficulties faced by the sample when carrying out the test.
- Determine the appropriate distances between the players, where the test is executed, the time taken for each tester and how the test is performed for all team members per day.

The researchers also conducted a second exploratory experiment on the same sample on (3/7/2024) and the same volleyball court for Karrada High School for the distinguished, and its purpose was:

- Verify the degree of comprehension of the sample for testing the possibility of the sample by applying the test without errors.
- Ensure the required number of assistant work team and stabilize the performance time.

#### **Main experience:**

After completing the exploratory experiments and ensuring the safety of the procedures, the researchers applied the composite attention test according to the optimal accuracy areas for the overwhelming beating players (16-18 years) in volleyball on the main experiment sample (construction sample) of (30) students from the preparatory stage in Karrada High School for Distinguished Students (Rusafa II Education Directorate), which numbered (93). A student from the regular students in attendance study, and the test was conducted on the volleyball court at Al-Karrada High School for Distinguished Students (Rusafa Second Directorate of Education) on (18/4/2024).

Test name: Composite attention test according to optimal accuracy zones for crushing players (16-18 years old) in volleyball.

Objective of the test: Composite attention measurement according to the optimal accuracy zones for crushing players (16-18 years) in volleyball.

Tools used: volleyball court - volleyballs - 8 colored signs - recording tools - whistle - stopwatch.

#### **Method of performance:**

This test is carried out by forming a ring of (6) players divided into two groups. The first group consists of two defending players who do not change their places as much as possible only to reach the ball. Their duty is to receive and prepare the ball well. To the second group consists of (4) players attacking by crushing beating, here the expert blows a long whistle announcing the beginning of the test and they move to the (4) players from the second group with a light trot to the side and clockwise, then the expert blows the whistle. Short second Announcement to hit the transmitter with mentioning the color of the sign (white / red / orange / green) to be injured and on which side (**A/B**) and with regard to the injury of the sign (green) by mentioning its location (**front / back**) with the color, it is assumed that at the moment the prepared ball reaches the position (4) one of the players of the second group near the position (4) prepares to perform the overwhelming blow on the same color as the sign. On the same side as announced by the expert and as in Figure 1.

**Sign up:**

- Three points are awarded to the crushing player for each of the six signs (orange/white/red) directly hit placed on the side (A/B) of the field as shown in Figure (1).
- Two points are calculated for the player who hit the crushing that the injury of each of the two signs (green) direct hit and placed in the middle of the field as shown in Figure (1).
- Only one point is awarded to the player who hits the crushing if he manages to indirectly injure any of the eight signs or if the injury is close to any of the eight signs and within the internal boundaries of the field

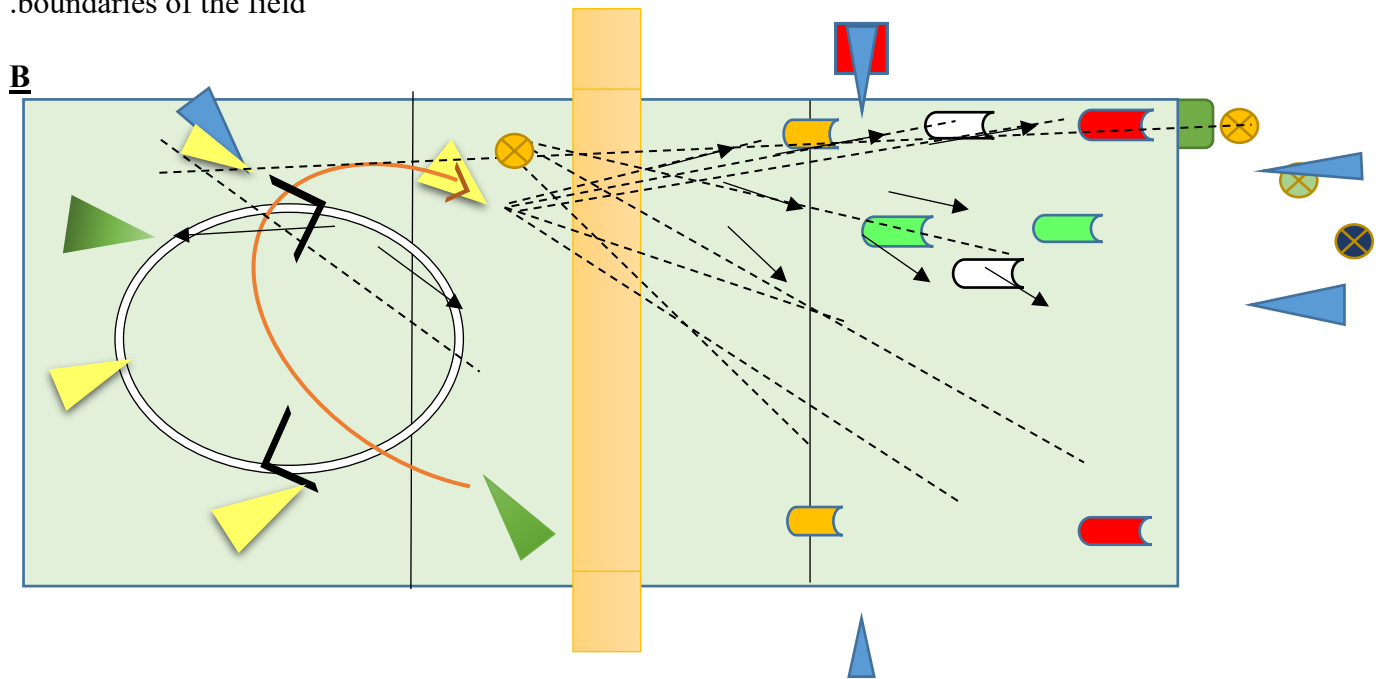










Figure (1)

Table (1) Key Shapes

Meaning	Shape	t	Meaning	Shape	t
Future Player for Message and the preparer		6	index		1
Expert		7	Volleyball Balls		2
			Assistant Team Member		3
			Attacking player by hitting the crush		4
index		8	Direction of movement of players		5

Test Validity:



Honesty is one of the most important characteristics of a good test, (Honesty is the measurement of the test actually or the fact of what was put to measure it (The fields and sections of standards and tests get the apparent honesty of their acceptance to measure what they have prepared for if their powers are agreed upon (80%) or more of the expert arbitrators. (Departi, 2019) This is confirmed (It aims to show the link of the measured side with other aspects of the phenomenon and this type of honesty is also called logical honesty as it is often through logical judgment on the being or the presence of the trait or attribute or ability measured to verify whether the proposed measurement method actually measured or not. (Al-Fartousi A., 2015) As in Table (2), the Two tests were presented to (11) experts and the percentage between the two tests was made to choose the most suitable between them.

Table (2)

Percentage of approval	No	Yes	audition
<b>18%</b>	<b>9</b>	<b>2</b>	First test
<b>93%</b>	<b>1</b>	<b>11</b>	Second test

**Constancy:**

In order to extract the second scientific coefficient to test Composite attention by Precision Zones Optimal For Overwhelming Strike Players (16-18 years) in Volleyball must apply the principle of static testing (It is the degree of accuracy or control and provisions in the measurement process so that the stability coefficients give us an idea of the degree of consistency or compatibility in the measurement result when repeated. This has also been confirmed. (Abdel Qader, 2011) The stability of the test is concerned with the extent of confidence in the scores obtained from the application of the scale in the sense that these scores or test results should not be affected by factors that are due to chance errors, it means the accuracy or consistency of the test, if the same laboratory obtained the same degree or almost in the same scale or in groups of equivalent or similar questions on different occasions, we describe the test or scale in this case as a high degree of stability, in this sense the concept of stability is related to what is called measurement errors involved in each degree of the scale. The researcher used (Hassan A., 2006) Wen Test method and reapply the test To calculate the stability coefficient The test got

On a correlation between the first and second tests, and thus we find that the value of sig is less than (0.05), meaning that the relationship is significant as in Table.(3)

**Table (3) Statistical description and value of the correlation coefficient for the purpose of finding stability**

Variable	N	Minimum	Maximum	mean	Movable deviation	Deviation	R	Mr
	Statistica l	Statistical	Statistical	Statistical	Statistical			
First test	30	5.00	18.00	9.7333	3.21562	645	0.985	0.00
Second test	30	5.00	18.00	9.8667	3.18058	.659		

**Discriminating Ability:**

In order to ensure the ability of the test to distinguish between the performance levels of the upper and lower sample, the discriminatory ability of the test results was extracted by arranging the raw grades ascending from the lowest degree to the highest degree, from which (27) of the values of the upper levels and the same values of the lower levels were selected in order to know the ability of the test to distinguish between the group with a high level and a low level (Al-Rida, 2016)As in Table 4.

Table (4)  
Differentiating ability of testing

Sage	t	Lower Group		Top Group		audition
0.000	9.452	on	Going to~	on	Going to~	Overwhelming beating
		0.99103	6.1250	2.13809	14.00	

(below significance level (0.05) and degree of freedom = 14)

**Results:**

Application of the composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball on the members of the rationing sample and after the test was reached in its final form, the researchers applied the test to the sample of rationing of (30) students because it is part of the main experiment in order to extract the levels and standard grades and after the test data was unloaded composite attention according to Optimal accuracy areas for crushing players (16-18 years) in volleyball and were processed statistically and extracted some descriptive statistics and in order to identify the moderate distribution of test values according to the optimal accuracy areas for players of crushing beating (16-18 years) in volleyball and as in Table (5) the researchers extracted It shows the values of the arithmetic means, standard deviations, torsion coefficient, the highest value and the lowest value of the test for the rationing sample, as in Table (6).

Table (5) Statistical description of the composite attention test

	N	Minimum	Maximum	mean	Movable deviation	Deviation	
	Statistical	Statistical	Statistical	Statistical	Statistical	Statistical	Error in the transmitted error
audition	30	5.00	18.00	9.7333	2.93890	565.	.427

Table(6) Values of arithmetic means, standard deviations, torsion coefficient, highest value and lowest value for the rationing sample test

number	Highest value	Lowest value	deviation	Arithmetic mean	Unit of measurement
30	18	5	3.23860	9.8333	degree

**Standard for composite attention test for rationing sample:**

The term standard refers to the average scores of a certain group of individuals on a particular test and the standard is necessary in the mathematical or achievement test, because the raw score of the individual obtained from the test has no meaning in itself, and is not suitable with his score in other tests, or with the score of another person on the same test, or on other tests except by standards, the standards are the foundations of judgment from within the phenomenon, and take the quantitative formula and determine in the light of what is an object and must To refer to a criterion that determines this degree to know the position of a person in relation to the group to which he belongs (after the tests were applied to the sample of rating, the researchers extracted some descriptive statistics in order to find the rating of the test. (Hassan A., 2018) for students with the highest composite attention level, and the results were arranged in ascending order, as shown in the table (7).

Table (7)

**Raw grades, standard scores (adulterer) and adjusted standard scores (T) for the rationing sample for the test**

T	Zaea	raw	t	T	Zaea	raw	t	T	Zaea	raw	t
53.6	0.63024	11	21	47.43	-0.25731	9	11	35.08	-1.49242	5	1
53.6	0.63024	11	22	47.43	-0.25731	9	12	35.08	-1.49242	5	2
53.6	0.63024	11	23	47.43	-0.25731	9	13	38.16	-1.18364	6	3
56.69	0.66901	12	24	47.43	-0.25731	9	14	38.16	-1.18364	6	4
59.78	0.97779	13	25	47.43	-0.25731	9	15	38.16	-1.18364	6	5
62.87	1.28657	14	26	47.43	-0.25731	9	16	38.16	-1.18364	6	6
62.87	1.28657	14	27	50.51	0.05146	10	17	41.25	-0.87486	7	7
65.95	1.59534	15	28	50.51	0.05146	10	18	44.34	-0.56609	8	8



65.95	1.59534	15	29	50.6	0.63024	11	19	44.34	-0.56609	8	9
75.22	2.52167	18	30	50.6	0.63024	11	20	44.34	-0.56609	8	10

**Discussion:**

**Presentation and analysis of the results Determining the levels of the composite /1 :attention test for the player Overwhelming Hitting**

After the distribution of the sample was identified naturally through the torsion coefficient and obtaining its scores, the (Kaos curve) was used, which is one of the objective methods in interpreting degrees, which is one of the most used methods in the field of mathematics because many of the characteristics and qualities that are measured in this area are close to their distribution of a standard curve, and this is confirmed ((Al-Fartousi A., 2020)The process of motor linkage is the ability of the athlete to coordinate the partial movements of his body with each other place and time, and the movement and performance of this coordination when facing the competitor or using the tool (Hoffmann, 2012). standard level, And here the researchers have determined the standard level with six levels (excellent / very good / good / medium / acceptable) as shown in the table (8) and (9).(Mondil et al., 2023)

**Table (8) Limits of raw scores corresponding to standard levels of the Overwhelming Beating Player Composite Attention Test**

Standard levels	Rough Grade Limits
Excellent	35.08 – 38.16
Very good	41.25 – 47.33
Good	50.51 -59.77
medium	59.78 – 65.95
Acceptable	72.22
Weak	



**Table (9) Limits of standard levels of the Player Composite Attention Test Overwhelming Beating**

Level limits Standard and its ratio	%2.14	%13.59	%34.13	%34.13	%13.59	2.14%	Total
classification	Weak	Acceptable	medium	Good	Very good	Excellent	
Number	0	6	10	9	4	1	30
Percentage	0	%20	%33	%30	%13	%0.04	100%

**Discussion of the results:**

The design of this test is successful in that it can measure composite attention based on the speed of response to a stimulus despite distractions (Motor performance in sports activities also a high degree of motor coordination in the sense of the ability to show appropriate motor acts in certain circumstances based on previous motor experiences or elaborate skills, (Shukur et al., 2022) in other words the athlete's ability to act kinetically in the face of different conditions during performance Defines the speed of motor response (It requires is the time from the moment the stimulus enters through the senses to the end of the Entire movement and it contains the reaction time and the time of movement. This is what a study showed (that (Khiyoun, 2002)Player Beating Overwhelming or Higher is one of the most important centers In volleyball The player of this position often determines the result of the half and the match, as he besides being a good striker must be distinguished in the wall of resistance, as well as defense and coverage, in addition to that, he may hit overwhelmingly from the back area and according to the conditions of play. As described in (Azaab, 2021) Table(4) The researchers converted the raw grades Result From a test Composite attention by Precision Zones Optimal For Overwhelming Strike Players(16-18 years) So as to measure the product of Composite Attention Test by Precision Zones Optimal For Overwhelming Strike Players(16-18 years) From its raw condition to standard grades (Za'i) due to the difficulty of dealing with raw grades Because it Not meaningful where, Raw scores are not suitable for comparison, whether with the degree of the laboratory in another test or with the scores of the testers among themselves in the same test, due to the lack of standards for balancing, but in the event that the raw scores are converted to standard, they will gain meaning because they were weighed with the performance levels of the group (the raw grades must be converted to standard scores in order to reach the standards. (Shehab, 2020) Because the standard degree has a negative sign and decimals, which are difficult to balance with, it has been converted to the degree (T) Modified to get rid of the negative signal and decimal fractions that are difficult to balance with, it has been converted to the modified T degree to get rid of the signal and fractions, and this dealing is allowed (Tests do not measure or evaluate testers as individuals, but rather compare responses. The use of standard scores also becomes necessary when the main objective is to interpret the score of one laboratory in the light of the performance of a large sample of coding, so large Samples are used with moderate distribution and representative of the community and take into account in their



design the necessary considerations statistics of randomness and good representation. (Al-Khatna, 2013) (Al-Obaidi, 2011) This achieves the second objective of the study, which is to set scores for the composite attention test according to Precision Zones Optimal For Overwhelming Strike Players (16-18 years) in Volleyball, either in tables (8) and (9), (Shukr, 2024) (It was determined the levels that were distributed standard scores modified, the scores of the sample was (6) standard levels graded from the excellent level to the weak level, where the standard scores were distributed in the form of a set of categories for these levels and based on the method of measuring the test, the lowest degree is the value of measuring the best result in the test, and the highest degree is the value of measuring the lowest output in the test (that Good tests are those that include criteria given to the raw values, which were extracted through the application of tests significance and meaning, as the standards help the individual tested to identify his relative position in his group, and this is after I bold Important, necessary to achieve optimal calendar conditions. (Obaid, 2015) The researchers divided the standard scores into (6) levels deliberately from In order to obtain an accurate evaluation of the product audition Composite attention by Precision Zones Optimal For Overwhelming Strike Players (16-18 years) in Volleyball. These levels showed that there was no weak level in the sample, as the percentage of the weak level was (0%) of the sample scores in the test. Composite attention by Precision Zones Optimal For Overwhelming Strike Players (16-18 years) in Volleyball, in the test, their sample was distributed over four levels: (Fair, Medium, Good, very good), (Kazar & Kazim, 2020) as the largest percentage was at the (average) level, which was (33%) of the total sample level, and the researchers believe that the main reason for the large percentage in the intermediate level is because of the neglect of the sports lesson in schools and not giving it great importance by school administrations how other lessons, and not giving enough space to the physical education teacher in activating the sports lesson correctly and on the other hand the lack of school championships, which leads to the rise of students From elementary and middle school with an attention level Weak or medium and also enter social media sites with their negative effects Distracted Where it has taken away the largest time from individuals in general and school students in particular, as some people prefer to spend time on social networking sites instead of practicing physical activities that enhance the mental activities of the individual This one All of it will affect the overall level of attention of the individual. (Kadhim, 2023)

#### **Conclusions:**

- 1- The composite attention test according to the optimal accuracy zones for the players of the overwhelming beating (16-18 years) in volleyball achieved the purpose for which it was designed.
- 2- Reaching the development of standard grades and levels for the composite attention test according to the optimal accuracy areas for the players of the overwhelming beating (16-18 years) in volleyball.
- 3- The composite attention test can be adjusted to the optimal accuracy zones for crushing players by reducing the number of signs to suit younger age groups.
- 4- The composite attention test can be adjusted according to the optimal accuracy zones for crushing players by adding more difficult conditions to suit older age groups (e.g., crushing strikes are required from the back areas of the court).

5- More distractions can be added in addition to the existing signs to measure the speed of response and its relationship to compound attention.

#### **Acknowledgements:**

All thanks and appreciation to everyone who supported and encouraged the completion of this research from the supervisors of the research workflow and the assistant work team with the success of all experiments and experts for the time and effort expended, and do not forget the administration and students of Al-Karrada High School for the distinguished for the success of this research to serve science.

#### **Supplements:**

##### **Appendix 1 Expert Form**

First test:

The objective of the composite attention measurement test according to the optimal accuracy zones for crushing players (16-18 years old) in volleyball.

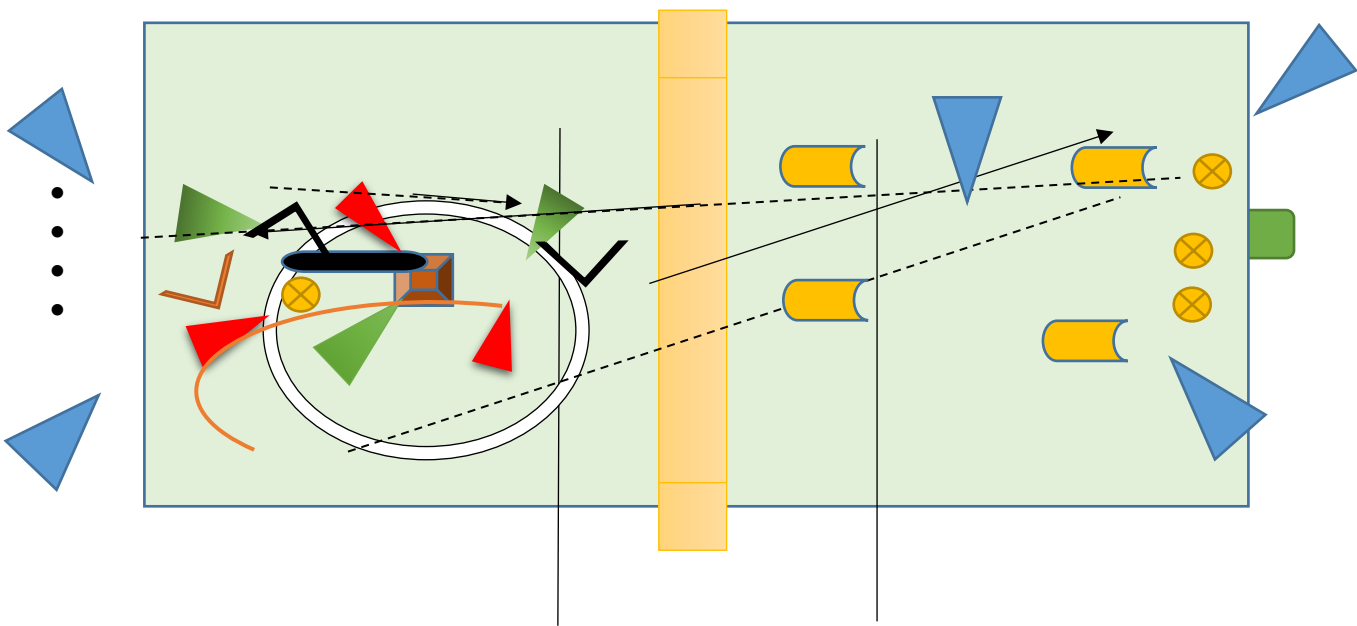
Tools used: tape measure - volleyball court - signs - tools for recording - whistle - stopwatch - pole height (2 m) - colored adhesive tape.

Method of performance:









This test is carried out by forming a ring of (6) players moving with a light jogging movement to the side and clockwise, the center of this ring is a column with a height of (2 m) and the place of the column between the center No. (3) and the center No. (6) and the ring is away from its center, i.e. the column by (3 m), and the 6 players are divided into two groups, the first group of (3) players whose duty is to receive and prepare the ball sent from the laboratory to the second group, which consists of (3) players who take turns to hit the crushing to Marked places on the opposite side of the stadium.

Sign up:

- Three points are awarded to the crushing player if he manages to hit any of the four signs directly Two points are awarded to the crushing player if he manages to hit the ground ball near any of the four signs A point is awarded to the crushing player if he manages to indirectly hit any of the four signs.



• Table (1) Key Shapes

Meaning	Shape	t	Meaning	Shape	t
Future Player for Message Or the producer		6	Privatization		1
Pole Height(2m)		7	volleyball		2
Registrar		8	Assistant Team Member		3
			Player hit the crusher		4
			Direction of movement of players		5

Fit	Not suitable	Test validity

Second test:

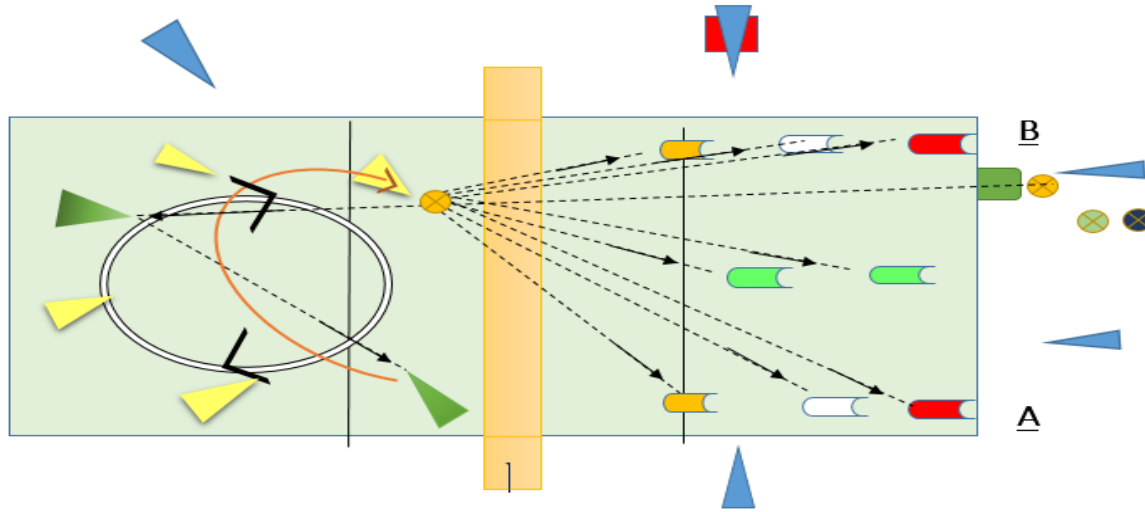
Objective of the test: Composite attention measurement according to the optimal accuracy zones for crushing players (16-18 years) in volleyball.

Tools used: volleyball court - volleyballs - 8 colored signs - recording tools - whistle - stopwatch.









Method of performance:

This test is carried out by forming a ring of (6) players divided into two groups. The first group consists of two defending players who do not change their places as much as possible only to reach the ball. Their duty is to receive and prepare the ball well. To the second group consists of (4) players attacking by crushing beating, here the expert blows a long whistle announcing the beginning of the test and they move to the (4) players from the second group with a light jog to the side and clockwise, then the expert blows the whistle. A short second Announcement to hit the transmitter with the mention of the color of the sign (white / red / orange / green) to be hit and on which side (A/B) and with regard to the injury of the sign (green) by mentioning its location (front / back) with the color, it is assumed that at the moment the prepared ball reaches the position (4) one of the players of the second group close to the position (4) prepares to perform the crushing blow on the same color as the sign announced by the expert Registration:

- Three points are awarded to the player for the crushing hit for each of the six signs (orange/white/red) directly hit placed on the side (A/B) of the field.
- Two points are awarded to the player who hit the crushing that the injury of each of the two signs (green) direct hit and placed in the middle of the field.
- Only one point is awarded to the player who hits the crushing if he manages to indirectly injure any of the eight signs or if the injury is close to any of the eight signs and within the internal boundaries of the field.



Key shapes

Meaning	Shape	t	Meaning	Shape	t
Future Player for Message and the preparer		6	index		1
Expert		7	Volleyball Balls		2
			Assistant Team Member		3
			Attacking player by hitting the crush		4
index		8	Direction of movement of players		5

Fit	Not suitable	Test validity

Appendix (3) Names of Experts:

Testing(2)	Testing(1)	Expert	t
Fit	It doesn't fit	Assoc. Prof. Tahseen Ali Hatem	1
Fit	It doesn't fit	Engineer Tariq Nazim	2
Fit	It doesn't fit	Engineer Muhannad Qasim	3
Fit	It doesn't fit	Mohamed Zidan	4
Fit	It doesn't fit	Amer Abdul karim Mahdi	5



## Journal of Physical Education

Volume 37 – Issue (1) – 2025 Open Access

P-ISSN: 2073-6452, E-ISSN: 2707-5729

<https://jcope.uobaghdad.edu.iq>



Fit	It doesn't fit	Hassan Jabr Haneen	6
Fit	It doesn't fit	Ghassan Sultan Zuwair	7
Fit	It doesn't fit	Rasul Sultan Zagher	8
It doesn't fit	Fit	Kazem Mahdi Badie	9
Fit	It doesn't fit	Sabah Hassan Farhan	10
Fit	It doesn't fit	Emad Nasser Hussein	11

### Appendix (4) Assistant Team:

Names	t
M.Sc. Mohamed Saad	1
M.Sc. Haider Hussain	2
M.Sc. Khaled Mahmoud	3
Ziad Ahmed	4



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## Self-Confidence Among Football Players in the first Division League in the Kingdom of Saudi Arabia

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2236](https://doi.org/10.37359/JOPE.V37(1)2025.2236)

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**Article history:** Received 9/ December/2024 Accepted 31/ December/2024 Available online 28/ March /2025

### Abstract

This study aimed to identify the levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia, in addition to the differences in the levels of self-confidence among the study sample according to the variable of training experience. The study sample amounted to (100) players who were selected randomly. The researcher used the descriptive approach for its suitability to the nature of the study. In this study, the self-confidence scale was applied, which was built and standardized by both Qawasmi and Al-Farah (1996). The most important results indicated that the highest average of the dimensions of the self-confidence scale among football players under study was in the dimension (psychological aspect), which came at a rate of (73.47%), while the lowest average of the dimensions of the scale was in favor of the physiological aspect at a rate of (47.01%). Regarding the differences in the levels of self-confidence according to the variable of training experience, the results indicated the existence of statistically significant differences at the level (0.05) in the dimensions (independence - psychological aspect - physiological aspect) in favor of players whose experience ranged between 10 years and more. Through the results of the study, the researcher recommends the need to pay attention to psychological preparation programs that help raise the level of self-confidence, and that this should start from the early age players.

**Keywords:** Self-confidence, Football players, Training experience.

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## introduction

In recent years, sports psychology has become one of the sciences that has an impact and effectiveness on the behavior and performance of athletes in order to achieve various sporting achievements through the ability to understand sports behavior and how to manage it (Al-Damour, Ibrahim, 2018).

Self-confidence is considered one of the personal characteristics that help individuals achieve a good level of psychological health, and thus be compatible with themselves first and with societal institutions second. Therefore, Ghalyanee (2016) believes that self-confidence is a goal sought by members of society regardless of the differences between their personal and social levels, because whoever enjoys it feels happy and satisfied, because of the important role it represents in the lives of individuals and a factor in emotional growth and psychological stability .

Self-confidence is also one of the greatest behavioral values that athletes and sports teams can rely on, which will push them towards excellence and excellence and achieving major sporting achievements by competing with their peers in various international and Olympic competitions and championships, in which the struggle to achieve these titles is intense (Al-Qalali, 2022).

Both Al-Saqqa and Faqihi (2023) emphasize that self-confidence is one of the personal traits that makes the individual athlete feel competent and able to face sporting difficulties and obstacles, which enables him to use his maximum abilities and potentials in order to achieve his goals, in addition to the important role of self-confidence in the cohesion and strength of the personality.(Kadhim, 2024b)

Sorour and Mahdi (2003) believe that self-confidence in the sports field is considered one of the most important mental skills because it is linked to self-worth and the athlete's self-esteem, which may affect the level of the player's performance in a positive or negative way, such as the player pushing himself to exert more effort in order to emphasize his abilities and achieve success, or hindering performance due to the feeling of inability to achieve success .(Fadel & Kadem, 2021)

Many athletes believe that self-confidence is the main reason for achieving victory and sporting achievement. This is a false belief that may lead to more overconfidence (Rateb, 2007). The correct concept of self-confidence is the individual athlete's realistic expectation to achieve success. It is noted in the field of sports competition that there are some athletes who lack self-confidence, some of whom possess a high degree of self-confidence, and on the other hand, there are those who possess a sufficient amount of self-confidence, and this is the required level of confidence. Therefore, Vealey (1986) confirmed that the concept of sports confidence means“ the belief or degree of certainty that individuals possess about their abilities to be successful in sports ”.

Bin Najma (2019) indicated that the study of self-confidence has received interest from researchers, as many sports coaches in charge of the training process believe that the priority is to pay attention to training, skill and tactical programs and mastering skill performance in general, without neglecting the necessity of developing the psychological and mental characteristics of athletes by raising the level of self-confidence in light of comprehensive psychological programs with the aim of optimal qualification and guidance for athletes.(Kadhim, 2024a)

In order to reach a high level of performance and achieve achievements in the sport of football, focus must be placed on developing the psychological and mental attributes of players in all stages of sports training because these attributes have an essential role in achieving the desired goals. Studying the level of self-confidence is considered one of the important topics that needs more study by researchers and knowledge of what is new about it .

In the game of football, the trait of self-confidence is one of the most prominent and important psychological traits that make a difference in performance, and the team or athlete who has this trait increases his percentage or chance of winning and achieving the best sporting levels. Among the psychological skills, the trait of self-confidence is closely linked to various other skills, and the athlete who is characterized by the trait of self-confidence is very confident of himself, his abilities, and his skills and can act well in unexpected situations in competition .Just as football players need to have very high confidence during matches because the players are exposed to great psychological pressures that contribute to influencing both the task to be performed and the player's responsibility towards his coach, his fans, and his teammates, as well as the frustrations and losses that the player is exposed to, which would affect his behaviour, actions and actions, as well as being reflected in his performance in various sports competitions. Therefore, the researcher believes it is necessary to identify the psychological and mental characteristics of the players in order to deal and communicate optimally with them by developing their abilities in order to achieve sporting achievements.

Importance of the study:

The importance of this study lies in two theoretical and practical aspects as follows:

A-Theoretical importance:

- The results of this study may represent a scientific addition by providing a more comprehensive concept of the level of self-confidence among football players.
- The theoretical importance is represented by highlighting studies that dealt with the subject of self-confidence for athletes.

B- Practical importance:

- The study may provide results and recommendations that help sports coaches and all those involved in the training process pay attention to psychological aspects while planning training programs with the aim of identifying the level of self-confidence.
- Providing a tool to measure the level of self-confidence that has psychometric properties for the study sample members.

### **Study objectives:**

The current study aimed to identify the following:

1. Levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia.
2. Differences in the levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia according to the variable of years of experience.

### **Study questions:**

The current study attempts to answer the following questions:



1. What are the levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia?
2. Are there statistically significant differences in the levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia according to the years of experience variable?

**Study terms:**

1. Self-confidence:

Allawi (2018) defines it as “the belief or degree of certainty or certainty that a person has the ability to be successful”.

Sports Confidence “:The belief or degree of certainty that individuals have about their abilities to be successful in sports (Vealey, 1986)

Previous studies

Kazem (2014) conducted a study entitled “Self-confidence and its relationship to the level of social-motor cohesion among young football players The researcher used the descriptive approach, where the self-confidence scale was applied to a sample of 45 young football players. The most prominent results of the study indicated that the players from the study sample had a high degree of self-confidence .

Kazem (2015) conducted a study entitled “The relationship between achievement motivation and self-confidence with the accuracy of aiming by jumping high in handball”. The study aimed to identify achievement motivation and self-confidence and their relationship to the accuracy of the skill of aiming by jumping high among the players of the Al-Qadisiyah University handball team. The study was applied to a sample of (12) players from the Al-Qadisiyah University team who were chosen intentionally, and two measures of athletic achievement motivation and self-confidence were applied, and the results of the study were reached. Although the handball players under study have a high level of self-confidence, there is no statistically significant relationship between self-confidence and shooting accuracy while jumping upward.

In a study that used the experimental method on a sample of 20 basketball players entitled “The Effect of a Psychological Training Program on Developing Self-Confidence among Basketball Players”, with the aim of identifying the effect of a psychological training program on the self-confidence of basketball players and identifying the differences between players in developing self-confidence, the results of the study confirmed that the training program that was applied had a positive impact on developing the levels of self-confidence among the basketball players under study (Villafi, Bin Hamed, 2020).

Toktas & Bas (2019) conducted a study aimed at identifying the relationship between levels of self-confidence and motivation among high school students participating in sports competitions. The researchers used the descriptive approach, and the study sample consisted of 856 players who participated in sports competitions. The most prominent results indicated the existence of a direct, statistically significant relationship between motivation and levels of self-confidence.

Rachida, Mustapha & ,Bachera (2020) conducted a study aimed at identifying the relationship of self-confidence to the performance of junior wrestlers in Algeria. The descriptive approach was used on a sample of (21) players. The most prominent results of the study indicated that there is a moderate, positive, and statistically significant



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relationship between the self-confidence of wrestlers and the performance result during the African Games in the study sample.

Rachida, Bachera & ,Walid (2021) also conducted a study that aimed to identify the level of self-confidence and athletic achievement motivation among elite athletes in the sport of karate. The descriptive approach was used on a deliberate sample of (20) players, and the self-confidence scale (Vealey, 1986) was used. The results of the study concluded that there is a high level of self-confidence and achievement motivation among elite athletes in the sport of karate.

Study methodology:

Study population:

The study population consists of football players in the first division league in the Kingdom of Saudi Arabia registered with the Saudi Federation for the year 1444 - 1445 AH, and their number is (450) players, representing 18 clubs.

### Study sample:

#### 1. Survey sample:

The exploratory sample was randomly selected from players registered in first-class football clubs. The exploratory study sample consisted of (20) players and the study tool was applied to them .

#### 2. Basic search sample:

The study sample was selected using a random method and consisted of (100) players from the first-class club league in the Kingdom of Saudi Arabia during the sports season 1444-1445 AH.

Table (1) Distribution of study individuals according to the training experience variable

Ratio	Repetition	Training experience (training experience)
%22	22	Less than 5 years old
%35	35	From 5-9 years
%43	43	10years and more
%100	100	the total

Table No. (1) shows the characteristics of the study sample of first-class club players in the Kingdom of Saudi Arabia according to the training experience variable. It was found that (22%) of the total study sample had coaching experience (less than 5 years), while the percentage of the study sample of players whose experience ranged from (5-9 years) constituted (35%) of the total study sample, and those with 10 years or more of training experience constituted 43% of the total study sample.

### Study limitations:

The limitations of the current study are as follows:

Human limits :The current study was limited to football players in the first division club league in the Kingdom of Saudi Arabia during the sports season 1444-1445 AH.

Temporal limits :The study was applied to football players in the first-class club league in the Kingdom of Saudi Arabia during the sports season 1444-1445 AH.

### Sixth: Study tools:

To achieve the objectives of the study, the researcher applied the self-confidence scale to the study sample .Self-confidence scale:

In this study, the researcher used the self-confidence scale that was built and codified by Qawasmeh and Al-Farah (1996). The scale consists of five dimensions:

#### A-Independence.

- 2The physiological aspect.
- 3The psychological aspect.
- 4The social aspect.
- 5Linguistic fluency.

The researcher codified the scale and subjected it to validity and reliability tests before using it for the purposes of the current study. The scale consists of 23 statements.

Scale correction method:

The scale was corrected by giving degrees of agreement as follows:

In order to unify the criterion for judging the levels of self-confidence among the research sample of football players in the first division club league in the Kingdom of Saudi Arabia registered with the Saudi Federation, follow the following:

Since the lowest score on the self-confidence scale is (23), and the highest score is (115), subtract  $(115 - 23) = 92$ , then divide it by 5, which is five categories,  $92/5 =$  approximately 18.4.

So the range of the categories is approximately 18.4. The average score was converted to a percentage scale (dividing the actual arithmetic average by the total score and then multiplying the result by one hundred). To facilitate making judgments, the following criteria were adopted to judge the levels of self-confidence among the study sample of football players in the first division league in the Kingdom of Saudi Arabia.

Table No. (2) Criteria for describing the levels of self-confidence among the study sample of football players in the first division league in the Kingdom of Saudi Arabia

Percentage range of scores	Degree categories	level
From 11 to 28%	From 18 to 36	Very low
From 29 to 46%	From 37 to 55	Low
From 47 to 64%	From 56 to 74	Medium
From 65 to 82%	From 75 to 93	High
From 83 to 100%	From 94 to 115	Very high

#### **Psychometric properties of the scale:**

To verify the psychometric properties (validity and reliability) of the self-confidence scale in the current study, the following was done:

-1 Validity of the self-confidence scale:

The researcher estimated the validity of the self-confidence scale in his current study using the internal consistency validity or internal construct validity of the scale on the exploratory study sample :

1. Calculating the values of the correlation coefficients between the score of each statement of the self-confidence scale and the total score of the dimension to which it belongs. The results were as shown in the following table:

Table No. (3) Values of correlation coefficients between the score of each statement of the self-confidence scale and the total score of the self-confidence scale

Correlation coefficient	Ferry number	Correlation coefficient	Ferry number
**0.945	2	**0.905	1
**0.906	4	**0.904	3
**0.954	6	**0.906	5
**0.945	8	**0.911	7
**0.932	10	**0.954	9

**0.910	12	**0.908	11
0.921**	14	**0.961	13
0.914**	16	0.906**	15
0.920**	18	0.910**	17
0.915**	20	0.917**	19
0.921**	22	0.907**	21
		0.916**	23

\*\*Significant at the significance level of 0.01 or less.

It is clear from the previous table No. (3) that all correlation coefficients between the score of each statement of the self-confidence scale and the total score of the scale were statistically significant at the significance level (0.01), where the correlation coefficients ranged between (0.904) and (0.961); Which reflects a high degree of construct validity for the self-confidence scale.

Stability of the self-confidence scale:

Reliability coefficients were calculated using the Alpha Coefficient as shown in Table (4).

Table No(4) .

Values of Cronbach's alpha coefficient for the stability of the scale's statements, n = 20

Alpha coefficient	number phrase	Alpha coefficient	Ferry number
0.795	2	0.708	1
0.710	4	0.760	3
0.720	6	0.704	5
0.740	8	0.815	7
0.713	10	0.845	9
0.720	12	0.700	11
0.802	14	0.790	13
0.790	16	0.717	15
0.792	18	0.745	17
0.785	20	0.776	19
0.714	22	0.756	21
		0.712	23

The table above (4) shows that the alpha coefficient for the questionnaire statements ranged between (0.700 - 0.815), which is a high degree of reliability, which reflects that the questionnaire statements were characterized by a significant reliability coefficient at the level of (0.05), which indicates the possibility of relying on it as a standardized questionnaire to measure self-confidence among football players in the first division league in the Kingdom of Saudi Arabia.

Present and discuss the results

Presentation and discussion of results related to the first question :

What are the levels of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia?

To answer this question, the arithmetic means, standard deviations, relative weights, and “ t ” value for the total score of the self-confidence scale were calculated, as shown in the following table :

Table No(5) .

Arithmetic means, standard deviations, and relative importance of the dimensions of the self-confidence scale

Relative importance%	Standard deviation	Arithmetic average	Distance	M
%59.39	0.71	2.97	Independence	1
%47.01	0.76	2.33	Physiological aspect	2
%73.47	0.64	2.75	The psychological aspect	3
%61.67	0.75	3.03	The social aspect	4
%44.82	0.79	2.20	Linguistic fluency	5

It is clear from Table No. (5) that the highest arithmetic average of the dimensions of the self-confidence scale among the football players under study was in the (psychological aspect) dimension, which came in at a percentage of (73.47%), followed by the social aspect dimension (61.67%). This gives an indication of the importance of these dimensions in gaining a high level of self-confidence, and the results of the current study are consistent with the results of Al-Qalali’s study (2022), which indicated that football players possess a high level of self-confidence .It also agrees with the results of Kazem’s (2015) study, which indicated that the study sample members (handball players) have a high level of self-confidence .

Presentation and discussion of results related to the second question :

Are there statistically significant differences in the measure of self-confidence among football players in the first division league in the Kingdom of Saudi Arabia according to the training experience variable ?

Table No. (6) Arithmetic means and standard deviations for the study sample according to the training experience variable

Training experience							Scale dimensions	M
10years and more n = 43		9-5years n = 35		Less than 5 years N = 22				
A	M	A	M	A	M			
0.52	2.77	0.86	2.79	0.64	3.36	Independence	1	
0.61	3.35	0.81	1.30	0.55	2.90	Physiological aspect	2	
0.59	3.25	0.77	3.55	0.56	2.94	The psychological aspect	3	
0.83	2.05	0.88	3.06	0.53	1.85	The social aspect	4	
0.84	2.03	0.81	2.63	0.82	1.88	Linguistic fluency	5	

Table No. (6) shows the arithmetic means and standard deviations for the study sample according to the training experience variable in all dimensions of the self-confidence scale for the players under study, where the range of the arithmetic means ranged from (1.30) to (3.55). The independence dimension was more influential on players whose number of years of experience was less than 5 years, while the results showed the influence of the psychological aspect axis on the study sample was greater for those whose training experience ranged from 5-9 years, and the physiological aspect dimension came as the most significant dimension of the scale. Impact on the study sample who had 10 years or more of experience.

Table(7)

One-way analysis of variance)) One –Way-ANOVA To find out the differences in the level of self-confidence scale among football players in the first division league in the Kingdom of Saudi Arabia according to the training experience variable

F value	Mean squares	Degree of freedom	Sum of squares	Source of variance	Distance	M
*14.13	228.80	2	475.61	Between groups	Independence	1
	16.19	97	1570.52	Within groups		
	----	99	2028.13	Grand total		
*21.52	243.7	2	487.40	Between groups	Physiological aspect	2
	11.32	97	1098.49	Within groups		
	----	99	1585.89	Grand total		
*11.38	167.75	2	335.51	Between groups	The psychological aspect	3
	14.73	97	1414.37	Within groups		
	----	99	1749.88	Grand total		
2.68	62.4	2	124.80	Between groups	The social aspect	4
	23.20	97	2250.76	Within groups		
	----	99	2375.56	Grand total		
1.33	27.73	2	55.46	Between groups	Linguistic fluency	5
	20.70	97	2008.8	Within groups		
	----	99	2064.26	Grand total		



To find out the statistically significant differences in the level of the self-confidence scale among football players in the first division league in the Kingdom of Saudi Arabia according to the variable of training experience, the researcher used one-way analysis of variance (One Way ANOVA). The results showed that there were statistically significant differences in the dimensions (independence, physiological aspect, psychological aspect) in favor of players with 10 years of experience or more, which is consistent with the results of the study (Toktas & Bas, 2019). The researcher attributes this to the fact that players' participation in sports competitions on an ongoing basis contributes to Great access to good sports experience, which reflects positively on the development and high level of self-confidence in them, and then the high level of their sports performance. While the results of the current study showed that there were no statistically significant differences in the dimensions (social aspect, linguistic fluency) according to the training experience variable.(Farhan et al., 2016)

In light of the results of the current study, the researcher recommends the need for sports coaches to pay attention to building a strong level of self-confidence, as it is one of the pillars of the players' psychological preparation and its important role in maintaining the level of sports confidence in the stressful conditions of sports competitions.(Khamees et al., n.d.)



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## Standard scores and levels for certain legal situations among first-class basketball referees

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2180](https://doi.org/10.37359/JOPE.V37(1)2025.2180)

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**Article history:** Received 24/ June/2024 Accepted 1/ July/2024 Available online 28/ March /2025

### Abstract

The significance of the research lies in the fact that electronic technologies represent an important step in evaluating legal situations, and the research problem centered on the lack of attention to visual requirements and the absence of a clear image of legal situations that may be difficult for the referee to apply correctly in addition to the lack of focus on visual requirements and the unclear depiction of some legal cases which make it difficult for the referee to interpret them correctly This is because the referee's main tool is visual perception, which interprets live situations such as violations, fouls, and other cases that arise during a game Moreover, there are numerous responses and challenges in evaluating legal situations as the evaluation often relies on subjective or visual estimates based on the opinions of others, leading to inaccuracies in assessing refereeing performance.

The objectives of the research were to prepare a set of legal situations for first-class basketball referees in Iraq, to design an electronic test for certain legal situations in basketball, and to identify the scores and standard levels for some legal situations in basketball The researchers used the descriptive survey method, and the research population consisted of 65 first-class basketball referees in Iraq To statistically analyze the data resulting from the test, the Statistical Package for the Social Sciences (SPSS) was used.

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In light of the results, several conclusions were reached, including the design and validation of the electronic test for some legal situations for first-class basketball referees in Iraq, which is the first of its kind in the Iraqi environment, setting reference standards to serve as criteria for evaluation, comparison, or selection, and determining the standard levels for the results of the electronic test for certain legal situations for first-class basketball referees in Iraq.

**Keywords:** Legal situations in basketball, electronic test, first-class referees, scores and standard levels.

### Introduction:

The significant development that the world has achieved is merely the result of numerous research studies aimed at improving life in general and the sports field in particular. This necessitates that those involved in this field adopt modern methods and techniques to contribute to the development of sports games (Asmaa Hikmet Fadil & Khalil Setar Mohammed, 2022). Basketball is one of the team sports that has seen substantial growth at both local and international levels due to its diverse skills, fast performance, excitement, and thrill. There is considerable interest from the International Basketball Federation (FIBA) in the evaluation process and the preparation of officiating courses. Refereeing involves assessing situations and events based on a set of rules that must be taken into consideration to ensure the organization of matches and the effective application of rules to make fair decisions.

Basketball is related to various sciences, including testing and measurement, which play an essential role in evaluating and developing referees. Therefore, evaluations aim to find appropriate solutions and diagnose strengths and weaknesses accurately, helping referees interpret the situations they encounter. Recent studies indicate a strong trend towards electronic programs as they closely reflect reality in preparing tests. This benefits referees by establishing tests to diagnose and reduce mistakes that occur in matches. According to (Teda and S. Jackson, 1999), the primary goal of testing is to simulate match conditions with standardized procedures for recording (Faris Sami Yousif Shabba & Ali Kamal Hussein, 2013). Electronic technologies represent an important step in evaluating legal situations, contributing to early detection of referees' readiness (Faris Sami Yousif Shabba & Taha Mohamed Hamid, 2022), and increasing their effectiveness on the court by enabling quick and accurate decision-making.

In modern play, referees make approximately 700 decisions in each game (FIBA, 2022) due to the fast pace and high efficiency corresponding to the speed of the ball and the offensive and defensive movements of players. The importance of finding an electronic test lies in its contribution to understanding the levels of legal situations for first-class basketball referees, as situations that frequently recur in matches require a high level of knowledge about the game's rules and the ability to make timely decisions. The research problem is that the officiating



situations faced by referees during matches significantly impact game management and minimizing mistakes, given the speed of play and the changing dynamics of both teams. The evaluation method often used for responses and challenges in cognitive situations relies on subjective estimates, leading to inaccuracies in assessing refereeing performance. Researchers have noted a lack of attention to visual requirements and the unclear depiction of some legal situations that may be difficult for referees to apply correctly. Furthermore, first-class referees face challenges in developing their skills and objectively assessing their performance due to ongoing updates to the rules. Therefore, the researchers believe that first-class referees need a process to evaluate certain legal situations through an electronic test, which is an important part of the officiating process. The research objectives include preparing some legal situations for first-class basketball referees, designing an electronic test for specific legal situations in basketball, and identifying the scores and standard levels for these legal situations.(Abdulhussein et al., 2024)

**Method and Tools:**

The research problem necessitated the use of a descriptive method with a survey approach. The sample selection must accurately represent the research community, which consists of first-class basketball referees in Iraq for the sports season (2023-2024). The research sample included 65 referees, while a pilot sample consisted of 5 referees. Steps were taken to design a test for some legal situations involving 30 referees to determine the difficulty and discrimination indices, as well as the scientific foundations of the test. The test was then applied to the standardization sample, which comprised 55 referees. The skewness coefficient was calculated, along with the extraction of scores and standard levels for the sample.

**Legal Situations Materials:**

The materials that referee need during basketball games for legal situations were identified after reviewing scientific references and conducting some personal interviews. A total of 16 legal situation materials were determined and presented to experts and specialists in officiating materials, totaling 12, to assess their suitability. After analyzing the responses using the percentage agreement law of the experts' opinions, 11 legal situation materials were selected, as shown in Table (1).

Table (1): Legal Situations

No.	Name of the Legal Material	Agree	Disagree	Percentage (%)	Result
1	<b>Jump ball and alternating possession</b>	12	0	100	<b>Significant</b>
2	<b>Player in the act of</b>	12	0	100	<b>Significant</b>

	<b>shooting</b>				
<b>3</b>	<b>Dribbling</b>	<b>4</b>	<b>8</b>	<b>33</b>	<b>Non-Significant</b>
<b>4</b>	<b>Travelling</b>	<b>10</b>	<b>2</b>	<b>83</b>	<b>Significant</b>
<b>5</b>	<b>Three Seconds</b>	<b>5</b>	<b>7</b>	<b>42</b>	<b>Non-Significant</b>
<b>6</b>	<b>Eight Seconds</b>	<b>8</b>	<b>4</b>	<b>67</b>	<b>Non-Significant</b>
<b>7</b>	<b>Shot clock</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>8</b>	<b>Ball returned to the backcourt</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>9</b>	<b>Goal tending and interference</b>	<b>10</b>	<b>2</b>	<b>83</b>	<b>Significant</b>
<b>10</b>	<b>Personal Foul</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>11</b>	<b>Technical Foul</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>12</b>	<b>Unsportsmanlike Foul</b>	<b>12</b>	<b>0</b>	<b>100</b>	<b>Significant</b>
<b>13</b>	<b>Disqualifying Foul</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>14</b>	<b>Fighting</b>	<b>9</b>	<b>4</b>	<b>75</b>	<b>Non-Significant</b>
<b>15</b>	<b>Special situations</b>	<b>11</b>	<b>1</b>	<b>92</b>	<b>Significant</b>
<b>16</b>	<b>Instant Replay System</b>	<b>7</b>	<b>5</b>	<b>58</b>	<b>Non-Significant</b>

### Legal Situations for First-Class Basketball Referees:

After identifying the 11 materials, cases suitable for them were prepared, and the clips, images, shapes, and drawings were modified using advanced editing programs to serve the electronic test and legal situations. Images that benefited the research were selected, and questions related to the legal situations were also prepared, consisting of 82 cases. These were presented to experts and specialists to assign importance ratings. The results were then processed to select cases with a reliance rate of 80% or above; any rate below that would lead to the case being discarded (Bashar Halim Diabarti, 2019). After analyzing the responses, 50 legal cases were approved, and they were then presented in a special questionnaire for international referees to agree upon and prioritize one of two adopted cases (A - B) for each material in its final form. The following agreements were made: case A was chosen for questions (2-4-5-6-9-11-13-15-16-19-20-21-23-25), while case B was chosen for questions (1-3-7-8-10-12-14-17-18-22-24). In conclusion, 25 legal cases were approved for research, as shown in Appendix (1).

## Steps for Preparing the Electronic Test for Some Legal Situations for First-Class Basketball Referees:

The electronic test program was designed, including various components, after making several modifications and specific details related to the program. It consists of several components:

1. **The Icon:** This is the main interface displayed on the computer, which is a specific application. It is shaped like a referee's whistle with a circular basketball, and below it is the name of the application (Basketball Tests). When clicked with the mouse, the main interface of the program will appear, as shown in Image (1).

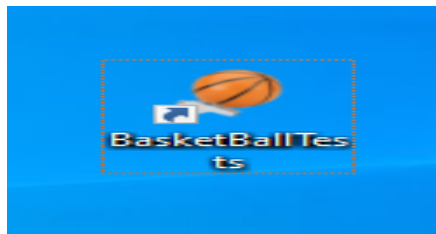


Image (1): Application (Icon)

### 2. Main Interface:

- **Basketball Test:** At the top of the interface is the name of the program.
- **USER NAME:** A unique username for each tester.
- **PASSWORD:** A unique password for each tester, as shown in Image (2), consisting of two main parts:
  - a. The username and password for the researchers.
  - b. The username and password for each tester.

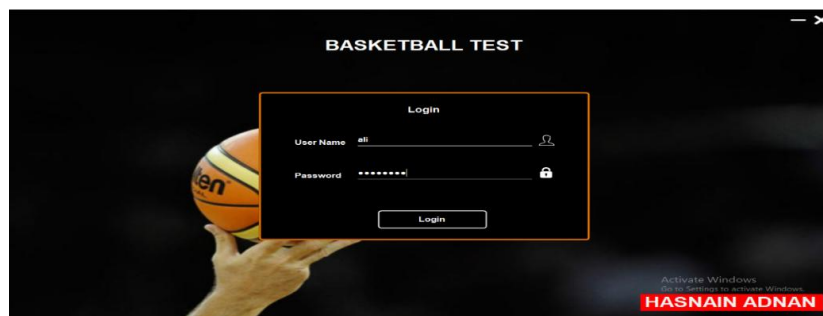


Image (2): Main Interface

3. Upon entering the test, the interface for the first question appears as shown in Image (3), summarized as follows:

- **Top right:** The text question; the tester should read the question carefully before moving on to view the situation.
- **Top left:** The remaining time for the test, which starts counting down.
- **Top left:** Viewing the situation; the tester should focus on the video situation, as the video cannot be replayed once it finishes.
- **Bottom right:** The total number of questions, and at the bottom center, the number of remaining questions.
- **Bottom left:** The name of the referee (tester).




Image (3): Question Management

4. Clicking on "View Situation" (either an image or a video) will allow answering one of the options, as shown in Image (4).

**Legal cases test****Remaining time: 12:41**

- The shot clock operator must reset the clock when the white team player number (32) inbounded the ball from out of bounds?

**Reviewing the play**



correct

incorrect

**Number of questions: 25****Number of remaining questions: 24**

**Referee's name: Hasanain Adnan Abd Alqader**

Image (4): the complete question

#### **Pilot Study on the Electronic Test for Certain Legal Cases:**

The pilot study was conducted on (5) referees from the research sample to ensure the functionality of the program and to verify that there were no errors in setting up the test, running it, the method of accessing the electronic test, and the time taken for the test (mean = 13 minutes).

#### **Testing Certain Legal Cases for First Division Basketball Referees:**

The test for legal cases consisting of (25) officiating scenarios was applied to a sample of (30) referees on (Monday), March 4, 2023, in the Al-Shaab Sports Hall in Baghdad, involving (14) referees. The experiment was completed with (16) referees at the Ministry of Youth and Sports Hall in Karbala Governorate on (Tuesday), March 5, 2023.

### Difficulty and Discrimination Indices:

The difficulty and discrimination indices for each question in the legal cases test were calculated. The recommendations from experts were followed, adopting a ratio between (0.2 - 0.80), and any ratio outside this range was excluded. As for the discrimination index, it was compared for distinctive cases against those that were not distinctive, according to the criteria set by Ebel, who indicates that an item is rejected if its index is (0.19) or below, and accepted if it is (0.20) or above (Salah El-Din Mahmoud Alam, 2011), as shown in Table (2).

Table (2): Difficulty and Discrimination Indices

Case number	Difficulty Coefficient	Discrimination Coefficient	Case number	Difficulty Coefficient	Discrimination Coefficient
1	63.33	0.73	14	56.66	0.86
2	43.33	0.86	15	63.33	0.73
3	66.66	0.66	16	66.66	0.66
4	63.33	0.73	17	63.33	0.73
5	56.66	0.86	18	56.66	0.86
6	66.66	0.66	19	66.66	0.66
7	66.66	0.66	20	66.66	0.66
8	56.66	0.86	21	56.66	0.86
9	56.66	0.86	22	66.66	0.66
10	63.33	0.73	23	56.66	0.86
11	43.33	0.86	24	63.33	0.73
12	43.33	0.86	25	63.33	0.73
13	66.66	0.66	-	-	-

### Scientific Foundations of the Test:

Errors in any measurement cannot be completely eliminated; however, the goal of measurement specialists in all fields is to minimize these inevitable errors as much as possible. It is essential to verify the scientific parameters of the test before conducting the main experiment (Setar Mohammed et al., 2023).

### Apparent Validity:

The test cases were presented to a group of (12) experts in testing, measurement, and basketball officiating to assess how well the test represents the aspects to be measured. This was done using the percentage agreement method to determine the extent of the test's representation. This type of validity was achieved, as shown in Table (1).

### Discriminative Validity:

The t-test for independent samples was used to establish the validity of the test based on its ability to distinguish between individuals with high scores and those with low scores in the characteristic being measured by the test (Kamil Aboud Hussein, 2008). The sample consisted of (30) referees, with (15) referees in the upper group and (15) referees in the lower group. To apply the appropriate statistical formulation for this method, (Rabi Khafaf Jamil Al-Zuhairi & Omar Samir Dhnoon Mala Hamo, 2023) indicated that "in such cases, when the sample size is less than (100), (50%) of the sample can be taken as the upper group and (50%) as the lower group." After processing the results statistically, it was found that the test was valid since the value of (sig) was less than the error level (0.05) at a degree of freedom (28) and a significance level of (0.05), as shown in Table (3).

Table (3): Results of Discriminative Validity for the Upper and Lower Groups

Test Name	Unit of Measurement	Upper Group		Lower Group		t-value	Sig .*	Significance
		Mean	Standard Deviation	Mean	Standard Deviation			
Legal Cases	Score	17.00	1.690	13.27	0.799	7.733	0.00	Statistically Significant

\* The error level is considered statistically significant when it is < (0.05) at a degree of freedom of (28).



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### Reliability:

The reliability coefficient is defined as the extent to which the test is free from random errors that may affect the measurement, i.e., the extent to which the test measures the true amount of the characteristic it aims to measure (Salah El-Din Mahmoud Alam, 2011). To ensure the stability of the results obtained from the test, the test-retest method was used. After obtaining the results from the first day of testing, the retest was conducted after (14) days on the same sample. The reliability coefficient was calculated using the Intraclass Correlation Coefficient (ICC), and the results showed a reliability coefficient of (0.777). ( Cleophas & Zwinderman , 2016) indicate that an agreement level of 70-80% is considered good.

### Objectivity:

Objectivity refers to the clarity of the instructions related to the implementation of the test. Here, objectivity is achieved because the test is electronic, governed by system controls, and the referee conducts the test and relies on their ability to see their score immediately after completing the test.

### The main test experiment:

The test was conducted on a standardization sample consisting of (55) referees, with the assistance of the supporting team.

### Statistical Package (SPSS):

The following were used: mean, standard deviation, median, skewness coefficient, percentage, intraclass correlation coefficient (ICC), difficulty and discrimination indices, standardized scores (Z-scores and T-scores), and the T-test for two independent samples with equal sizes.

### Presentation of Results:

The statistical description of the legal cases test for first-class basketball referees, as shown in Table (4).

Table (4): The Statistical Description of the Standardization Sample

Legal Cases Test Values	Statistical Measures
Mean	14.80
Median	14.00
Standard Deviation	2.320
Skewness *	0.538
Minimum Value	11
Maximum Value	20

\* Skewness is considered normal when the value is between  $\pm 1$ .

#### Raw and Standard Scores and Their Frequency for Legal Cases:

The purpose of extracting norms, which can be derived through statistical methods from raw scores, is to compare each referee's performance with the overall group performance they belong to (Ngham Khalid Yaseen, 2021). Norms also play an essential role in documenting test results in tables, complementing the standardization of proper test procedures (Faris Sami Yousif Shabba et al., 2017). Raw scores, by themselves, have no inherent meaning or significance, and are not suitable for comparison with scores in other tests or measurements unless converted into standardized scores (Douglas & Alan, 1998, p. 73). The modified T-score was used, as referenced by (Mohamed Hassan Allawi & Mohamed Nasr El-Din Radwan, 1988), to define the relative position of raw scores, allowing for interpretation and meaningful significance (Ammar Fares Attia Al-Samarrai & Faris Sami Yousif Shabba, 2024).

These norms are considered criterion-referenced standards, as they are established for the first time in the Iraqi environment. Criterion-referenced tests, as noted by (Mohamed Jasim Al-Yasiri, 2010), are among the most widespread types in the field of sports (Faris Sami Yousif Shabba & Laith Mohammed Abdulrazzaq, 2016). Refer to Table (5) for further details.

Table (5): Raw, Z-scores, and Modified T-scores for the Standardization Sample

No.	Raw Score	Z-score	Modified T-score	Frequency
1	11	- 1.64	33.62	1
2	12	- 1.21	37.93	9
3	13	- 0.78	42.24	9
4	14	- 0.34	46.55	11
5	15	0.09	50.86	3
6	16	0.52	55.17	8
7	17	0.95	59.48	8
8	18	1.38	63.79	2
9	19	1.81	68.10	1
10	20	2.24	72.41	3

### Standard Levels:

The Gaussian curve was used, which is considered one of the objective methods for estimating scores. It is one of the most common distributions in physical education because many attributes measured in this field follow a normal distribution (Amira Hanna Marqous, 2001). Accordingly, three standard levels were adopted by merging every two levels into one under the curve, as shown in Table (6).

Table (6): Standard Levels and Percentages Under the Curve

Standard Levels	Above Average	Average	Below Average
Percentages	% 15.73	% 68.26	% 15.73

Below are the boundaries of the raw scores and modified T-scores that correspond to these levels, as shown in Table (7).

Table (7): Boundaries of Raw Scores and Modified T-scores Corresponding to Standard Levels, Sample Size, and Percentages of Results for the Legal Cases Test for First-Class Basketball Referees

Standard Levels	Raw Score Limits	Modified T-score Limits	Sample Size	Percentages %
Below Average	0 – 8.33	0 – 26.66	0	0
Average	8.34 – 16.66	26.67 – 53.32	33	60
Above Average	16.67 - 25	53.33 - 80	22	40

### Discussion of Results:

The results of the legal cases test indicate that the referees' scores are distributed across the second and third levels (Average and Above Average). At the second level (Average), their percentage reached (60%), which is lower than the percentage in a normal distribution of (68.26%). In the third level (Above Average), their percentage was (40%), which is higher than the percentage in a normal distribution of (15.73%). Therefore, based on the results achieved by first-class basketball referees, it is imperative that we work more precisely and extensively to develop and enhance these legal cases by organizing workshops and continuous training sessions aimed at acquiring new experiences that can lead to better performance (Shabba, JARO, & mahmood, 2016). This is confirmed by (Kadhim Habib Abbas, 2015), who states that the success of the officiating process is one of the important dimensions that depend on a good and deep understanding of the rules of the game by the referee. Referees need more training courses to reach a level that qualifies them for international certification to avoid some of the problems that occur during matches, and referees must keep pace with the developments happening in the game.(Mondil et al., 2023)

Moreover, following the updates from the websites affiliated with the International Basketball Federation (FIBA) and international referees, who act as a link to convey and interpret the recent updates in making positions, movements, and specific duties during the game, is crucial. Referees must be fully aware of these aspects, as they assist in making the correct decision in appropriate situations. This was also emphasized in the study by (Sabag, Lidor , & Arnon , 2023, p. 21), which states that basketball referees benefit from international referees, as the latter can elevate the former's level. Additionally, there should be a focus on the training and preparation programs for basketball referees.

There should be an emphasis on preventing cognitive interference among the three referees and ensuring that each referee can make decisions within their area of responsibility. Consequently, referees should be aware of blowing their whistles in the correct positions, which



improves the accuracy of immediate decisions. (Nizar Ali Jabar, 2007) asserts that the referee's decision-making during a match, as well as the correctness and strength of that decision to address the situation requiring that decision, depends on the referee's presence in a position that allows them to gain a clear view of that situation, distinguishing right from wrong. Thus, a referee's decisions become very good when the referee has the necessary components for making correct decisions, which arise from the position the referee takes to monitor the situations. (Kadhim, 2024)

Researchers note that electronic testing is entirely different from theoretical testing, as it has significantly enhanced the acceptance of referees due to its alignment with the advancements in modern technology. Furthermore, it contributes to opening broad horizons for researchers to find new information (Abd & Shabba, 2021). Therefore, the test of certain legal cases for first-class basketball referees is a valid tool for evaluation. This is supported by (Kittel, Larkina, Elsworth, & Spittlea, 2019), who found that video-based testing is a valid measure for assessing decision-making skills among referees in an off-court environment subjected to evaluation. Additionally, such electronic tests assist referees in evaluating and assessing each referee's errors and making appropriate decisions when reviewing video cases to avoid mistakes during matches, which is a major problem affecting officiating levels.

(García-Santos et al., 2020) confirmed that referees must make the best possible decision within a limited timeframe, and it is recommended to consider this in distant practice when time is limited, as the situation becomes more realistic for the referee. There are also results supporting the use of video clips in assessing referees' decision-making skills in the study by (Sobko et al., 2021).

### **Conclusions:**

1. The design and standardization of the electronic test for certain legal cases for first-class basketball referees in Iraq is a pioneering effort within the Iraqi context.
2. The establishment of reference standards will serve as a benchmark for evaluation, comparison, and selection in the future.
3. The determination of standard levels for the results of the electronic test for certain legal cases among first-class basketball referees in Iraq has been successfully achieved.




### **Recommendations:**

1. Adopt the electronic test for certain legal cases for first-class referees in Iraq as part of the continuous evaluation process to identify performance levels within the Iraqi Basketball Federation.

2. Utilize the research-related standards as reference criteria for the selection of first-class basketball referees in Iraq.
3. Employ the designed electronic test as a tool for preparing cognitive assessments for national and international basketball federations.
4. Develop programs aimed at enhancing the cognitive performance of first-class basketball referees in Iraq concerning legal cases.
5. Implement a similar model for the electronic test in the preparation of legal assessments for other sports disciplines.

**Appendices:**





Appendix (1): Final Condition Preference Questionnaire

No.	Selected Condition	Unselected Condition	Textual Question and Displayed Cases
1	B	A	<p>18:11 الوقت المتبقي: اختيار حالات الالاء المعرفي</p> <p>يوجد على شاطئ ساحة التصويب التوجيه عندما لا تصير ارباع الاضواء (32) الكرة من خارج الحدود ؟</p>  <p>عدد الإجابات: 35 عدد الإجابة الصحيحة: 24 اسم المعلم: مهند عليان عبد القادر</p>
2	A	B	<p>18:02 الوقت المتبقي: اختيار حالات الالاء المعرفي</p> <p>القرار الصحيح خطأ للمصعب مع احتساب التوقيت وتحت رمية حرة واحدة ؟</p>  <p>عدد الإجابات: 35 عدد الإجابة الصحيحة: 23 اسم المعلم: مهند عليان عبد القادر</p>
3	B	A	<p>17:53 الوقت المتبقي: اختيار حالات الالاء المعرفي</p> <p>خطأ فحوص ؟</p>  <p>عدد الإجابات: 35 عدد الإجابة الصحيحة: 22 اسم المعلم: مهند عليان عبد القادر</p>



4	A	B	 <p>17:49 الوقت المتبقي: 17:49 التحليل حالات الالام المعرفي خطا تصدق خطا مع اسم اللاعب: حسين عثمان عبد القادر عدد الاستثناء: 35 عدد الاستثناء المتبقية: 21</p>
5	A	B	 <p>17:42 الوقت المتبقي: 17:42 التحليل حالات الالام المعرفي من الجهد عدم التصاق خطا مع اسم اللاعب: حسين عثمان عبد القادر عدد الاستثناء: 35 عدد الاستثناء المتبقية: 20</p>
6	A	B	 <p>17:37 الوقت المتبقي: 17:37 التحليل حالات الالام المعرفي خطا تصدق خطا مع اسم اللاعب: حسين عثمان عبد القادر عدد الاستثناء: 35 عدد الاستثناء المتبقية: 19</p>
7	B	A	 <p>17:29 الوقت المتبقي: 17:29 التحليل حالات الالام المعرفي مناطق المشي بغيره خطا مع اسم اللاعب: حسين عثمان عبد القادر عدد الاستثناء: 35 عدد الاستثناء المتبقية: 18</p>

8	B	A	
9	A	B	
10	B	A	
11	A	B	

12	B	A	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">اختبار حالات الالاء المعرفي</p> <p style="text-align: right;">خطأ شخصي 1</p> <p style="text-align: left;">الوقت المتبقي: 16:50</p>  <p style="text-align: center;">خطأ</p> <p style="text-align: center;">صح</p> <p style="text-align: right;">عدد الإجابة الصحيحة: 12</p> <p style="text-align: left;">اسم المتكلم: حسين هادي عبد القادر</p> </div>
13	A	B	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">اختبار حالات الالاء المعرفي</p> <p style="text-align: right;">مخالفة الرجوع الي السادة الثلثية 1</p> <p style="text-align: left;">الوقت المتبقي: 16:40</p>  <p style="text-align: center;">خطأ</p> <p style="text-align: center;">صح</p> <p style="text-align: right;">عدد الإجابة الصحيحة: 12</p> <p style="text-align: left;">اسم المتكلم: حسين هادي عبد القادر</p> </div>
14	B	A	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">اختبار حالات الالاء المعرفي</p> <p style="text-align: right;">خطأ في هذه الإيضا رقم (9) بسبب من الخط 2</p> <p style="text-align: left;">الوقت المتبقي: 16:33</p>  <p style="text-align: center;">خطأ</p> <p style="text-align: center;">صح</p> <p style="text-align: right;">عدد الإجابة الصحيحة: 11</p> <p style="text-align: left;">اسم المتكلم: حسين هادي عبد القادر</p> </div>
15	A	B	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">اختبار حالات الالاء المعرفي</p> <p style="text-align: right;">تم تصفير خطأ هذه الإيضا رقم 23 الفريق الأبيض لديه 5 أخطاء يجب ان تستمر المباراة بواج زيات حرة لتفريق الازرق رقم 2 ؟</p> <p style="text-align: left;">الوقت المتبقي: 16:25</p>  <p style="text-align: center;">خطأ</p> <p style="text-align: center;">صح</p> <p style="text-align: right;">عدد الإجابة الصحيحة: 10</p> <p style="text-align: left;">اسم المتكلم: حسين هادي عبد القادر</p> </div>

16	A	B	<div style="text-align: right; font-size: small;">خطأ شخصي؟</div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="text" value="خطأ"/> <input type="text" value="صح"/> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>الوقت المتبقي: 16:21</span> <span>المختار حالات الالاء العربي</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>اسم المتكلم: حسين هادي عبد القادر</span> <span>عدد الاسئلة المتبقية: 8</span> <span>عدد الاسئلة: 35</span> </div>
17	B	A	<div style="text-align: right; font-size: small;">بولك شوخي؟</div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="text" value="خطأ"/> <input type="text" value="صح"/> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>الوقت المتبقي: 16:15</span> <span>المختار حالات الالاء العربي</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>اسم المتكلم: حسين هادي عبد القادر</span> <span>عدد الاسئلة المتبقية: 8</span> <span>عدد الاسئلة: 35</span> </div>
18	B	A	<div style="text-align: right; font-size: small;">تسلح رميات حررا؟</div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="text" value="خطأ"/> <input type="text" value="صح"/> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>الوقت المتبقي: 16:06</span> <span>المختار حالات الالاء العربي</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>اسم المتكلم: حسين هادي عبد القادر</span> <span>عدد الاسئلة المتبقية: 7</span> <span>عدد الاسئلة: 35</span> </div>
19	A	B	<div style="text-align: right; font-size: small;">من الافضل تصغير خطأ أنت؟</div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <input type="text" value="خطأ"/> <input type="text" value="صح"/> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>الوقت المتبقي: 15:53</span> <span>المختار حالات الالاء العربي</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin-top: 5px;"> <span>اسم المتكلم: حسين هادي عبد القادر</span> <span>عدد الاسئلة المتبقية: 6</span> <span>عدد الاسئلة: 35</span> </div>

20	A	B	 <p>وقت المباراة: 15:16        اختيار حالات الأداء المعرفي        خطأ متعدد 2        عدد الإجابة: 35        عدد الإجابة الصحيحة: 5        اسم المعلم: حسين عدنان عبد القادر</p>
21	A	B	 <p>وقت المباراة: 18:13        اختيار حالات الأداء المعرفي        خطأ متعدد من نوع 1        عدد الإجابة: 35        عدد الإجابة الصحيحة: 4        اسم المعلم: حسين عدنان عبد القادر</p>
22	B	A	 <p>وقت المباراة: 14:41        اختيار حالات الأداء المعرفي        مشكلة المتخي 1        عدد الإجابة: 35        عدد الإجابة الصحيحة: 3        اسم المعلم: حسين عدنان عبد القادر</p>
23	A	B	 <p>وقت المباراة: 14:30        اختيار حالات الأداء المعرفي        خطأ متعدد على لاعب فريق الأبيض وعم اخطأ على لاعب فريق الأزرق        عدد الإجابة: 35        عدد الإجابة الصحيحة: 2        اسم المعلم: حسين عدنان عبد القادر</p>

24	B	A	 <p>             14:21 الوقت المتبقي: اختيار حالات الالاء المعرفي              خطأ متسعة ؟              عدد الإجابة الصحيحة: 1              عدد الإجابة: 35              اسم الطالب: حسين عثمان عبد القادر         </p>
25	A	B	 <p>             14:06 الوقت المتبقي: اختيار حالات الالاء المعرفي              يعتبر الراء صحيح باعادة ساعة التمرين الي 24 ت ؟              عدد الإجابة الصحيحة: 0              عدد الإجابة: 35              اسم الطالب: حسين عثمان عبد القادر         </p>



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## The effect of educational exercises with the Edga model on the performance of the skills of preparation and overwhelming volleyball beating for students

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DOI: [https://doi.org/10.37359/JOPE.V37\(1\)2025.2219](https://doi.org/10.37359/JOPE.V37(1)2025.2219)

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Article history: Received 8/ October /2024 Accepted 17/ October/ 2024 Available online 28/March /2025

### Abstract

The aimed of the research to prepare educational units with the Edge model in performing the skills of the overwhelming preparation and beating of volleyball for students of the second stage in the College of Physical Education and Sports Science, and to know the impact of educational units with the Edga model in performing the skills of preparation and overwhelming volleyball among students of the second stage in the College of Physical Education and Sciences Sports, and the researchers assume that there are statistically significant differences between the results of the tribal and dimensional tests of the experimental and controlled research groups in the performance of the skills of preparing and overwhelming volleyball, and there are statistically significant differences between the results of the dimensional tests of the experimental research groups and the control according to the cognitive preference in the knowledge outcome and learn my skill Receiving the transmission and sending volleyball, I adopted the experimental research curriculum by designing the experimental groups and the two equal controls, while the research community is determined by the students of the second stage in the Faculty of Physical Education, Sports Science/University of Baghdad, for the academic year (2023/2024), the total number of (361) students distributed over (9) study people, The research sample was chosen from them randomly, two divisions, two to reach (64) students by (17.279%) of this society, and then one of these two divisions was chosen randomly, so that its students were the experimental group from the Division (D) and the other from the Division (C) officer with a number of (32) students Each group of them, as was chosen by the students of the Division (G) (10) students of the sample of exploratory experience representing

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(2.77 %) of their origin society, and after identifying the skill technical performance tests for each of the skills, the exercises were prepared and the vocabulary of the Edja model was employed, and applied by the reality An educational unit per week and each skill (4) units to continue the application (8) consecutive weeks and after the end of the experiment, the data was processed with SPSS To be the conclusions and recommendations that the application of the vocabulary of the Edga model in the practical physical education lessons for volleyball has proven suitable for students of the second stage in the College of Physical Education and Sports Sciences, and the Edga model application helps improve the performance of the skills of preparing and overwhelming volleyball in volleyball for students of the second stage in the Faculty of Physical Education and Sciences Sports, they outperform their performance in students who are studying in the way used in the practical lesson, and it is necessary Attention to the inclusion of the vocabulary of the Edga model and its inclusion in educational exercises, so that the teaching of the mind and the body is walking side by side in achieving the goals of the physical education studied practical.

**Keywords:** educational exercises, Edga model, volleyball preparation, overwhelming volleyball.

### **introduction**

Modernity in the methods of teaching physical education, and in teaching volleyball in particular, calls for attention to include everything that the teaching elements need, and not to be satisfied with the practical applications of educational exercises. What is intended from this research is its productivity with the required improvements, or directed towards the mind and body in skill learning in volleyball, that is, the actual need for attention to taking into consideration cooperation in this group game. Considering that the game of volleyball depends on group coordination and interaction between students, and therefore it is necessary for them to have an effective educational model to play a major role in improving students 'learning of the skills of this game, cooperative group cooperation takes place in applying its educational exercises in the classroom environment of the physical education lesson.

“Teaching and motor learning are among the basic and important sciences in the success of sports and building the athlete correctly, starting from the early age stages and at various advanced levels, through the cooperative educational models it provides, such as (the Edga model), which helps learners cooperate in learning motor skills and correcting mistakes jointly)”.Ibrahim 2024, p. 119)

Also“ ,Constructivism focuses on benefiting from recalling previous experiences in the cognitive structure and the interaction between learners with these experiences in current events, and the (EDGA) model is one of these models that derive applications from constructivism, in giving a role to the mind when obtaining knowledge through constructive cooperative learning that is based on knowledge of the skill or activity ”. ))Tsai, 2022, P:143



The EDGA model is also known as “ an educational model based on presenting the educational situation collectively and collaboratively, through which learners are directed to solve it analogously by taking advantage of recalling their previous experiences and investing them in the current educational situation) ”.Al-Awaini, 2021, p. 1)

“The basis of the IDGA model is the interaction between the learner and the teacher, as teaching is designed in such a way that the learner is active in the educational process, not only in receiving information, but also in applying it, analyzing it, and interacting with peers and teachers) .” .Saritepeci, 2022, P: 48(

Also“ ,The IDGA model is an integration of the most important theoretical principles, and learning occurs better when learners deal with problems that increase their motivation towards learning by repeating their attempts to find a solution to these problems in a cooperative manner, and this is what was approved by the constructivist theory, as an educational model is based on presenting educational situations in a cooperative manner by provoking an educational problem and directing the learners to solve it analogously by taking advantage of recalling their previous experiences) ”.Al-Awaini, 2021, p. 1)

as“ The IDGA model is concerned with organization number big from Concepts or Principles and procedures according to Sequential procedural steps And this I mean that it Focus on to organize Regulations Study complete ,or units Educational Great Relatively speaking, as well that this form He depends on Gradient in to learn Concepts and principles And procedures from Simple to the complex ,And who General to Private, connect Relationships Interior And external in Article Educational) ”.Al-Zatma, 2016, p. 12)

so Teaching is based on the IDGA model) EDGA (It reinforces the concept of the active learner, who actively participates in the educational process through continuous interaction, or his use of technology, and by relying on self-learning and benefiting from feedback. Students are encouraged to be independent and creative, which develops their ability to think critically and solve problems. It also focuses on making the learner responsible for his learning process, as this model contributes to developing self-learning skills and continuous interaction with educational content, and is focused on effective learning and continuous interaction with content and teachers, which contributes to Improving learning outcomes. Below are the most important roles of the learner in this model) :Mikhail, 2023, p. 53)

Active and responsibleThe learner in the IDGA model is not content with the role of a passive recipient of information, but is responsible for continuing his learning, which includes active participation in lessons, asking questions, and participating in group and interactive activities.



Participate in evaluating and providing feedback The learner is encouraged to participate in evaluating his performance and providing self-feedback, as this supports his ability to identify his strengths and weaknesses and work to improve them constantly, which enhances critical thinking and continuity of learning.

Using feedback for personal development: He learns how to benefit from the feedback provided by his teachers and colleagues to develop his skills, and continuous interaction with this feedback helps improve his performance and develop his cognitive and practical skills alike.

Adapting to technology The learner plays an important role in using modern technology in the lesson, and he must be aware of how to benefit from these technologies to enhance self-learning..

Cooperative learning The IDGA model encourages learners to collaborate with classmates in joint activities, which helps develop effective teamwork and communication skills. Through these interactions, students learn from each other and enhance their shared understanding.

Self-learning The IDGA model encourages learners to develop self-learning skills, as they are asked to search for knowledge and develop their abilities on their own. This aspect is enhanced by providing activities based on problem solving and investigative research, which allows learners to work independently and build their knowledge in a personal way, which enhances their independence in learning.

Creative and critical thinking In the IDGA model, learners are required to be innovative and creative in solving problems, as this model focuses on developing learners' abilities to think critically and make decisions based on analyzing the information provided through challenges and analytical activities.

It is also the role of the teacher in the IDGA model) EDGA (Essential and diverse in enhancing the effective educational process, it revolves around guidance, support, and continuous interaction, which enhances the effectiveness of education and is one of the most important roles of the teacher in this model) :.Mikhail, 2023, p. 55(

A guide and mentor: It acts as a guide rather than just a transmitter of information, as it guides learners on how to search for information, think critically, and self-learn. It encourages interaction and discussion and helps learners develop their analytical and creative skills by investing in dialogue.

Designed for the educational experience Participates in designing educational activities that suit the needs of different learners, and relies on continuous evaluation to adjust educational methods. This includes designing interactive, experimental, or technology-based tasks.

Evaluator of progress and continuous learning Responsible for monitoring learners' progress through continuous assessments, as assessments provide the teacher with feedback on the effectiveness of the educational process and the extent of learners'



understanding, which helps in making adjustments to the educational environment when necessary..

Motivator of self-motivation The teacher encourages learners to be responsible for their learning by directing them towards organizing time and managing learning effectively, and helps enhance their self-motivation.

To apply the IDGA model in the lesson, the following basic conditions must be met: (Al-Awaini, 2021, pp. 2-3)

curriculum that must be achieved and limited precisely.

The problem is presented in the educational situation in a fun, attention-grabbing way, through a story, a group of pictures, or a video clip, which the learners can solve based on their previous experiences.

Providing a stimulating learning environment that increases learners' desire to participate in analogical dialogue.

Individual differences between learners must be taken into account when implementing the IDGA model in the lesson.

The steps of the applied IDGA model are as follows: (Hanan, 2021, pp. 4-7)

First: Arousal: Scientific studies and research have proven that any activity undertaken by the learner does not continue or does not begin in the first place without the availability of motivation, and this state is affected by several factors, including the learner's inclinations, interests, needs, and ambitions, the previous success he has achieved, and the reinforcement and feedback he receives. It is not certain that all learners are sensitive to a high or equal degree, and this is evident through what was stated by the cognitive aspect theory, which states that the occurrence of the learning process is the result of changes in the cognitive structure. The learner has this theory, and this theory was based on the ideas of Janbeh, Piaget, and Orbel. One of the most important outcomes of this theory in education is the interest in how knowledge is acquired and not the transfer of knowledge. Therefore, the teacher is considered to be the one who raises the problem, and the teacher must determine all the steps and procedures before application or actual practice in the classroom. This step consists of two steps:

-1 Stimulating previous learning by investing in the learners' previous experiences and information and linking the new lesson. When he presents a problem to the class, the learner cannot stimulate a solution to it from his imagination based on prediction and guesswork, but rather it must be linked to previous learning, and Janihi emphasizes this in his statement that "the learner is ready to learn a new subject when he masters the prior requirements necessary to learn this subject". Janihi added, saying: Let the learner remember the previous information and skills he has, for the purpose of investing in them. In the new lesson, the learner intends to link what he learned previously to the new lesson, and this is done by asking questions such as a quick review or discussing



previous concepts with the learners. This is what learning theories such as constructivist theory indicate that the learner's previous knowledge is the focus of the learning process.

-2Transforming the educational situation into a problem is done by defining the objectives of the curriculum to be achieved and presenting the problem in a fun, attention-grabbing way, through a story, groups of pictures, video clips, etc., in addition to creating a stimulating environment that increases the learner's desire to solve the problem, taking into account the individual differences of the learners and their ages when posing the problem. Learning occurs best if the learners deal with real-life problems, and this is what the constructivist theory called for, that learning occurs best when the learner faces a real, realistic situation or an important problem, and one of the most important The conditions for discovery learning are to arouse learners' interest in the learning topic, by attracting the learners' attention by asking them about the issues related to the topic and its importance to them.

Second: Dialogue: After completing the step of identifying a problem, the teacher wants to inform the learners about that problem by talking to them. This conversation is called the introductory dialogue for the problem, as it gives the teacher information about the learner, the problem, and the extent of the learner's need for his help. Moreover, it provides the opportunity to talk about things related to the problem. This step consists of two steps:

R Collaborative brainstorming: After the teacher provides the learners with the opportunity to raise all their predictions and questions about the topic or problem at hand, he then records all the learners' questions in the form of conceptual maps. It is not permissible to reject any questions by the teacher about the problem, with the need for the teacher to take the side closest to the truth among them, as the constructivist theory called for the need for the teacher to dialogue with the learners and encourage them to participate and express their opinions, and for the teacher to also provide an interactive, constructivist classroom environment for the learners.

R Corresponding groups: The learners are divided into corresponding groups by the teacher, so that each group is composed of a number of learners, and there is another group corresponding to it, meaning that if one group presents certain points of view on a problem, the other group corresponding to it presents the opposing or opposing opinion, and each group provides justifications for choosing those solutions to the other group, and the teacher leaves the dialogue ongoing between the corresponding groups, as this method of discussion and dialogue helps the groups to reach certain results, that is, it facilitates the process of reaching a solution to the problem, and the theory of social constructivism called for this. By focusing on social interaction and the role of language in developing dialogue and thinking processes, it also called for the necessity of creating an educational environment based on dialogue and cooperative learning.



Third: Clarification: Many dialogues take place between the teacher and the learners after the teacher identifies the problem to be solved with the learners in order to collect information about the problem. At this stage, the teacher undertakes the process of commenting on the learners' dialogues using the same notes on the board. He begins by erasing the invalid opinions of them with justification for them and then arranging the others from correct to closest correct. The teacher explains his action by announcing the solution to the problem, displaying the lesson title and objectives, and beginning with an explanation to enhance the validity of the solution. This is done by writing all the dialogues. Learners in the form of a conceptual map or a specific drawing on the blackboard, as conceptual maps are considered among the tools that work to organize, represent, and participate. They are designed to enhance the person's cognitive structure and secrete concepts and proposals. At this stage, the teacher does the opposite method, which is to announce the solution to the problem, and then proceeds to explain the lesson in clear steps. The teacher can rely at this stage on modern technological methods, such as the method of programmed instruction, which relies on the principle of effective answers, small steps, and immediate knowledge of the results, avoiding methods. Coercion in education.

Fourth: Application: Based on the principles of (Bruner) in enhancing learning and integrating them with the steps of (Janet), it is noted that the participation of learners in various educational activities in the classroom leads to an increase in their immersion in the educational experiences, and they become more attentive, and the teacher must be more attentive by studying and understanding the characteristics of the learners in order to be able to deal with the learners, understand them, and encourage them efficiently, as this step is divided into the following three steps:

R The teacher asks the learners to deliberately pose problems similar to the problems presented previously, and the learners think to find appropriate solutions to them, by returning again to the analogue groups that were placed in the dialogue stage, provided that the two groups are facing each other. One of the groups raises a problem related to the topic or close to it, and the other group finds an appropriate solution to the problem based on the correct understanding of the lesson. This evaluation is the extent of the learner's understanding of the lesson and its application in finding similar problems.

R The teacher intends to give an evaluation in the form of an individual written exercise to ensure that the information reaches all learners, and in the event of any defect, he proceeds to provide immediate feedback to correct it.

R To enhance learning and make it sustainable, as the teacher asks the learner to submit a final work or project for what he has learned so that it can be an application of and confirmation of what he has previously learned.

From the above, it is possible for this educational model to apply its vocabulary in a physical education lesson in a way that is consistent with the nature of the educational



and practical aspects of the practical physical education lesson for volleyball, given that it focuses on effective active learning and that its steps do not stop in a specific part of the main section of the lesson. It is possible to employ the vocabulary of the IDGA model in educational exercises to activate the role of students in practice and application by relying on the information they obtain through dialogue and the clarity of presentation of the educational model by stimulating their motivation towards The actual application of the skill based on knowledge of performance and in a cooperative manner allows each of them to know the requirements for learning skill performance and how to reduce common errors, given that the IDGA model makes the educational environment full of monitoring and knowledge exchange processes through group interaction, evaluation and feedback. Also, this model does not require the cost of educational tools or media. Its vocabulary can be applied with ease and without complications that hinder the role of the learner and teacher in this practical lesson and with realism free of exaggeration as a result of the clarity of its steps, as it is The skills of preparation and striking are among the most important skills in the game of volleyball, for their decisive role in maintaining the stability of the team effectively against other teams when competing. Through the experience of the two researchers and conducting interviews with several teachers in the College of Physical Education and Sports Sciences and asking about the use of teaching methods, methods and models in the lesson on working with volleyball, I noticed a weakness in the process of learning these two skills. This may be due to the difficulty of performing them or to the fact that most of the methods and methods used in teaching these skills are traditional, and the lack of effectiveness of the educational units may be due to It is appropriate for the skill, or applying an effective educational model, or applying an appropriate model that does not take into account individual differences between students. All of this generated the following questions for the two researchers that I tried to answer, which are as follows:

- 1 How can I learn the skills of setting up and striking in volleyball using educational models in effective educational units?
- 2 Is the IDGA model an effective model in learning the skills of preparation and crushing?
- 3 Does applying the Edga model have an impact on students learning the skills of setting up and hitting a volleyball smash?

It is an attempt to experiment with one of the educational models whose results may have a positive impact on achieving the objectives of the physical education lesson in volleyball. Thus, the importance of the research is in two theoretical and applied directions. The theoretical importance of both is that its results may be useful in supporting the knowledge of volleyball teachers about how to employ the vocabulary of the IDGA model in educational situations and exercises in the practical lesson of



volleyball. As for the practical importance, it is that the results of this research may be useful in helping students and enabling them to increase their knowledge and learn the skills of preparation and crushing. With volleyball when they apply the IDGA model in their practical lessons, the research aims to prepare educational units using the IDGA model in performing the skills of preparation and smashing with volleyball for the students of the second stage in the College of Physical Education and Sports Sciences, and to identify the effect of the educational units with the IDGA model in the performance of the skills of setting up and smashing with volleyball for the students of the second stage in the College of Physical Education and Sports Sciences. The researchers assume that there are statistically significant differences between the results of the pre- and post-tests for the experimental and control research groups. In performing the skills of preparation and smashing with volleyball, there are statistically significant differences between the results of the post-tests of the experimental and control groups according to cognitive preference in the cognitive outcome and learning the skills of receiving and serving with volleyball.

#### Method and procedures:

The research problem imposed the adoption of an experimental research method by designing the experimental and control groups, which were equal with pre-testing, pre-testing and post-testing. As for the research population, it was determined by the students of the second stage in the College of Physical Education and Sports Sciences/University of Baghdad, for the academic year ,(2024/2023) their total number )361)students distributed among)9(Study sections, from which two sections were randomly selected for the research sample, so that their number reached)64) requesting a percentage (%17.279(of this community, Then, one of these two divisions was randomly selected as its students, the experimental group from Division (D), and the other from Division (C), controlled by the number)32) One student for each group, as chosen from the students of Section (G))10(Students for the survey experiment sample represent a percentage (% 2.77(of their community of origin. Also, to measure the performance of the skill of preparing from above with the fingers, a test (Appendix 1) was adopted, and to measure the performance of the crushing multiplication skill, a test (Appendix 2) was adopted, in each A test in which the student's performance is evaluated from (10) points in the three attempts by three experts, with the test scores distributed as follows: the preparatory section: its score is (3), the main section: its score is (5), and the final section: its score is .(2) In their preparation of the educational exercises, the two researchers deliberately employed the vocabulary of the IDGA model in the practical volleyball lesson after reviewing the educational exercises that the students receive in the method followed with them, and reviewing many sources and scientific specialized studies on volleyball, in order to determine the goal of each exercise for each of the two skills and narrowing it down to this general and specific



goal precisely, for the purpose of preparing educational exercises to suit the students' privacy. The researchers intended to prepare educational units using the IDGA model and employ its vocabulary in them. In order to influence learning to perform the skills of preparation and striking with volleyball, The application is specifically in the main section of these educational units at the rate of one unit per week according to the weekly schedule of the physical education lesson, as they prepared the educational curriculum by employing the vocabulary of the IDGA model in different exercises and educational situations, by adhering to the principle of gradation from easy to difficult in applying these exercises, and ensuring that the contents of these exercises are easy to apply and free of complexity, and with flexibility in implementation in a way that facilitates their application in the educational units in the practical lesson on volleyball, so that the students' tasks in finding Solutions to educational situations in the form of educational problems in a fun way to stimulate their motivation in order to discover and invest in previous experiences with all attention to the questions that arise in the educational environment for the IDGA model to fulfill the tasks and requirements of these educational situations in an effective and active cooperative process to support students' learning of each of the two researched skills, in light of the following:

RA n educational flex is prepared in which an educational model of the stages of performing the sections of each skill is prepared, with a length of (3) meters and a width of (1.10) meters, and is installed in one of the corners of the practical volleyball classroom, for the purpose of clarification and comparison with performance and according to each of the steps of the IDGA model.

R The 32 students in the experimental group are divided into the classroom) A (Divide into four symmetrical groups as close as possible in physical measurements, each group consisting of (8) students.

R The steps of the IDGA model are applied in the educational unit for the practical lesson on volleyball, and in the educational side and the applied side to invest in the interaction of each stage with the other of the IDGA model in an interactive manner in the lesson, meaning that the first three steps of the IDGA model can be benefited from in these two aspects and their parts in the educational unit. As for the application phase of the IDGA model, it is implemented in the applied side, as follows:

First: Excitement: This step includes two implicit steps:

-1 Stimulating previous learning: by investing in students' previous experiences, and linking current educational exercises with previous experiences regarding the two skills, provided that students stay away from guessing or prediction, and are realistic, and support these experiences in the educational section of the educational unit.

-2 Transforming the educational situation into a problem: Here the problem is fun and uncomplicated so that it stimulates the students' attention to the educational model of the stages of skill performance presented through the flex paper, as it stimulates in them



a system of comparison between what has been done and what should be done, in an atmosphere of freedom by returning to the educational model presented with the flex paper so that the performance is compared to the model, thus applying excitement according to the IDGA model in the educational and applied aspects of the educational unit.

Second: Dialogue: After completing the identification of the problem of the educational situation for both the educational exercises for the two researched skills and the practical application, the student wants to tell his peers about the performance requirements, its accuracy, and the application experience he went through, so that this is a type of conversation, which satisfies that matter. The introductory dialogue for the problem, so that the dialogue is applied according to the IDGA model in the educational and applied sides of the educational unit, as this step includes two implicit steps:

-1 Collaborative group brainstorming: This is done by providing an educational environment characterized by students' freedom to ask questions about performance and skills. The teacher engages in dialogue with the students and does not reject any of their questions. He encourages them to participate and express their opinion so that the educational atmosphere is interactive.

-2 Corresponding groups: As mentioned previously, this division allows corresponding groups of students to monitor performance for the purpose of expressing an opinion to the group, which helps in achieving comprehensive knowledge about skill performance, and the teacher provides appropriate time for these group dialogues between groups in an organized manner to express an opinion about the cooperative group interaction for the purpose of supporting the cognitive structure of drawing the motor performance program in the cognitive structure in a way that is free of common errors.

Third: Clarification: After collecting information about the problems of educational situations, the teacher follows up on the dialogues and provides an explanation about the presented model of skill performance, and explains its details along with the goal of each of the details of the movements that are included in the skill performance, and how to enable them to perform the skill. He explains this to the students, indicating the goals of each stage of motor learning for each of the two skills, with a comprehensive explanation and clarity of presentation of the model presented and how to benefit from it immediately before and after each performance, so that the picture of the form of the skill is integrated into the cognitive structure. For students, motor learning for each of the two researched skills is based on knowledge of performance, depends on information about the cognitive structure, and has a meaning based on organizing perceptions around the sections of the skill and then performing them comprehensively, thus applying clarification according to the IDGA model in the educational and applied aspects of the educational unit.



Fourth: Application: The application and actual practice of the exercises are among the most important principles of the IDEA model, as after immersing the students in knowledge about skill performance and actual participation in dialogue and clarification after eliciting experiences, at this stage the teacher proposes the most correct and appropriate application in accordance with the determinants of proper performance in the following three steps:

-1The teacher asks the students to present educational situations similar to what was presented previously, and the students think to find solutions to the problems of these educational situations by returning to the analogue groups in the dialogue stage.

-2The teacher provides comprehensive evaluation and corrective feedback.

-3The teacher enhances learning by students 'final application of what they have learned in the educational unit and works to sustain this learning with encouragement. Planning to implement the IDGA model in the educational unit included employing its vocabulary in educational exercises in practical lessons to learn the two volleyball skills under study (Appendix 3) as follows:

R Introductory section: It aims to prepare the body physically to practice educational motor activity, as this section contains physical exercises for general preparation and special preparation, with a time of (10) minutes, and is left to the teacher without the two researchers interfering in its details.

R Main sectionIts time was (75) minutes, divided into two parts:

u The educational aspect: Its duration is (10) minutes and includes an explanation and presentation of the specific skill model and the role required for students in cooperative learning according to the IDGA model.

u Practical aspect: Its time is (65) minutes and includes practical applications of educational exercises using the IDGA model, that is, this section includes the experimental group students 'practice and application in practice by investing in the steps of the IDGA model.

R Concluding sectionThis section includes general relaxation and calming exercises for the body, as well as a small game for suspense and relaxation. Its duration is (5) minutes, and is left to the teacher without the intervention of the two researchers.

As for the application of the educational exercises in the IDGA model for the students of the experimental group, (4) educational units were allocated to learn the skill performance of each skill, and they were applied at the rate of one unit per week on Mondays. The application of the educational units for each skill continued for (4) consecutive weeks, so that there was an allocation of (4) exercises, the application of which would be (15) minutes for each exercise, with a (5) minute break between them, distributed between the four exercises, and the remaining time was left for the preparatory and final sections of the educational unit without the intervention of the two researchers.

The research experiment began by applying pre-tests according to the test conditions for each of the tests that measure each of the dependent variables, which took place on Wednesday, corresponding to the date (2/28/2024) in the College of Physical Education and Sports Sciences/University of Baghdad/Al-Jadriyah.

The educational exercises using the IDGA model were also applied to the students of the experimental group for the period extending from Monday, corresponding to (4/3/2024) until Monday, corresponding to (22/4/2024). As for the learners of the control group, they learn using the educational method used in their teaching at the college, and it was followed up that they took the same time and number of units to learn to perform the two skills, and the experiment was completed by applying the post-tests on Wednesday. To date (4/24/2024) under the same pre-test conditions.

After completing the experiment, the results were processed with a system) SPSS (to calculate the percentage values, the arithmetic mean, the standard deviation, and the homogeneity of variance test) Liven ,(and test) t-test (for uncorrelated samples, and test )t-test (for correlated samples.

Results:

Table (1) shows the results of the pre-tests between the two research groups

the difference	)Say (	)t(	)Say (	)Live (	+A	Q	Group numbers	And	Dependent variables And the unit of measurement
Not significant	0.813	0.237	0.056	3.79	0.893	2.09	32	empiricis m	Performance preparation skill (score)
					1.194	2.16	32	Female officer	
Not significant	0.929	0.09	0.819	0.053	1.401	1.69	32	empiricis m	Performing the Smash Skill (Class)
					1.382	1.66	32	Female officer	

To express the equivalence and the starting line of non-significance of the statistical difference of the degree)) Say (0.05)< With a degree of freedom (62) and to express the homogeneity of variance of the dependent variables with Levene's test, the statistical difference is not significant to the degree)) Say (0.05)< degree of freedom(62)

Table (2) shows the results of the pre- and post-tests for both research groups

the difference	)Say (	)t(	F-H	F	+A	Q	Comparison	The group and its number	Variables Affiliate
Dal	0.00	32.56	0.95	5.46	0.89	2.0	previous	empiricism (...)	Performance preparation skill (score)
						3.9	the next		
Dal	0.00	14.68	1.46	3.81	1.19	2.1	previous	The female officer (...)	
						4.6	the next		
Dal	0.00	18.85	1.54	5.15	1.40	1.6	previous	empiricism (...)	Performing the Smash Skill (Class)
						1.9	the next		
Dal	0.00	11.8	1.76	3.68	1.38	1.6	previous	The female officer (...)	
						2.8	the next		

Comparing the pre-post differences for each group with the statistical significance of the score)) Say (0.05)> at a degree of freedom(31)

Table (3) shows the results of the posttests between the two research groups

the difference	)Say(	)t(	+A	Q	Group numbers	And	Dependent variables And the unit of measurement
Dal	0.000	8.759	0.504	7.56	32	empiricism	Performance preparation skill (score)
			0.897	5.97	32	The female officer	
Dal	0.000	6.587	0.808	6.84	32	empiricism	Performing the Smash Skill (Class)
			1.004	5.34	32	The female officer	

Comparing the dimensional differences between the two groups with the statistical significance of the score)) Say (0.05)> At degrees of freedom(62)



### **Discussion:**

From reviewing the results presented in Table (2), it is clear that the students of the experimental and control research groups all improved in their level of performance of the two investigated skills of volleyball in the results of the post-tests compared to what their results were in the pre-tests. The results of the comparison of the post-tests presented in Table (3) also indicated that the students of the experimental group outperformed the students of the control group in improving the level of performance of the skills of preparation and smashing with volleyball, which was in favor of the students of the experimental group, and the researchers attribute the emergence of these improvements among the results of the pre-tests. And the remoteness of the students of the experimental group and their superiority in the results of the posttests to their application of the IDGA model, (Shukur et al., 2022) the good use of its vocabulary in practical lessons had a positive impact on these results, and the sufficient number of lessons for four educational units allocated to learning the skill performance of each skill with this model, and the gradation of educational situations from easy to difficult, as the clarity of the educational objectives helped when transforming the educational situation into a problem and helped provide a stimulating educational environment that increased the students 'desire to participate in analogical dialogue to control the preparation movements and swing the striking arm without bending the joint. Attachment, by taking the correct appropriate position and increasing the ability of students to estimate the height of the ball, and what the IDGA model provided in providing knowledge of performance in a gradual manner also to reduce common errors and then limit them, which had an effective role in their excellence in adapting and matching the steps of the IDGA model with their orientations in how to acquire knowledge from dialogue and cooperative learning in various educational situations and applying it practically in the lesson.(Shukr, 2024)

“When diverse ideas and innovative experiences are exchanged, an environment can be created that encourages innovation in applying volleyball skills. Female students can be inspired by the ideas of others to try new and effective methods) .”.Capranica & Other, 2020, P:165(

Also“ ,cognitive theory explained that learning occurs as a result of the interaction of the individual's mental powers with the stimuli that exist in the environment around him. The proponents of this theory indicated that the learner can be included in the learning process by providing him with the opportunity to choose, practice, (Kadhim, 2023) think, and make his decisions based on his analysis and self-evaluation of the information presented to him. Thus, the learner's activity in the educational situation according to this theory is considered a mental activity based on the interaction of mental powers with educational stimuli and experiences, and then understanding and



perceiving the stimuli, phenomena, and the relationships between them. Learning. (Hindi, 2010, p. 42)

Also“ ,one of the enhancers of supporting motor skill learning is taking advantage of motivation and positivity to achieve improvement in performance, by providing positive feedback that motivates the learner to achieve further improvement in performance) ”.Magill & Anderson, 2014, P: 1)

The two researchers also attribute the emergence of these pre- and post-test results and the superiority of the experimental group students to the Edga model providing an atmosphere of fun in the teacher’s presentation of problems in educational situations that require solutions through application and practice, (Salman et al., 2022) which motivates them to continue attending lessons and interacting between them in a cooperative environment characterized by monitoring and evaluating performance in comparison with the proper performance of each of the skill sections according to the specifications of the continuity of their presentation in Flex, in addition to their receiving feedback from peers and the school throughout the duration of the practical aspect of the lesson. This educational model also allowed For students to recall their experiences in practical practice and link them to current educational situations by investing in the knowledge of performance provided by the educational environment using the IDGA model, as these results have proven that the repetitions of each exercise are appropriate for approximately (15) minutes in the lesson to enable each student to take his actual share of practice actively and effectively .(Jawad, M., & Jabbar Shinen, 2016)

“Teachers can invest in the excitement and motivation of the learners, so that we direct them to planned educational situations so that they accept it, motivated by activity, and work to continue this activity until the learning process takes place within a plan that includes precisely defining the goals to be taught, arousing the excitement and motivation of the learners towards achieving specific goals, maintaining interaction between the learners and teachers, ensuring that learning occurs, and accurately evaluating the goals) ”.Jaber, 2005, p. 72)

Also“ ,group circles can be organized where learners share experiences and advice among themselves, teachers can guide discussion and provide technical supervision, and team performance indicators can be used and evaluated regularly to measure continuous improvement and identify areas that need development) .”Harvey & Other, 2019, P:485)

Likewise“ ,learners must receive appropriate feedback to improve performance and correct errors, and this is done by observing teachers or colleagues and receiving advice and guidance from them, in addition to inquiries from the learners themselves .”.)Bhanu, 2015, P: 146)

Also“ ,the success of teaching is largely linked to the success of the approved educational model, given that it is able to address the weakness of students, the difficulty of the curriculum, and other educational problems. (Kadhim, 2024) The importance of the educational model comes from the fact that it is linked to the academic subject and the learner in an integrated manner in terms of his abilities and needs, ensuring that the goals are actually achieved. This requires collective and



individual processes together in solving various scientific and life problems) ”.Abu Riyash and Qtait, 2008, p. 221)

“Feedback is one of the most important factors that determine the learning of motor skills and the development of motor performance, and most research has shown that feedback increases performance improvement in the early stages of learning) ”.Hassan & Musharraf 2024, 473)

Also“ ,teaching sports motor skills requires continuous evaluation and feedback, as students ’performance is evaluated, constructive comments are given on their performance, and observations and suggestions are provided to improve their level and develop their motor and skill skills. Active learning in skill motor learning encourages systematic thinking and the development of deduction, analysis, and critical thinking skills, through conducting experiments and practical activities, analyzing results, and learning from mistakes. (Wahed Issa et al., 2024) It depends on the integration of different skills and the development of thinking skills, as students are directed to develop plans to achieve goals and employ different skills to achieve the desired results) ”.Mustafa, 2019, p. 127(

“Thinking about performance leads to the activation of new connections between nerve cells, easily through new paths that it did not have before, and in a way that helps provide a new possibility for the mind to produce more mental actions, and in a way that leads the mind to work with better potential, and more widely and efficiently ”. )Carmen & Other, 2017, P: 42()

Likewise“ ,there is no motor learning for performance or skill unless there is organized knowledge about this performance based on the work of the brain in interpreting stimuli through mental processes that would draw motor programs in memory that are appropriate to the level of abilities or abilities that the learner possesses, so that the work or applications are directed towards developing and improving what he possesses, and helping him to draw motor programs in accordance with the model he seeks to reach by activating the comparison system in motor control, (Manaf, 2022) thus targeting the cognitive structure in an applied manner, meaning learning by doing or learning by actually applying what he acquires ”.The learner is knowledgeable) ”.Al-Bayati, 2023, p. 18)

Likewise,“ I use demonstrations and drawings to help clarify the different steps of skill performance that can help learners visualize the required operations and movements. Explaining procedures clearly by providing simplified verbal directions, repeating directions and explaining them in a concise and clear manner, and providing immediate feedback to students supports the required improvements in skill performance)”.Till & Cobley, 2021, P: 81)

“One of the skills that learners acquire by learning using the IDGEA model is to establish the educational goal in the minds of the learners) ”.Zayer et al., 2013, p. 24( As for the improvement in learning to perform the two volleyball skills among the control group students, (Manaf, 2015) the researchers attribute it to the role of the knowledge that the students received that proved useful in the practical lesson, and the use of feedback and continuous follow-up from the teachers in teaching when correcting the common errors in their skill performance, which came to help them form the knowledge they also had in a direction that suits the vocabulary of the teacher’s



educational curriculum followed in the lessons and their applications in the practical aspect of the main section in these lessons and the teachers' follow-up to communicate with the students in The lesson was to identify common errors and correct performance continuously, which led to this improvement in the level of learning these two skills.

As“ one of the natural phenomena of the learning process is that there must be development in learning as long as the teacher follows the steps of the sound foundations of learning and teaching, and in order for the beginning of learning to be sound, the explanation, presentation, and rehearsal of correct performance must be clarified and focused on until performance is consolidated and stable) ”.Al-Hashemi, 2002, p. 102)

Also“ ,students respond cognitively, behaviorally, and effectively to environmental events, but more importantly, they exercise control over their own behavior, which does not affect the environment through knowledge only, but rather in cognitive, emotional, and biological states. This is what Bandura calls mutual determinism, and cognitive processes have a major role in behavior, as Bandura believes that the major function of ideas is to enable the individual to predict events and develop methods that help control what happens in his life) ”.Ghanem, 2011, pp. 22-23)

Conclusions and recommendations:

.1Applying the vocabulary of the IDGA model in practical volleyball physical education lessons has proven its suitability for second-year students in the College of Physical Education and Sports Sciences.

.2Applying the IDGA model helps improve the performance of the volleyball preparation and smashing skills for second-year students in the College of Physical Education and Sports Sciences, and they outperform their performance improvement among students who study using the method used in the practical lesson.

.3 It is necessary to focus on the practical applications of the steps of the IDGA model and employ them towards practice and application based on the discovery of knowledge through collaborative group dialogue to further enable students to achieve learning the required skill performance in volleyball.

.4 It is necessary to pay attention to including the vocabulary of the IDGA model and include it in educational exercises so that teaching the mind and body goes hand in hand in achieving the goals of the practical volleyball physical education lesson.

### **Appendix (1)**

shows the measurement of the technical performance of the preparation skill(Hassanin 2001, 243)

– Objective of the test: Measuring the technical performance of the preparation skill from above with the fingers.

– Tools: Volleyball court, three volleyballs.

– Performance Specifications: The tested student stands in the attack zone in position (2), and the coach delivers the ball by performing the reception skill with two hands from below from position (4) and the student prepares it to position.(3)

– Conditions:

u The tested student performs number attempts to warm up before starting the actual test.



- u Laboratory leads (3 preparation attempts).

- Registration:

- The laboratory's performance in the three attempts is evaluated by experts to calculate the best one, and the grade distribution is as follows:

- u Preparatory section: grade.(3)

- u Main section: its grade is.(5)

- u The final section: its grade is.(2)

- Unit of measurement: (degree).

### Appendix (2)

shows the measurement of the technical performance of the smashing skill(Hassanin 2001, 253)

- Objective of the test: Measuring the technical performance of the diagonal and straight smash skill.

- Tools: Volleyball court, three volleyballs.

- Performance Specifications: The tested student stands in the attack zone in position (4), and the coach delivers the ball by performing the preparation skill from position (3) and the student hits it to the defense zone in the opponent's court without specifying the location of the ball within the boundaries of the court.

- Conditions:

- u The test student performs smash attempts to warm up before beginning the actual test.

- u Test lead (3 smash attempts).

- Registration:

- The laboratory's performance in the three attempts is evaluated by experts to calculate the best one, and the grade distribution is as follows:

- u Preparatory section: grade.(3)

- u Main section: its grade is.(5)

- u The final section: its grade is.(2)

- Unit of measurement: (degree).



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## The effect of the beehive strategy on the performance of the skills of overwhelming beating and defending the court with volleyball

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DOI: [https://doi.org/10.37359/JOPE.V37\(1\)2025.2248](https://doi.org/10.37359/JOPE.V37(1)2025.2248)

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Article history: Received 29/ January/2025 Accepted 11/ February /2025 Available online 28/ March/2025

### Abstract

The aim of the research is to prepare practical volleyball lessons by using the beehive strategy for the fifth preparatory students, and to identify the impact of the beehive strategy in performing the overwhelming multiplication and defending the stadium in volleyball among the fifth preparatory students, and I adopted for the experimental approach with the experimental design with two experimental groups and the equal control Exactly the arbitrator of the tribal and posttests, and the research community is available in the fifth preparatory students in the morning study in the Al -Fursan Preparatory for Boys within the formations of the General Directorate of Baghdad/ Karkh for the second year (2023/2024), the total number of (225) students, who are distributed By their nature, to the four people, the application sample of (48) students were chosen randomly in the two divisions (B) and (c) representing (21.333 %) of the origin society, and one of the two main applications of the application sample was chosen randomly to be the Division (B) the group The experimental number of (24) students, and the other division (C) the control group of (24) students, represents (21.333 %) of the origin society, After preparing the skill performance tests and preparing practical lessons in this strategy, it was applied after the tribal tests by experimenting for a period of (12) weeks at a rate of (1) one lesson per week and for each skill (6) consecutive weeks, and then conducting dimensional tests and processing the results automatically with a system (SPSS) to be Conclusions and recommendations that the vocabulary of the beehive strategy can be applied and its vocabulary is employed in educational tasks in practical physical education lessons for the fifth -grade middle school students, and its application helps in improving the level of the skills of overwhelming hitting and defending the stadium in volleyball for the fifth preparatory

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students, and they outperform the improvement of this level The skill performance of the two skills in students who are studying without them in the practical lessons of volleyball, and it is necessary to focus on practical applications to teach the performance of overwhelming multiplication skills and defend the stadium in volleyball with a greater rate of explanation, guidance and feedback from external sources to increase students 'empowerment to discover and revitalize the role of class students Fifth preparatory in practical lessons, It is necessary to pay attention to developing the capabilities of physical education teachers in preparatory schools, and to increase their knowledge of the importance of the applications of the beehive strategy in practical lessons in a manner that depends on scientific planning according to the foundations and principles of methods of teaching physical education.

**Keywords:** Beehive strategy, crushing hitting, canned defense skill, volleyball

## Introduction:

The current era is characterized by many rapid changes and transformations that require a reconsideration of educational methods in general, and curricula and teaching methods in particular, to ensure that they keep pace with the latest developments and contemporary educational trends, because education is no longer limited to providing students with culture and science, and education is no longer for life, but rather life itself, so it sought to invent various strategies in order to build the integrated personality of the student. (Al-Shazly, 2018, p. 471).

“The principle of activation in learning to perform motor skills in physical education lessons depends on continuous evaluation and feedback, as students 'performance is evaluated, constructive comments are given on their performance, and observations and suggestions are provided to improve their level and develop their motor and skill skills) ”.Muhammad, 2018, pp. 77-78(

Likewise“ ,activating the student's role in the lesson allows them to truly contribute to the activities so that this contribution takes them beyond the passive receiving role ”. (Abdul Ali and Jabbar, 2022, p. 3) by activating many modern teaching strategies because of their great importance in the learning and teaching process, as you see (Sahab Ismail, 2021, p. 2) that the teaching process is the cornerstone of the desired behavior of individuals and the acquisition of knowledge, values, customs and other patterns of behavior.

Also“ ,group circles can be organized where learners share experiences and advice among themselves, teachers can guide discussion and provide technical supervision, and team performance indicators can be used and evaluated regularly to measure continuous improvement and identify areas that need development) ”.Harvey & Other 2019, 485(

“The beehive strategy is concerned with enriching the cognitive structure necessary for teaching the skill, and with comprehensive cooperation among learners that ensures the participation of all of them with dedication and exciting continuity, which prompts them to explore and demonstrate the expertise they possess in order to excel in the skill

competition ”.(Ali, 2020, p. 109) This is consistent with the opinion of (Haneen Maysam, 2023, 66), which believes that active participation in learning with colleagues and encouraging each other makes the educational material attractive and exciting, which makes them cooperative and productive in groups.

Also“ ,the beehive strategy helps in enhancing confidence among students when presenting each cell that it offers or presenting them with points that need improvement, in clearly defining tasks according to the students ’level, and in providing the school with constructive feedback for each cell on an ongoing basis, to evaluate the extent to which the students benefit from the strategy) ”.Sarhan, 2019, p. 243(

The student's role in the beehive strategy is as follows:

Searching for a large number of information related to answering the teacher’s questions about the skill performance of each of the two skills investigated by adopting the educational model presented for the skill specified in the lesson.

Group discussion and cooperation to arrive at answers to the teacher’s questions about skill performance.

Mastering the tasks of moving between roles within a single cell in strategy tasks.

All ideas are accepted (from the teacher, colleagues, the student in the role of the queen, and the overall classroom environment).

Trying to integrate ideas with mental alertness until they are integrated by linking various ideas that support skill performance.

Investing knowledge of performance in the application and practical practice of educational exercises in the practical lesson.

Integrating into the educational tasks of the strategy in cooperation with students in completing group exercises.

Participate in peer evaluation and self-evaluation of skill performance.

The role of the teacher in the beehive strategy is as follows:

Question cards are designed and prepared in the form of hexagonal cells that are interesting and motivating for students.

Encourages students to take responsibility and participate effectively and cooperatively in the practical lesson.

It raises questions and turns educational activity into a friendly competition between cells through healthy, honest competition.

It makes students the focus of the educational process instead of being limited to traditional education.

Develops mental skills by enhancing students' critical and creative thinking by directing them to work on solving problems or exploring knowledge by performing jointly.

Strengthening social ties between students through interaction within the practical volleyball lesson, which strengthens relationships and improves teamwork in skill performance. This is consistent with the opinion of (Najla Abbas, 2018, p. 9), who believes that participatory e-learning allows female students, whether individually or in groups, to be responsible for their achievements, which highlights the role of each of them, and helps to evaluate their role individually and evaluate their role as a whole.

The teacher monitors the students' acceptance and integration into the practical volleyball lesson environment.

Providing continuous feedback immediately after each skill performance. He takes it upon himself to continuously evaluate the skill performance of each student and provides advice.

The importance of research lies in many important basic points, including developing students' capabilities in skill performance, through the application of modern strategies in presentation and interpretation, which enable students to develop their cognitive and skill abilities and employ them in a way that reflects positively on the skill performance of the skills of striking and defending the court with volleyball, and then obtaining educational results of distinguished and high quality. Here, the role of the beehive strategy emerges, which contributes to better and faster learning.

Also, "teaching sports motor skills requires continuous evaluation and feedback, as students' performance is evaluated, constructive comments are given on their performance, and observations and suggestions are provided to improve their level and develop their motor and skill skills. Active learning in skill motor learning encourages systematic thinking and the development of deduction, analysis, and critical thinking skills, through conducting experiments and practical activities, analyzing results, and learning from mistakes. It depends on the integration of different skills and the development of thinking skills, as students are directed to develop plans to achieve goals and employ different skills to achieve the desired results". Mustafa, 2019, p. 127 (It also agrees with the opinion of (Jinan Sakr, 2021, 7), which believes that the wider the information storage space is, the more it provides an opportunity for the answers and questions to be more correct, and it gives the student learner more opportunities to control his knowledge without restricting the channels of receiving information. As you see (Safa Abdel Karim, 2022, p. 4), the process of thinking and the method of conjuring information from a set of facts or rules, and this mechanism builds a positive direction upon requests and works to acquire information and thus pushes them to generate ideas and acquire This knowledge is in addition to encouraging students to think, especially innovative thinking, and to activate all mental processes that would be important in raising the level of the learning process. This is in agreement with the opinion of (Donia Ali Abdel Hussein. Najla Abbas Al-Zuhairi, 2024, 193) who believes that The practice of mental processes and perception has an impact on growth and development, and this practice cannot be achieved without training and exercise that works to attract the learner's mind in order to practice the skills inherent in it, as it highlights his mental development, which places him in a rich, stimulating, and sound environment that contains a set of experiences, trends, and stimuli appropriate to the age of each learner.

The problem of the research lies in the researchers' observation that there is a discrepancy between the students' level during their performance of most of the basic skills in volleyball, especially the skills of smashing and defending the court in volleyball for fifth-grade middle school students, and the need for an element of suspense, active participation, and strengthening their self-confidence to feel balanced, cooperative, and happy, which makes them adapt to their peers effectively. Therefore, the researchers decided to experiment with a cooperative strategy that suits the skill

nature of volleyball as an attempt to develop solutions to this problem. By expanding the circle of effective participation in the educational process and assigning students tasks that support the cooperation of members of one cell by answering the questions posed by their teacher and then competing with other cells, which makes the student not just a recipient, but rather an active element within the cell. This research aims to prepare practical volleyball lessons using the beehive strategy for fifth grade middle school students, and to identify the effect of the beehive strategy on the performance of the skills of crushing and defending the court with volleyball among fifth grade middle school students. I hypothesized The researchers concluded that there are no statistically significant differences between the results of the pre- and post-tests of the performance of the smash hit and defending the court in volleyball for the experimental and control groups, and there are no statistically significant differences between the results of the post-tests of the experimental and control groups in the performance of the skills of smashing and defending the court in volleyball.

### **Method and procedures:**

The problem of the current research imposed the adoption of the experimental method with an experimental design with two equal experimental and control groups, with precise precision of the pre- and post-tests, due to its suitability to the two hypotheses of the current research and its independent variable represented by With the beehive strategy that is applied to the students of the experimental group, as for the control group, it applies the educational method followed as it is in the practical volleyball lesson, and defines the available research population as fifth-grade middle school students who continue their morning study at Al-Fursan Preparatory School for Boys within the formations of the General Directorate of Education in Baghdad/Al-Karkh Second for the academic year (2023/2024), the total number of which is (225) students, and they are naturally distributed into four academic divisions: (A) (57) students, (B) (54) students, (C) (59) students, and (D) (55) students. The reasons for the two researchers to conduct the research on them were the availability of an indoor volleyball hall in this middle school and the cooperation of its administration and volleyball teachers with the two researchers, ensuring the presence of the students at their work hours and easy communication with them, in addition to the fact that they are students of the research problem and that similar experimental studies were not conducted on them in conjunction with the current research procedures, and to fulfill the requirements of field procedures, it was chosen. (10) students were randomly selected for the survey sample from the various academic divisions, representing a percentage of (4.444%) of the original population, as no statistical treatment was performed on their data. The application sample, which numbered (48) students, was randomly selected in the two divisions (B) and (C), representing a percentage of (21.333%) of the original population. The requirements of the experimental design with the experimental and control groups were also imposed, choosing one of the two divisions of the main application sample randomly to be the division. (B) The experimental group, which has a number of (24) students, and the other group (C), the control group, which has a number of (24) students.

To measure the performance of each of the two skills, the test is filmed to evaluate the tester's performance in the three attempts by experts after the total score for the



performance of the best attempt is approved. The distribution of the total score for the test is as follows:

Preparatory section: grade.(3)

Main section: its grade is.(5)

The final section: its grade is.(2)

In order to prepare the practical lessons for the research experiment, the two researchers were briefed on the type of methods and exercises used in the physical education lesson followed with fifth-grade middle school students at Al-Fursan High School for Boys. They also reviewed many sources and specialized scientific studies on the methods of teaching physical education available in local libraries and the international information network to determine the goal of each exercise for each skill and narrow it down precisely, for the purpose of preparing what is compatible with the vocabulary of the beehive strategy. These practical lessons for the students of the experimental group were prepared by the two researchers by employing the vocabulary of the beehive strategy on the other hand. Educational and practical part of the main section of the practical lesson for volleyball, which established the general goal of applying students' practical practice to the content of each educational exercise with the help of providing knowledge about the details of skill performance and directing tasks with the beehive strategy, to suit the sub-goals included in the practical lesson. These goals were defined and reduced to improving the level of skill performance in volleyball for both the skills of crushing and defending the court, as the integration of the goals and applications of educational exercises with the tasks and steps of the stages of the beehive strategy was employed in the content of the lesson. Practical consistency takes into account the diversity of educational situations in order to provide the factors of excitement and suspense. The principle of gradation from easy to difficult was adhered to when preparing the beehive strategy exercises, and the commitment was made to take into account the individual differences of each student and his potentials and capabilities in the practical performance of each exercise, taking into account that the contents of the beehive strategy exercises are easy to apply, free of complexity, and characterized by flexibility in implementation in order to facilitate their application in the practical volleyball lesson, and to be able to develop the educational tasks according to their vocabulary later. The content of the volleyball educational exercises was a skill that was employed and its content was changed to match the requirements of the beehive strategy while preserving the goal of each educational exercise. The beehive teaching strategy is a cooperative based on dividing the experimental group's (24) students into four (4) groups, each of which has (6) students forming a hexagon of the beehive. These groups work synchronously, like beehives, and in an effective manner in the practical volleyball lesson because they enhance interaction, cooperation, and active learning for each of the students. The basic principles of the beehive strategy were used in both the educational and practical aspects of this practical lesson, specifically in the main section of it as previously mentioned, as follows:

#### **Educational aspect:**

The teacher explains the skill specified in the lesson and presents the details of its three sections to the students through an educational flex. He clarifies the minute details of its performance model, and performs it for them without the ball and with the ball



several times. He directs the teacher to cooperate in exchanging information and experiences derived from the educational model presented. He is keen to support the team spirit and teamwork among the students, and monitors their acceptance and integration into the lesson environment. Then he explains to them their educational tasks using the beehive strategy. At the end of this aspect and before starting the applied aspect, the teacher prepares cards. Educational designed in the form of hexagonal cells containing the questions. The floor of the volleyball court is planned with colored adhesive tape in hexagonal shapes for the cells to stand on, and a pair of them stand out in a specific color. The students of the experimental group, who numbered (24) female students, were divided into (4) small groups (cells), and in each group there were (6) students in proportion to the hexagonal shape of the beehive. Each group works as an independent“ hive ,”and the tasks are distributed among these four cells by determining the roles between the students in each cell (students in three pairs). They cooperate in dialogue and discussion with performance information to answer the teacher’s questions, and a student plays the role of a queen monitoring the correct answers and performance.

At the beginning of each educational exercise, the teacher asks a cognitive question about the skill performance of the educational exercise using multiple-choice hexagonal cell cards, so that each pair of cells puts a mark)√) on cards, and each cell assigns a student to the role of queen bee and is given the sign (captain). His role within one cell is highlighted to carry out his duties, including (receiving and handing over the hexagram card that contains the question from the teacher so that the answer reached by the pairs of one cell is announced) so that each cell applies the educational task assigned to its students, and the roles can be changed periodically to ensure the learning of all students. This is done by allocating a time period of (1) one minute for each educational exercise that is applied within the tasks of the researched strategy, and when The cells reach the correct answer after the student announces the queen in each cell. The teacher makes sure of the extent of the students ’understanding of this skill and this enhances and confirms their skill performance. In this applied aspect, the teacher emphasizes the simultaneous implementation of all the cells working simultaneously, and monitors the work of the cells and provides notes. Each cell also shares its experience and what it has learned with the rest of the cells. Time can also be allocated to display the best performance of each cell, and then the knowledge of the exercise is applied practically by the students, taking into account the diversity of its content and in a gradual manner. (Mandoob Makki Ati et al., 2024) Its difficulty in the lesson, and so on for the rest of the exercises in this applied aspect, and everything that came about preparing and employing the vocabulary of the beehive strategy was included in the educational curriculum for the practical lessons of volleyball.

The two researchers also applied the exploratory experiment by applying one practical lesson to the students of the pre-determined exploratory sample of (10) students from the research community on Monday, corresponding to the date (4/3/2024) in Al-Fursan Preparatory School for Boys, as its purposes were to identify the obstacles that might arise in applying the experiment with the beehive strategy, (Abdulhussein et al., 2024) and to train the assistant work team to implement it by taking into account

setting the timings for each section of the lesson, and the two researchers learned from this experiment that In the survey, it is necessary to apply one definitional unit to the main application sample together, as it After the two researchers benefited from what was stated in the exploratory experiment, an introductory unit was implemented outside the scientific lessons on the beehive strategy. (Abdulhussein & Adnan, 2024) The purpose of this introductory unit was determined by introducing the students of the main application sample to the nature of the skill performance of the two skills investigated and volleyball skills in general, and how to perform these two skills in the pre-tests.

In accordance with the determinants of the experimental design of the research by ensuring that the results of measuring and testing the two dependent variables investigated were equal to the two research groups, these tests were applied in the closed sports hall in Al-Fursan Preparatory School for Boys, (Kadhim, 2023) on the students of the experimental and control research groups, numbering (48) students, at exactly nine o'clock in the morning on Wednesday, (Kadhim, 2024) corresponding to the date (3/6/2024). Two skill performance tests (crushing punch and defending the field) were applied and were Film them with a video camera, and display the video footage to measure skill performance to three assessors, so that the student's performance in each of the two skills is evaluated according to the approved evaluation form with grades (3: for the preparatory section, 5: for the main section, 2: for the final section).

The data of the tests of the pre-dependent variables were statistically processed using the Levene test to verify the homogeneity of variance and to achieve the conditions for parametric statistics by using the test) t-test (for unrelated samples to verify the equality of the two research groups in the results of these dependent variables, as will be mentioned below with the research results.

The two researchers applied the vocabulary of the beehive strategy to the students of the experimental group over a period of (8) consecutive weeks of time from the second semester of the academic year (2023-2024), at a rate of (1) one lesson per week according to what was allocated in their schedule, bringing the number of lessons to (8) practical lessons, and for each skill there were (4) practical lessons, as the applications of the teaching plan with the beehive strategy included the following:

- .1The application began the first week on Sunday, corresponding to (10/3/2024), and the last week ended on Sunday, (Kazar & Kazim, 2020) corresponding to (28/4/2024) of the weekly schedules.
- .2The total number of practical volleyball lessons using the beehive strategy that were applied to the students of the experimental group amounted to (8) lessons.
- .3The number of educational exercises prepared by the researchers amounted to (44) exercises, allocated to performing each skill (22) exercises, distributed in one practical lesson (4) exercises, some of which are repeated in some other practical lessons that the researchers note are necessary to suit the progress of the required improvements.
- .4The vocabulary of the beehive strategy was applied in the educational and final aspects, and the two researchers did not interfere with the details of the

preparatory and final sections of the practical volleyball lessons, which were left to their teacher in the aforementioned middle school.

.5The physical education teachers at Al-Fursan Preparatory School applied the practical lessons of volleyball using the beehive strategy. The role of the two researchers is to supervise and follow up on the conduct of the lessons of the students of the experimental group. As for the students of the control group, they study using the educational methods followed by them in the practical lesson followed.

.6The details of the total time for one practical lesson (45 minutes) were divided as follows:

Preparatory section: (10) minutes.

Main section: (30) minutes:

Educational aspect (5) minutes.

The practical aspect (25) minutes.

Closing section: (5) minutes.

As for the students in the control group, they were content with the methods followed in the lesson without the researchers' interference in their teaching, and they were content to follow them to facilitate these lessons with the same time period and on the same days as the experimental group.

After completing the application of the beehive strategy in the practical lessons of volleyball over a period of (8) consecutive academic weeks, and under the same pre-test conditions, these post-tests were applied to the students of the experimental and control groups, numbering (48) students on Tuesday, corresponding to (2024/30/4)

Also, after the end of the research experiment, the results were processed automatically using the statistical bag system) SPSS (version) V) (statistical package for social sciences (by finding each of the following values: percentage, arithmetic mean, standard deviation, and test) To live (for homogeneity of variance, and test) t-test (For uncorrelated samples, test) t-test (For correlated samples.

## Results:

Test and group		N	Q	A +	(Liven)	(Say)	(t)	(Say)	differ	
Perform the smashing skill	empiricism	24		2.54	1.179	0.141	0.709	1.041	0.303	Not a sign
	Female officer	24		2.88	1.035					
Performing the skill of defending the field	empiricism	24		1.42	1.213	1.209	0.277	1.547	0.129	Not a sign
	Female officer	24		1.92	1.018					

The measurement unit is (degree), the difference is not significant if (Sig) (0.05) > at a significance level (0.05) and degree of freedom.(46)

table (2) shows the results of the pre- and post-tests for the two groups on the dependent variables

Testin g	Group	Comp arison	Q	+ A	F	A F	t) (	S) ay (	differ t
Perfor m the smashi ng skill	empir icism	pre vio us	2.54	1.17 9	4.9 58	1.1 22	21.6 48	0.00 0	D al
		the next	7.5	0.59					
	Fema le office r	pre vio us	2.88	1.03 5	2.6 25	1.5 27	8.42 2	0.00 0	D al
		the next	5.5	0.78					
Perfor ming the skill of defend ing the field	empir icism	pre vio us	1.4 2	1.2 13	5.5 83	1.4 12	19.3 76	0.00 0	D al
		the next	7	0.7 22					
	Fema le office r	pre vio us	1.9 2	1.0 18	3.2 5	1.0 73	14.8 33	0.00 0	D al
		the next	5.1 7	0.6 37					

The unit of measurement is (score). The difference is significant if (Sig) < (0.05) at a significance level of (0.05) and a degree of freedom.(23)

Test and group		number	Q	+ A	t(	)Sa y(	the difference
Perform the smashing skill	empiricism	24	7.5	0.59	10.018	0.000	Dal
	Female officer	24	5.5	0.78			
Performing the skill of defending the field	empiricism	24	7	0.722	9.326	0.000	Dal
	Female officer	24	5.17	0.637			

table (3) shows the results of the post-tests between the two groups on the dependent variables

Unit of measurement (degree), difference Significant if (Sig)  $(0.05) <$  at a significance level (0.05) and degree of freedom.(46)

## Discussion:

The two researchers attribute the emergence of the results of this improvement and superiority to the positive impact of the students of the experimental group and their superiority in the results of the post-tests to the assistance of the beehive strategy in improving coordination and the interaction of students with each other in the four hexagonal cells in the practical volleyball lesson to build one team spirit in the atmosphere of the practical lesson whose educational tasks for each skill exercise were graded from easy to difficult in an atmosphere of enhancing teamwork and improving communication between students with this performance, and developing focus while dealing with the challenges of performing each educational exercise for the two smashing skills. Defending the field, and making good use of the vocabulary of the beehive strategy in the lesson, which helped in enhancing movement and group interaction between the hexagonal beehives formed by the students, as well as enhancing coordination between each of the two of them in each of the four cells, which helped in benefiting from the exchange of bilateral experience to support the cognitive structure in this skill performance, which enhanced the processes of joint cooperation in each beehive and between the other cells by exchanging positions and roles according to the applications of this strategy, which together led to a positive effect in improving the performance of the crushing and defense skills. On the volleyball court for this

group of middle school students, in addition to the good diversity of educational situations in the beehive strategy, and adopting the principle of diversification by applying and practicing educational exercises that were appropriate for the age and gender of fifth grade middle school students, and as a result of the teacher's use of motivational phrases to enhance students' confidence, and this strategy provided the teacher with the opportunity to provide individual and customized feedback on each student's performance of this skill when trying out multiple roles (sender, receiver, observer), which enhances his confidence in his applied practice of skill performance that is being monitored. And immediate corrections from the beehive students and the teacher in an atmosphere of fun and freedom in choosing those roles, which pushed them towards activation for their required role in teaching these two skills in group sessions of the cooperative hexagonal beehives, in addition to the principle of equal opportunities in supporting the cognitive structure by answering the questions of the teacher's six-point cards, and equal opportunities in receiving feedback on skill performance and the objectivity of its evaluation within one lesson of these practical lessons using the beehive strategy in which learning is invested in playing in an atmosphere of suspense. And educational fun, which enhanced the role of practice and application, which are the most important factor in improving skill performance for each of the two skills investigated.

"The game of volleyball is characterized by large and varied perception requirements, which are reflected in the measurements of the court, the number of players, and the method of calculating the point. Therefore, it requires players to have the ability to analyze and quickly think in different playing situations)". Najm and Abdul Karim, 2022, p. 463(

It is also" the collection and exchange of knowledge and experiences between learners and teachers, which includes managing and organizing the process of transferring valuable knowledge and experiences between the various individuals participating in the lesson, whether they are learners or teachers)". Ribeiro & Other, 2021, P: 161-170(

Because it is" Although the cooperative beehive strategy is characterized by comprehensiveness, it deals with learners according to the principle of specialization or specificity of what they are taught, in addition to its consideration of individual differences among students, and is distinguished by its cognitive and practical applications at the level of skill and intellectual and physical control of each student". )Al-Qahtani, 2019, p. 147(

Also" ,among the roles that the teacher plays in the activation strategies in teaching are a presenter, an observer, a stimulator, an environmental organizer of the lesson, a helper in establishing relationships, a reference for learning, and a builder of theories". )Al-Mutrafi, 2018, p. 33(

"Explaining procedures clearly by providing simple verbal directions, repeating and interpreting directions in a concise and clear manner, as well as providing immediate feedback to students about performance can help learners visualize the operations and movements required)". Till & Cobley, 2021, P: 81(

Likewise" ,making the various questions or concepts in the beehive strategy between applied, theoretical, or analytical, and organizing the lesson time helps to make

it an appropriate time for each stage to ensure everyone's participation, to include all levels of thinking, to ensure that the groups are directed, to ensure that the activity is conducted correctly, and to ensure that roles are distributed within the cell groups for all students to participate in the lesson) ".Abdul Rahman, 2021, p. 105(

"One of the most prominent things that the beehive strategy offers at the skill level is the continuous evaluation of the cognitive and skill aspects, which stimulates competition between the hives of learners to support their knowledge and improve their skill performance to be more guaranteed in achieving the behavioral goals in the lessons) ".Ali, 2020, p. 110(

Also“ ,when diverse ideas and innovative experiences are exchanged, an environment can be created that encourages innovation in applying volleyball skills, and female students can be inspired by the ideas of others to try new and effective methods) .".Capranica &Other, 2020, P: 165(

#### Conclusions and recommendations:

The vocabulary of the beehive strategy can be applied and used in educational tasks In practical physical education lessons for volleyball for fifth grade middle school students.

Applying the beehive strategy helps improve the level of performance of the skills of smashing and defending the court in volleyball for fifth-grade middle school students, and they outperform the level of performance of these two skills among students who study without them in practical volleyball lessons.

It is necessary to focus on practical applications to teach the performance of the skills of striking and defending the court in volleyball, with a greater proportion of explanations, guidance, and feedback from external sources, to increase the empowerment of female students to discover and activate the role of fifth-grade middle school students in practical lessons.

It is necessary to pay attention to developing the capabilities of physical education teachers in middle schools, and increasing their knowledge of the importance of applying the beehive strategy in practical lessons in a manner that relies on scientific planning in accordance with the foundations and principles of physical education teaching methods.

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## The Effect of Exercises Using Equipment on Learning the Skill of Half-Turn Landing Inward on the Pommel Horse for Students

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2221](https://doi.org/10.37359/JOPE.V37(1)2025.2221)

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**Article history:** Received 8/ November/2024 Accepted 3/ December/2024 Available online 28/ March /2025

### Abstract

### Abstract

Artistic gymnastics is one of the individual sports, and it is considered one of the most difficult due to its significant physical and motor requirements. Additionally, it involves numerous apparatuses, each containing multiple skills that students must learn. This study aimed to investigate the effect of exercises using equipment on learning the skill of half-turn inward landing on the pommel horse. The research hypothesis proposed that there are statistically significant differences between the post-test results of the control and experimental groups in learning the half-turn inward landing skill on the pommel horse, in favor of the experimental group. The researcher used the experimental method, which is suitable for the nature of the study. The study population comprised 340 students distributed across 10 sections of the second year at the College of Physical Education and Sports Sciences, University of Baghdad. The sample for the study was drawn from second-year students in Section (H), with a total of 28 students. After excluding those injured or failed, the final sample consisted of 20 students, representing 5.88% of the total population. The researcher employed a design with two equivalent groups: a control group and an experimental group, as this design suited the research procedures. **Conclusions:** Based on the results, the researcher concluded the following: The exercises designed using the correct scientific approach play a significant role in helping students and instructors learn the skill faster. The equipment used provided real support for the technical pathways of performance, facilitating the learning of the half-turn inward landing skill on the pommel horse. The researcher recommends the continued use of these exercises and equipment to teach this skill to students.

**Keywords:** Gymnastics tools, pommel horse, exercises.

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## Introduction

Team and individual sports in physical education and sports sciences colleges are essential for student success, as they vary depending on each sport and are distributed across the four years of study. These sports are categorized into individual and team sports. In individual sports, a student's technical level is more evident, showcasing their physical and motor skills, unlike team sports where individual performance is less distinct. Artistic gymnastics is one of the individual sports, arguably among the most challenging due to its high physical and motor requirements. The sport encompasses various apparatuses, each with multiple skills that students learn across two stages. In the second stage, students practice very basic skills on the six gymnastics apparatuses. By the third stage, the curriculum advances to more difficult skills, demanding significant physical strength, motor coordination, and control, making them challenging for students. The pommel horse, the second apparatus in the sequence of artistic gymnastics equipment, requires substantial arm, shoulder, back, and abdominal strength. As a new apparatus for students, it poses particular challenges early in the second-year curriculum in physical education and sports sciences. One of the major challenges in the third-year curriculum is the skill of dismounting from the apparatus, a skill that has not been previously researched or studied in academia, highlighting the significance of this study. This research focuses on the skill of dismounting with a half-turn rotation inward. The problem is that this dismount requires high levels of muscular coordination and control, as the student must rotate their body mid-air, land securely, and stabilize on the mat. Given the complexity of this skill's three phases—preparatory, main, and concluding—a proper understanding is essential. College students find it helpful to commit to engaging in regular, moderate or intense physical activity that helps them improve their subjective sleep quality, fall asleep faster and stay healthy, which fits into their daily exercise schedule and curriculum, which in turn gives them confidence to perform better (Lian, 2024). Many studies have examined the impact of exercises using equipment, including a study on (Lazem,2024) The researchers concluded that:

- Specific physical exercises improved players' endurance in performing the skill sequence on the pommel horse apparatus.
- Using devices and tools in physical exercises significantly helped players maintain correct body alignment, thus avoiding deductions in the skill sequence performance on the pommel horse.



The study by (Nasser,2024) found that targeted exercises had a clear impact on learning the Healy skill. The tools used in learning this skill across its three phases—the preparatory, main, and concluding phases—were beneficial for the players in skill acquisition. Another study by (Ridha,2021) concluded that specific exercises contributed to improving the skill performance of the experimental group. The special exercises had a noticeable positive effect on developing certain physical capabilities, with the experimental group outperforming the control group in the studied variables due to the influence of targeted exercises. Furthermore, the study by (Hussein,2022) concluded that skill-specific physical exercises significantly improved the performance of the Stalder and Endo skills on the high bar. The use of assisting devices and tools was deemed essential for enhancing the performance of these skills on the high bar. The aim of this research is to understand the effect of exercises using tools in learning the skill of dismounting with a half-turn rotation inward on the pommel horse.

### Research Hypothesis

There are statistically significant differences in the post-test between the control and experimental groups in learning the skill of dismounting with a half-turn rotation inward on the pommel horse, favoring the experimental group.

### Methods and Procedures

- **Research Methodology:** The researchers adopted the experimental method due to its suitability for the nature of the study.
- **Population and Sample:** The research population included 340 students across 10 sections in the second year of the College of Physical Education and Sports Sciences at the University of Baghdad. The sample consisted of 28 students from Section E in the second year, excluding those who were injured or had failed, leaving a final sample size of 20 students, representing 5.88% of the population. The researchers employed a design with two equivalent groups, a control and an experimental group, for suitability to the research procedures.

**Table (1)**

shows the sample size and its percentages

	Samples	Number	Percentages
1	Research community	340	%100
2	Research sample	20	%5.88
3	Exploratory sample	3	%0.88

### Equivalence of the Research Groups and Their Experimental Design

The researcher conducted an equivalence test for the two research groups concerning the study variables, as shown in the following table.

**Table (2)** Displays the mean, standard deviation, calculated *t* value, error level, significance, differences in mean values, and the standard deviation of the differences in the pre-test results for the targeted skill between the control and experimental research samples.

Statistical parameters	N	Unit of measurement	Control group		Experimental group		Calculated T value	Error level	Type of significance
			A-+	S-	A-+	S-			
Research variables									
Landing skill	20	degree	.2496	2.370	2.520	.2394	1.371	.187	Not significant

**Significant at a Confidence Level of (0.05)** if the error rate is  $\leq (0.05)$  with degrees of freedom of  $n-2=18$ .

### Instruments and Equipment Used in the Study

#### Resources Utilized in the Study:

- Arabic references and sources
- Observation and analysis
- Tests and measurement tools
- The internet




### Devices and Equipment Used in the Study:






- Stopwatch
- Camera
- Standard pommel horse
- Layered wooden pommel horse
- 1-meter foam mat

### Exercises

The successful learning of skills relies heavily on designing exercises in a scientific manner that aligns with the skill's form and segmentation. This approach aids the student in understanding and performing the skill correctly. Consequently, the researcher devised a set of exercises using specific equipment, as illustrated below.

**Table (3)** Model of exercises utilizing the supporting device.

S	Exercises used	The form
1	Leaning with the knee bent in the middle of the handles while holding the handles with an extended arm, the student extends the other leg and waves from above the other end of the horse, focusing on not bending the free leg that swings in a circular manner from above the horse.	
2	The same as the first exercise. At the end of the swing, the student uses the free leg to push the left arm, twist the body inward, and sit on the other end of the horse.	
3	The same as the second exercise. A 1-meter-high mat is placed on the other side of the pommel horse. After the swing in the second exercise, the student pushes, twists the trunk, and sits on the mat.	

<p>4</p>	<p>The wooden horse divided into five layers is placed so that it is lower than the body of the pommel horse. The student stands on it facing the pommel horse, holding the handles and leaning with one leg on the wooden horse, and swinging the other leg in a circular motion from the pommel horse. That is, the student does not lean on the device, but rather leans on the wooden horse. Then he pushes the left hand and the right foot, twists the trunk, and sits on the device.</p>	
<p>5</p>	<p>The same previous exercise lowers a layer of wooden horse and the student does the same previous exercise and does not sit on the horse but rather twists the trunk and sits on the rug that is 1 meter high.</p>	
<p>6</p>	<p>The same previous exercise, lowering the wooden horse another layer and snatching with the free leg and rotating and performing the skill of twisting the trunk 180 minutes while raising the mat from behind the device and the student lowers the body on his legs in the opposite direction of the device</p>	
<p>7</p>	<p>The same previous exercise, from a standing position on the wooden horse with layers, with the legs apart and holding the handles with both hands, he jumps to rotate 180 minutes and performs the entire skill.</p>	
<p>8</p>	<p>From the position of leaning with the hands on the handles, lower the wooden</p>	



	<p>horse to the lowest height so that the student leans on the instep of the feet, i.e. touches it only, and performs the entire skill.</p>	
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**Repetitions Allowable Within the Time of the Instructional Unit**

**Exploratory Experiment** The researcher conducted an exploratory experiment with the help of an assisting team to evaluate the exercises and equipment used. This trial was performed in the gymnastics hall at the College of Physical Education and Sports Sciences, University of Baghdad, with a sample of three individuals outside the main research sample. The purpose was to initially test the exercises with the equipment on students and determine whether the exercises align with the skill-learning process.

**Pre-Test** After completing the exploratory experiment procedures, the pre-test was conducted. The researcher prepared the setting and conditions for the test. Four judges (specialized gymnastics instructors) evaluated the performance in real-time based on their internal assessment. The average of two scores was taken by dividing the total by two to determine the final score. Performance was rated on a scale of 10, as agreed upon, as shown below.

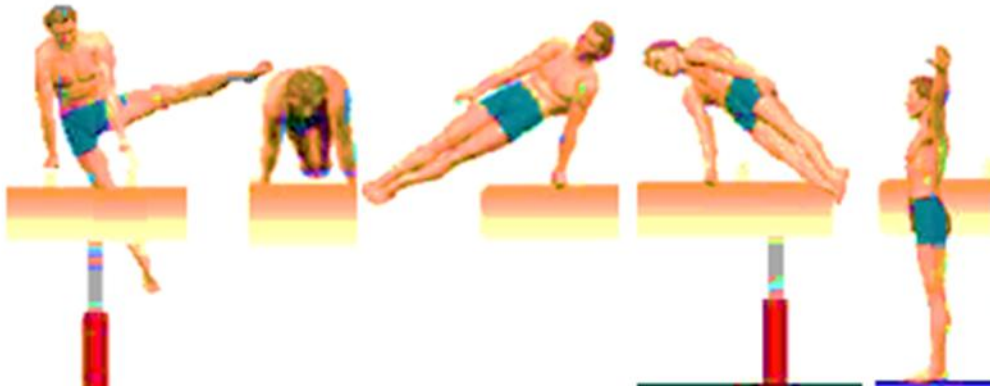
**Skill-Based Pre-Test Purpose:** To measure performance ability and determine the final score achieved by the athlete in performing the skill of the half-turn inward dismount.

**Test Tools:** Pommel horse, 1-meter foam mat, 1.5-meter-high wooden pommel horse, stopwatch.

**Evaluation Criteria:** The assessment was based on the technical performance agreed upon by the judges, accounting for the athlete's errors. The maximum score achievable on the apparatus is 10 points.

**Test Procedures:** The athlete assumes the ready position by gripping the pommel handles and extends their left leg above the pommel to take the initial position. With a strong swing of the left leg backward, the athlete begins the rotation above the horse. Upon reaching a horizontal position

above the apparatus, the athlete pushes with their left arm, rotates their body 180 degrees inward, and, as the body clears the apparatus, releases the right hand, allowing the full exit of the body. The athlete then re-grasps the handle, as illustrated below.



**Figure (1):** Illustrates the technical execution of the half-turn inward dismount skill.

### **Implementation of the Main Experiment:**

The researcher followed the curriculum set by the college for the second-year apparatus syllabus on the pommel horse without modifying its content. An assisting apparatus was incorporated into the curriculum designated for the sample. The experiment lasted for six weeks, encompassing 12 instructional units, with two units per week as scheduled for the second-year program, totaling four hours per week. Each instructional unit lasted 90 minutes and included two apparatuses per unit (pommel horse and horizontal bar or pommel horse and vault). The instructional regimen on the pommel horse was applied over a duration of 30 minutes, based on the principles of “repetition and rest,” and was crafted according to scientific and educational principles, as detailed in the table below.

### **Post-Tests:**

Following the completion of the curriculum, which used equipment-based exercises to teach the half-turn inward dismount on the pommel horse, a post-test was conducted following the same procedures as the pre-test. The researcher ensured identical conditions as the pre-test. The skill was graded on a scale of 10. Judges, adhering to the official international gymnastics’ standards, discarded the highest and lowest scores, using the mean of the two middle scores as the final score for each athlete. Direct evaluations were conducted by gymnastics professors at the College of Physical Education and Sport Sciences.

### Statistical Methods:

Researchers used the SPSS software to calculate:

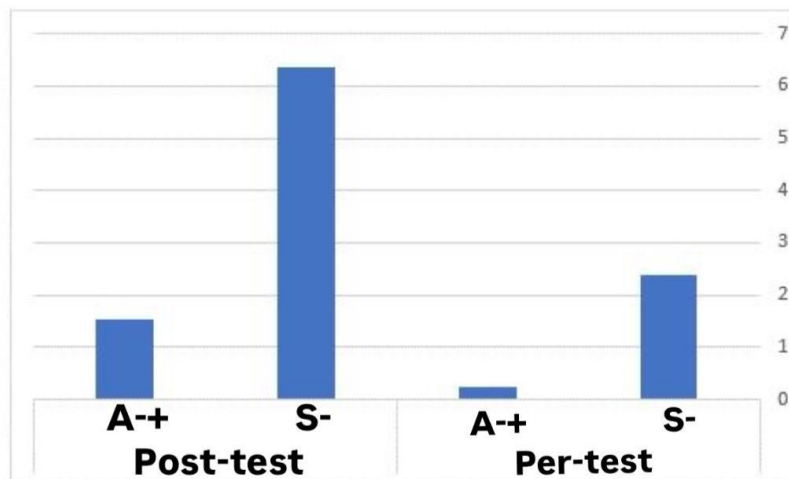
- Mean
- Standard deviation
- Paired samples *t*-test
- Independent samples *t*-test
- Percentage

### Results:

**Table (4)** Displays the mean, standard deviation, calculated *t* value, error level, significance, mean differences, and the standard deviation of differences between the pre- and post-tests for the control group in the targeted skill.

Research variables	N	Measurement Unit	Pre-test		Post-test		f	fd	T	Value	Sig
			A-+	S-	A-+	S-					
	10	degree	.2496	2.370	1.528	6.350	3.98	1.44	8.71	.000	sig

Significant at the confidence level (0.05) if the error rate  $\leq$  (0.05). And the degree of freedom of  $n-1 = 9$

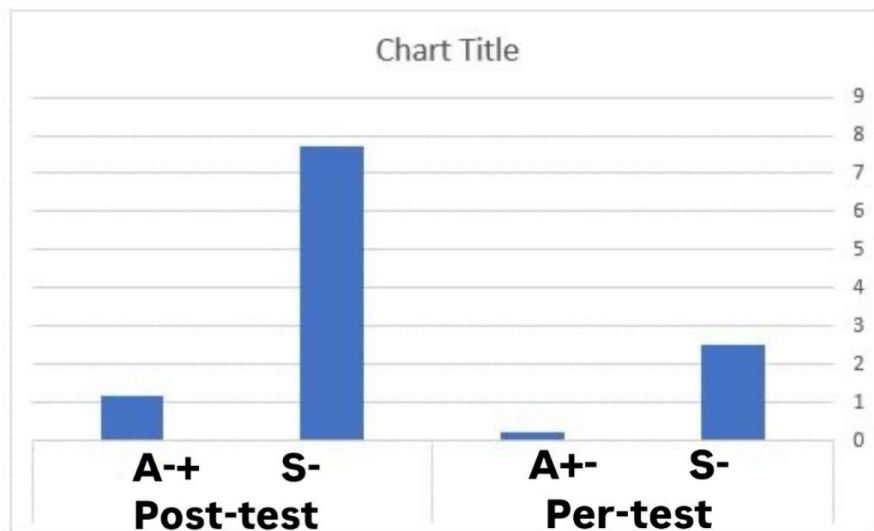


**Figure (2)** Histogram shows the means and standard deviations of the pre- and post-test for the control group to learn the skill of landing from a half-turn inward on the pommel horse

**Table (5)** Shows the arithmetic mean, standard deviation, calculated (t) value, error level, significance, differences in arithmetic means, and deviation of differences in the pre- and post-tests for the skill of the experimental research sample

Research variables	N	Measurement Unit	Pre-test		Post-test		f	fd	T	Value	Sig
			A-+	S-	A-+	S-					
	10	degree	A-+	S-	A-+	S-	4.980	1.300	12.11	.000	sig
			.2394	2.520	1.159	7.700					

Significant at the confidence level (0.05) if the error rate  $\leq$  (0.05). And the degree of freedom  $n-1 = 9$



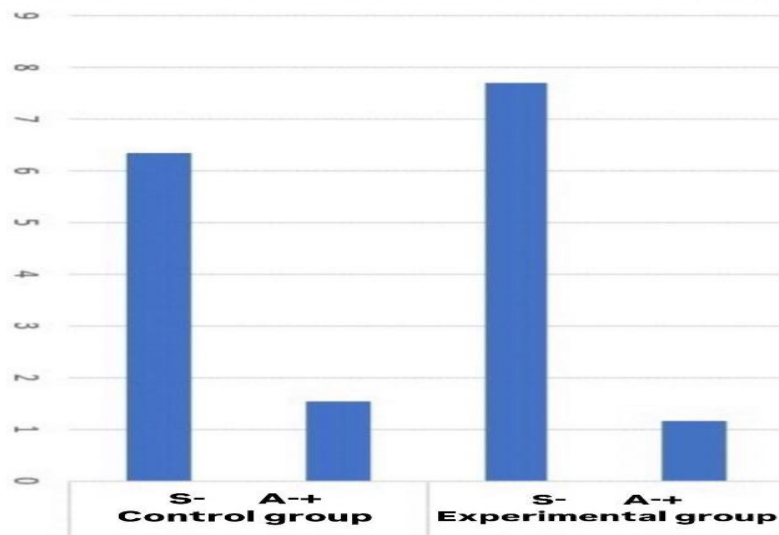
**Figure (3)** Histogram shows the means and standard deviations of the pre- and post-test for the experimental group to learn the skill of landing from a half-turn inward on the pommel horse apparatus

**Table (6)** Shows the arithmetic mean, standard deviation, calculated (t) value, error level, significance, differences in arithmetic means, and deviation of differences in the two post-tests of the skill for the research sample

Statistical parameters	N	Unit of measurement	Control group		Experimental group		Calculated T value	Error level	Type of significance
			A-+	S-	A-+	S-			
<b>Landing skill</b>	20	degree	<b>1.528</b>	<b>6.350</b>	<b>1.159</b>	<b>7.700</b>	<b>2.225</b>	<b>.039</b>	significant

\* Significant at the confidence level (0.05) if the error rate  $\leq$  (0.05). And the degree of freedom  $n-2 = 18$

**Figure (4)** Histogram shows the means and standard deviations of the post-test for the two research groups to learn the skill of landing from a half-turn inward on the pommel horse apparatus.





## Discussion

The results shown in Table (6) and Figure (4) highlight the mean differences, standard deviations, T-value, and statistical significance, indicating that the mean scores of the experimental group are higher than those of the control group. This suggests that the exercises designed for learning this skill—comprising novel and systematic training for each phase of skill acquisition (initial, main, and final)—were effective. (Manaf, 2015) The researcher crafted exercises for each segment of these phases in an instructional, educational, and training format, facilitating the learning process for both students and instructors. (Abdul Reda, 2016) emphasizes that "varied exercises on the apparatus keep the athlete motivated to learn and activate different muscle groups based on the type of exercise." Similarly, (Ahmed, 2016) states that specialized exercises focus on the muscle groups required for a particular skill or sport, enhancing their capacity and thus reducing time and effort while covering physical, (Kadhim, 2024) motor, technical, and psychological aspects. Furthermore, (Abed Zaid, 2008) supports those exercises target specific muscle groups and closely replicate the movements of the intended skill or sport, incorporating elements similar to the target movement's direction and intensity, thereby preparing the muscles in line with competitive actions. The researcher concurs with these findings on the significant role of exercises in diversifying the instructional unit and breaking routine to achieve satisfactory learning outcomes. The use of equipment also contributed to effective skill acquisition through a gradual progression from easy to difficult tasks. In the initial stages, equipment was utilized 100% and then gradually reduced to 10% until its eventual removal, (Kadhim & Mahmood, 2023) allowing students to perform the skill unaided in a short time. This progression underscores the importance of tools in skill acquisition, providing a structured, scientific approach that enhances the learning of each skill phase. (Abdul Kadhim, 2012) asserts that "supportive tools play a significant role in the learning process and mastering numerous gymnastics skills by overcoming factors like fear and anxiety and by facilitating movements that reduce the burden on the learner." Additionally, (Al-Kuraimi, 2019) highlights that "supportive equipment greatly improves technical performance, aids athletes in understanding movement paths, provides necessary power for core movement phases, and serves as effective safety measures, although some skills may limit manual assistance due to multiple movement axes and complex body positions." The researcher agrees with Abdul Kadhim and Al-Kuraimi regarding the role of correct tool usage, which aligns with the skill's trajectory without disrupting the learning strategy.

**Conclusions:** Based on the results, the researcher concluded the following:

Scientifically designed exercises play a crucial role in helping both students and instructors achieve rapid skill acquisition. The tools used provided effective support for the technical paths of performance, aiding in the skill acquisition of the half-turn inward dismount on the pommel horse.

### Recommendations:

The use of exercises and supportive tools is essential in teaching the skill of the half-turn inward dismount on the pommel horse for students.



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## Comparative study of some variables (skill performance, physical and motor abilities) before and after the league competitions for women's futsal players season 2023/2024

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2245](https://doi.org/10.37359/JOPE.V37(1)2025.2245)

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**Article history:** Received 14/ January/2025 Accepted 2/ February/2025 Available online 28/ March /2025

### Abstract

This study aimed to identify the impact of the Iraqi Women's Futsal League competitions for the 2023-2024 season on the level of skill performance and some physical and motor abilities of the players participating in the league competitions, i.e. a comparison between before and after the league competitions, as pre- and post-tests were conducted on a sample of 45 players participating in the Iraqi League, and the researcher processed the results of the raw tests and the study reached the significance of the results in skill performance and physical and motor abilities, which confirms the positivity of the impact of the Iraqi League on the players. In addition, playing matches continuously helps in developing the skill performance of the players, and the researcher recommends that the training curricula for coaches in the preparation stages include intensive matches in order to raise physical and skill capabilities.

**Keywords:** skill performance, futsal, Iraqi Futsal League.

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## Introduction

Futsal is one of the games that has a great development in recent years. This development includes all aspects of the game, administrative, technical and organizational. This is clearly evident in the level of players' performance on the field. This progress is due to the use of a variety of modern sciences that contribute to the development of the training process for players, the result of which is raising the physical, skill, psychological and tactical capabilities of players. This is what we see noticeable as a result of the use of modern methods and foundations for education and training and the diversity in training methods according to modern scientific principles that have a clear impact on developing the level of the game and the performance of players in general and their physical, psychological, tactical and skill capabilities and characteristics in particular. This is due to the continuous scientific progress at the sports level, which is in the interest of sports competition.

The team's level in competition is a reflection of the players' abilities and level of training. In addition, the level of competition plays an important role in the development of the players and their various abilities, as well as their skill level and the Verheijen explaining the skill performance (Verheijen, the original guide to football periodisation, 2016).

Skill performance is the essence of the matches as it is considered the link between physical and tactical performance, as a good player uses his skills efficiently and competently when he is at the peak of his physical level and then he can use them in the tactical duty assigned to him by the coach. (Kadhim 2024) The higher the level of competition, the more players are forced to play with a higher technique that matches the level of competition (Talib Jasim, Hayder Hussein, and Saad Ibrahim 2022)

Playing at high levels, there is less space and less time for players to play and execute, which increases the difficulty of situations and forces players to play with high intensity (S. S. Ibrahim 2021), Given the fast-paced nature of futsal and the frequent transitions between defense and attack, this pushes players to play with high intensity and pushes their physical abilities to work at their maximum, which is confirmed by (Stevie Grieve, Nacho Garrido, 2014) It is that offensive and defensive play and the transition between them during the match forces players to work with 100% of their abilities, skill and tactical capabilities. The researcher sees through his knowledge and field experience in this field and based on the opinions of some experts specialized in the game, that playing in futsal is high intensity due to the speed of transition between the defensive and offensive side and the responsibility on the players in both cases, and this forces players to work with the anaerobic lactic system, and Moafaq Al Mola explain the importance of speed of play, Nowadays there is no place for slow layers in the modern football (Ali, Hameed, and Ibrahim 2020).

This is what a futsal player should be in terms of speed and a good level of physical abilities. From this concept, the importance of the research became clear to the researcher, as the research aims to identify the impact of the Iraqi Women's League competitions on the level of skill performance and some physical abilities of futsal players for the 2023-2024 season.

By referring to previous sources and studies, the researcher reviewed a number of studies in order to benefit and learn more concepts that support the content of this study, the study (Sérgio Adriano Gomes, 2024) refers that Coaches should consider the relative space to the players and not just the size of the field or the number of players. That is, the playing space must be proportional to the number of players in order to understand the physical and physiological requirements of the players, and the study (Hayder Talib Jasim, Abed, and Ibrahim 2023) confirmed that the competitions effects on abilities and develop most of the abilities for the players who are playing, while the study (Umberto C. Corrêa, Fernando A. M. Alegre, Andrea M. Freudenheim, Suely dos Santos, Go Tani, 2012, p. 185) says that the most types of use systems, basic duties and their characteristics for the system helps in adaptation and continued performance, and (Ali, 2024, p. 291) refers to the competitive training that used in experiment had a positive role in technical and tactical performance, and the researcher reviewed the study (S. S. Ibrahim 2021) lead to some forms to develop the acceleration with competitive style, and another study (Nahlah Sabeeh Obed, Shahad Marzoq, 2024, pp. 880-891) Paying attention to physical training that includes a level of performance from movements to skills, (S. S. Ibrahim, Ahmed, and Shehab 2024) Focusing on static strength training helps develop overall strength, (S. Ibrahim, Asleawa, and Farhan 2024). From the previous studies presented, the researcher sees the importance of the research in identifying the impact of the Iraqi Women's League competitions on the level of skill performance and some physical abilities of female futsal players for the 2023-2024 sports season.

### **Method**

The researcher used the experimental method with a single-group design (before and after) to suit the nature of the research problem, (Lect Samer Saad Ibrahim, Salam Hantosh, and Talb Jasim n.d.) The experimental method is the only method that can be used accurately to choose hypotheses for relationships of the type "cause and effect", as the researcher usually controls one or more of the independent variables, and works to adjust the effect of other relevant variables to see the effect on the variables dependent on the independent variable.

The research community included the players of the clubs participating in the Iraqi League participating in the Futsal League for the season (2023-2024), numbering (7) clubs, which are (Al-Zawraa Sports Club, Al-Tun Kopri Sports Club, Maysan Oil Sports Club, Nineveh Girl Sports Club, Baladi Sports Club, Al-Amwaj Al-Mawsili Sports Club, Bint Iraq Academy).

The research sample was limited to (45) female players from three participating clubs, which are (Al-Zawraa Sports Club, Al-Tun Kopri Sports Club, Maysan Oil Sports Club), as the research sample chosen by the researcher intentionally represented (42.85%) of the total number of female players participating in the Iraqi Futsal League for the season.(2024-2023)

The researcher used a number of means of collecting information, such as Arab and foreign sources and observation, in order to measure the research variables, which are (skill performance, maximum strength, acceleration, strength endurance, agility).

- Skills performance test (عبدالطلب، 2016، صفحة 78).
- Fast Strength for Legs (درويش راجح الديلمي، أحمد عزت، 2012، صفحة 51)
- Standing Long Jump Test (HEDE, 2011, pp. 178-179)
- Single-Leg Squat (R+L) (Livengood AL, DiMattia MA., 2004, pp. 24-25).
- Accelerate 10 Meters test (Marques MC, Izquierdo M, 2014)
- Illinois Agility (Brukner, Peter, 2016, p. 144)

The researcher conducted the Pre-tests for the purpose of identifying the most important positive and negative points in performing the tests on 1<sup>st</sup> of September 2024, in addition to the fact that all tests are approved and standardized tests. The researcher also made sure that the sample was normally distributed through tests before starting the tests, and confirmed the data of sample and its distribution through the skewness factor, as shown in Table.(1)

**Table (1) Descriptive Statistics**

N	Subjects	Minimum Statistic	Maximum Statistic	Mean	St. Deviation	skewness
	Skills performance	0.29	1.16	0.62	0.178	0.354
	Fast Strength for Legs	4.90	7.15	6.18	0.676	0.354
	Standing Long Jump	1.90	2.90	2.34	0.325	0.354
	Single-Leg Squat (R)	15.00	75.00	35.66	16.082	0.353
	Single-Leg Squat (L)	15.00	75.00	36.66	18.799	0.353
	Accelerate 10 Meters	1.70	2.23	1.98	0.140	0.353
	Illinois Agility	16.63	20.23	18.59	1.020	0.353

Through the statistical description of the sample data in Table (1) for the researched ability and skills tests, we note that the sample is distributed normally, which confirms the continuation and conduct of tests for the research sample for the researched variables under study. The researcher also began the pre- research tests on 7, 8, 9, 10 of September 2025, while the post-tests were conducted on 3, 4, 5/10/2025, and the Iraqi League competitions continued for a period of 11 days.

## Results

After statistical process of the sample data, the researcher reached the following results:

**Table (2) Paired Samples Statistics**

Subject		Mean	N	Std. Deviation	Std. Error Mean
<b>Pair 1</b>	Skills performance (Test 1)	.8378	45	.19081	.02844
	Skills performance (Test 2)	1.0453	45	.13314	.01985
<b>Pair 2</b>	Fast Strength Legs (Test1)	6.1878	45	.67690	.10091
	Fast Strength Legs (Test2)	6.4978	45	.81002	.12075
<b>Pair 3</b>	Standing Long Jump (Test 1)	2.3456	45	.32593	.04859
	Standing Long Jump (Test 2)	2.7811	45	.60587	.09032
<b>Pair 4</b>	Single-Leg Squat (R) Test 1	35.6667	45	16.08218	2.39739
	Single-Leg Squat (R) Test 2	47.0000	45	19.08117	2.84445
<b>Pair 5</b>	Single-Leg Squat (L) Test 1	36.6667	45	18.79918	2.80242
	Single-Leg Squat (L) Test 2	48.3333	45	19.68502	2.93447
<b>Pair 6</b>	Accelerate 10 Meters (Test 1)	1.9829	45	.14024	.02091
	Accelerate 10 Meters (Test 2)	1.8716	45	.18062	.02692
<b>Pair 7</b>	Illinois Agility (Test 1)	18.5982	45	1.02017	.15208
	Illinois Agility (Test 2)	17.5291	45	1.28704	.19186

**Table (3) Paired Samples Correlations**

Subject		N	Correlation	Sig.
Pair 1	Skills performance Test 2 & Skills performance Test 1	45	.265	.079
Pair 2	Fast Strength Legs Test1 & Fast Strength Legs Test2	45	.705	.000
Pair 3	Standing Long Jump Test 1 & Standing Long Jump Test 2	45	.230	.128
Pair 4	Single-Leg Squat (R) Test1 & Single-Leg Squat (R) Test 2	45	.562	.000
Pair 5	Single-Leg Squat (L) Test1 & Single-Leg Squat (L) Test 2	45	.588	.000
Pair 6	Accelerate 10 Meters Test1 & Accelerate 10 Meters Test 2	45	.367	.013
Pair 7	Illinois Agility Test 1 & Illinois Agility Test 2	45	.312	.037

**Table (4) Paired Samples Test**

Subject		Paired Differences					df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Skills performance (Test 2) - Skills performance (Test 1)	-.20756	.20169	.03007	-.26815	-.14696	-6.903	44	.000
Pair 2	Fast Strength Legs (Test1) - Fast Strength Legs (Test2)	-.31000	.58422	.08709	-.48552	-.13448	-3.559	44	.001

Pair 3	Standing Long Jump (Test 1) - Standing Long Jump (Test 2)	.43556	.61834	.09218	-.62133	-.24979	-4.725	44	.000
Pair 4	Single-Leg Squat (R) Test 1 - Single-Leg Squat (R) Test 2	11.33333	16.66515	2.48429	16.34010	-6.32657	-4.562	44	.000
Pair 5	Single-Leg Squat (L) Test 1 - Single-Leg Squat (L) Test 2	11.66667	17.48376	2.60632	16.91937	-6.41396	-4.476	44	.000
Pair 6	Accelerate 10 Meters (Test 1) - Accelerate 10 Meters (Test 2)	.11133	.18356	.02736	.05619	.16648	4.069	44	.000
Pair 7	Illinois Agility (Test 1) - Illinois Agility (Test 2)	1.06911	1.36995	.20422	.65753	1.48069	5.235	44	.000

## Discussion

The researcher presented the result in tables.

From the tables (2), (3) and (4) for the (pre-) and post-tests of the research sample, they show the final image of the results of the physical and skill tests after statistical processing, we note that the results of the arithmetic means and (Sig) for the physical and skill tests, which are (skill performance, strength endurance for the legs, explosive strength for the legs, strength characterized by speed for the legs, acceleration 10 m, agility) are less than (0.05) for all tests, which indicates that there are differences between the pre- and post-tests, and they are significant differences considering the results (S. S. Ibrahim, Ahmed, and Shehab 2024)

The significance of the differences in skill performance is in the post-test due to the continuity of training for the players from the preparation to the competitions, all the way to the competitions, as the competition for the league championship and playing highly competitive matches in short times, While the researcher attributes the significance of the differences in the strength characterized by speed and strength endurance of the two men to the match factor and the strength of stops and physical clashes and (Easa, Shihab, and Kahdim 2022) says that the general endurance and strength endurance improved by frequency of training.(Haider Talb Jasim, Hantosh, and Ibrahim 2021)

In the 10-meter acceleration variable, the researcher attributes the significance of the differences to the fact that the transitions in futsal between defense and attack require a high level



of acceleration and deceleration in order to keep up with competitors, and this increases the characteristic of this ability(S. S. Ibrahim 2021).

Finally, in the agility variable, the significance of the differences is due to the level of play, which contains changing situations that force the players to change their body positions while running and speeding, and this explains by (Verheijen, Analysing football , 2024 , p. 24) Football situations depend on four factors, which are (positioning, timing, direction, speed), and the more ideal these factors are, the more success will be achieved for the player, and this is what the researcher agree with and that called (Action Football) .(Hayder Talib Jasim, Hussein, and Ibrahim 2021)

Depending on the results, the researcher concluded the following:

1. The organized competitions increase the physical level of players.
2. Playing games continually help players to improve their skills.
3. The intensity and frequency of games without rest effect negatively on the players conditions.

The researcher recommending

1. Make similar researches to compare between player abilities.
2. The training programs in preparation period contain of some games to improve the abilities of players.



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## The Effect of Special Exercises in some Physical & Coordination Abilities in Futsal

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2242](https://doi.org/10.37359/JOPE.V37(1)2025.2242)

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**Article history:** Received 7/ January/2025 Accepted 16/ February/2025 Available online 28/ March /2025

### Abstract

Futsal is one of the games that needs high physical abilities & perfect preparation to make the player faced the difficulties in the match. The player of futsal must have high physical & coordination abilities to do the basic skills of the futsal game because this game obligates the player to be ready for attack and defend in the same time add to that this game is being developed in coaching sessions from team to team, Through the watching of the classes of futsal by the researcher because he is one of the teachers in this game, he saw some weakness in some physical and coordination abilities that means there is no focus on them, So the researcher design special exercises to develop them and then develop the performance. The researcher used experimental method to solve the problem and achieve the goals and used pre-test and post-test. The sample of the research are the students of fourth class of physical education and sport science department in Jihan university and they are (14), the percentage is (77%). The researcher does some personal interview with some expert add to the expert of the researcher himself to choose the physical & coordination abilities. The results of the research are the developing of all research variables.

**Keywords:** futsal, special exercises, physical abilities, coordination abilities.

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### Introduction:

Futsal is one of the games that needs high physical requirements with perfect preparation to make player endure hardship in the game. Although the game is new but it start to developed in many countries in the world and the because the sciences that linked with sport s field that the aim of that is rise the standard of physical and skillful with take care of the specialist of each games from the physical , coordination , motor and basic skills, futsal player must have high physical and coordination abilities to did the basic skills in the game for both sides attack and defend add to that the game is continue developing and become different from team to team also how to prepare the players and the differences inside one team. (Kadhim, 2024) The world now passes the tradition way and made teams with all requirements to play this game, and the coaches now thinking about how to make the players ready to play and compete with high intensity by developing coaching programs. Skillful performance associated generally with physical and coordination abilities and the result for this the player must have special abilities with the peak of performance. From that the important of the study comes to study some physical and coordination abilities and developing them through special exercises and then developing futsal skills as well. (Kadhim, 2023) From watching the classes of futsal by the researcher he finds weakness in some physical and coordination abilities that lead to weakness in doing futsal skills, so the researcher decides to solve this problem by using special exercises to develop physical and coordination abilities and then develop futsal skills as well. The aim of the research is to use special exercises to develop some physical and coordination abilities in futsal and know the effect of that exercises in research variables. (Kazim et al., 2019) In study of (kamash,2012) the researcher uses suggested curriculum on some coordination abilities and basic skills in football and he confirmed to use teaching curriculum to improve some coordination abilities and basic skills. (Salman et al., 2022) And in the study of (abid,2014) the researcher uses coordination abilities exercises on (21) players from Iraqi national team of grassroots and he conclude that the exercises were positive to improve nervous compatibility that improve transitional speed. In the study of (abdul al,2011) the researcher uses training curriculum to develop coordination abilities on (18) players u13 of handball and he conclude that the curriculum has positive effect to attack skills performance. And in the study of (lawas,2016) the researcher uses coordination abilities and relationship with some basic skills on (84) players and she conclude that some coordination abilities effect on some basic skills.(Agility et al., 2018)



### Method and instruments:

The researcher uses experimental method because its suitable for solving this problem and achieve the aims and hypothesis of the research, also he uses the style of the two councils controlled and experimental (with pro and posttest).

The research community represented by forth class students / physical education and sport sciences department / Jihan university and they are (14) divided in to two groups controlled and experimental with (4) student randomly as survey sample, so the sample represent (77.7%) from research community.

The research variables were chosen with their tests by some personal interviews with experts (appendix 1) and they are:

- Physical variables: (explosive force, speed power, kinetic speed).
- Coordination variables: (kinetic response speed of the legs, coordination of the legs and eyes).

Chosen tests: (appendix 2).

- Physical: (long jump, hopscotch in 10 seconds, leg speed movement in horizontal direction).
- coordination: (nelson test, jumping on numbering circles).

Data were collected by: Arabic and foreign resources, personal interview, questionnaire forms, assistants work team, tests and measurement, survey experiment).

The researcher uses devices and instruments below:

Electronic watch (kislo), video camera (canon), laptop (hp), whistle (fox), futsal pitch, tape measure (6m), coins, ropes, hurdles high and low, rings, ladders, Swedish bench (2), motor speed device.

The researcher does the survey experiment for the tests in futsal hall in physical education and sport science department / Jihan university for (4) students choosing them randomly from research sample, the aim was (know the difficulties, the time, sample ability, assistants work team ability).

Also, the researcher did another survey experiment for the exercises to know: (the difficulties of the exercises, time of work and rest, the heart beat to set the intensity).

The pro test procedure was after making results form for both control and experimental groups.

About the main experiment they are group of suggested exercises (9) only applied in the main part of the training session in special preparation period for (8) months in 3 times a week (Sunday – Tuesday- Thursday) start from 9/10/2022 to 8/12/2022 and the researcher focus on :

- 1- The numbers of training sessions are (24) the total time (120m) in (25-45m) from the main part.
- 2- Control group training with the teacher according to curriculum only.

- 3- Experiment group training with the teacher except the main part only on special exercises.
- 4- The rest account according to heart beat when the student reach (100 b/m) he do again, and about the rest between sets when he reaches (90 b/m) for the repeating training.

After the end of main experiment, the researcher does the post test and get the results:

Table 1

Shows the arithmetic mean of differences of means and standard division and (T) value both calculated and tabular between pre and posttest to the physical tests in both groups

group	test	unit	D	DS	T value	moral	indication	
control	Long jump	m	0.006	0.004	1.5	0.09	randomly	
	Hopscotch in 10 seconds	m	0.016	0.014	1.14	0.20	randomly	
	Leg motor speed horizontally	R	C	0.20	0.168	1.19	0.08	randomly
		L		0.60	0.35	1.71	0.14	randomly
experimental	Long jump	m	0.066	0.016	4.12	0.002	morally	
	Hopscotch in 10 seconds	m	0.225	0.018	12.5	0.012	morally	
	Leg motor speed horizontally	R	C	3.00	0.264	11.36	0.000	morally
		L		1.600	0.224	7.14	0.000	morally

Table 2

Shows the value of means and standard division and the value of (T) both calculated and tabular- posttest – physical.

indication	moral	T value	experimental		control		test	
			s	m	s	m		
morally	0.005	8.202	0.196	2.045	0.115	1.453	Long jump	
morally	0.000	3.963	3.429	43.79	1.227	39.23	Hopscotch in 10 seconds	
morally	0.000	2.373	2.319	29.40	1.567	27.30	R	Leg motor speed horizontally
morally	0.000	2.280	1.549	28.20	2.233	27.10	L	

Table 3

Shows the value of means and standard division and the value of (T) both calculated and tabular- pre and posttest- coordination

indication	moral	T value	Ds	D	unit	test	group
randomly	0.000	1.87	0.019	1.026	s	Nelson for motor response	control experimental
randomly	0.000	1.55	0.009	0.014	s	Jumping on numbering circle	
morally	0.000	6.65	0.016	1.044	s	Nelson for motor response	
morally	0.000	10.58	0.0017	0.018	s	Jumping on numbering circle	

Table 4

Shows the value of means and standard division and the value of (T) both calculated and tabular- posttest- coordination

Indication	moral	T Value	experimental		control		test
			s	m	s	m	
morally	0.000	5.408	0.376	1.06	0.432	1.30	Nelson for motor response
morally	0.000	8.202	0.196	2.045	0.115	1.453	Jumping on numbering circle

### Discussion:

From table one we see that there is positive develop between pre and posttest for the experimental group to physical tests of research. And the researcher is attributed that to: The special exercises take part in active way to develop physical abilities for the experimental group at the opposite to the control group that depend on tradition exercises. The using of special exercises for experimental group they found new ways to developed physical abilities and avoid boring. For the control group there is some develop but not reach moral. "When we increase the exercises same to match the players learn in the best way" (ratib, 1997, p80). And from table two there are positive differences between the results of posttest to both groups in physical tests to the experimental group and the researcher attributed that to: The activity of special exercises to rise the standard of students " through the load less than peak the standard still stead without physical and nerve intensity on the athlete and the high intensity use to develop kinds of physical performance that related to skills performance". (Ibrahim, 1998, p104). Also, the using of repeat training method develop the physical abilities that related with speed, "repeat training method using to develop non oxygen operation that related with develop of speed". (al rubaey and al maola, 1988, p93). About the table three the results show there are no develop in coordination abilities to control group with develop in the same abilities to experimental group, the researcher attributed that to: The special exercises have coordination abilities that related with each exercise that led to develop these abilities for experimental group, " the speed of change direction even the player in shooting situation or to help teammate or win distance he must adaptable to changing situation". (Ibrahim, 2004, p61). And from table four we see there are significant differences between posttest results for the both groups in all coordination abilities to experimental group and the researcher attributed that to: The activity of special exercises that made by the researcher that developed coordination

abilities of the research and make good role to raise students standard because futsal player must adaptable to all situation, " Adaptation is person ability to change situation of his body even on the ground or in the air". (abduhameed and hasaneen,1997, p81).

### Conclusions and recommendations:

#### Conclusions:

- 1- The activity of special exercises in developing physical and coordination abilities of the research.
- 2- The special exercises active in develop motor ability for experimental group.
- 3- There is no developing to control group like experimental group in all physical and coordination abilities.

#### Recommendation:

- 1- Take care of variety in training method with different abilities for futsal.
- 2- Use different instruments like ladder, hurdles, coins that improve physical and motor abilities.
- 3- Suggested more exercises for futsal and work to develop and work for changing.

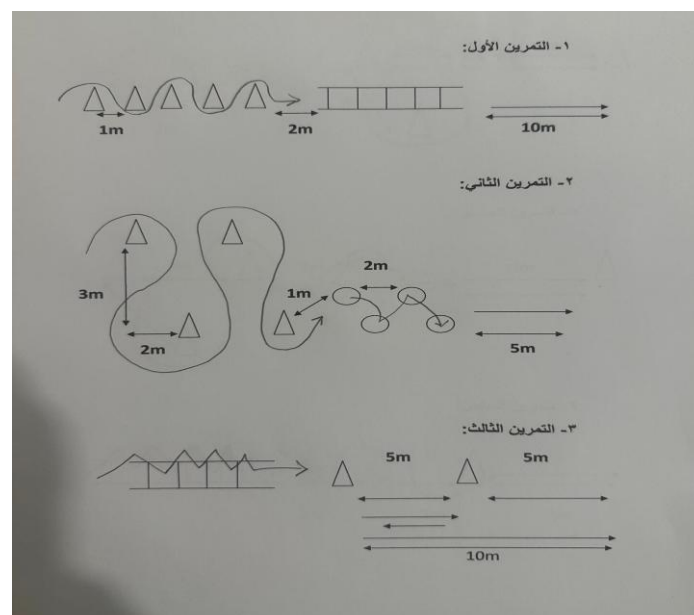
### Appendix 1

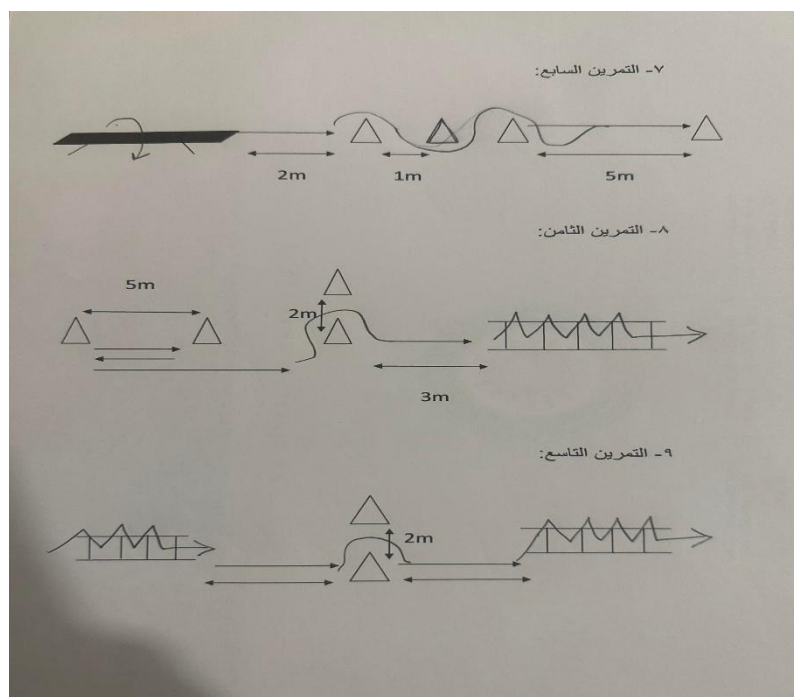
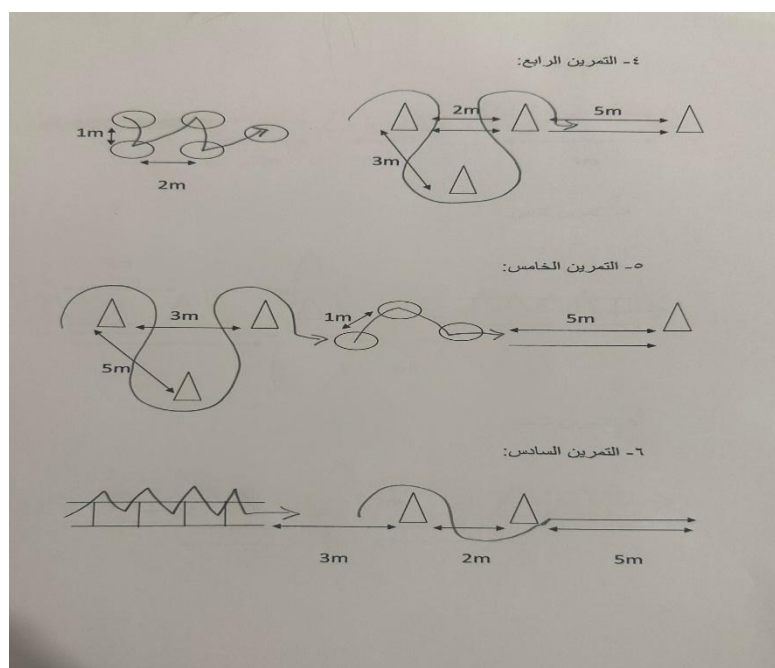
- the experts that we made personal interview with them:

- 1- Dr.Salih Radhi Amesh.
- 2-Dr.Asaad Lazim Ali.
- 3-Dr.Naji Kadhum Ali.

### Appendix 2

#### Special Exercises







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## The Effect of Soft Toss Machine Training on Some Kinematic Variables and backhand accuracy of Tennis Players U16 years

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2147](https://doi.org/10.37359/JOPE.V37(1)2025.2147)

<https://creativecommons.org/licenses/by/4.0/>

**Article history:** Received 10/ May/2024 Accepted 28/ May/2024 Available online 28/ March /2025

### Abstract

The importance of the research is evident in the use of exercises with the training device, which is one of the modern techniques in teaching the abilities of players, especially in teaching the skill of the backhand, and in improving the accuracy of the performance of players and increasing the contribution to the formation of a base for the game for players who have a good level of learning and upgrading the game to reach a certain achievement, and the research issue was represented in the lack of accuracy in sending balls to the required areas to achieve points, especially in the performance of the skill of the backhand due to the speed of play during the course of the match, and the study aimed to introduce modern technology using the training device and to know its effect on the accuracy of performing the skills invested. It was found that the device used during the standardized exercises used by the researchers on the accuracy of the backhand performance and it was found that the device used proved effective in the accuracy of the skill performance of tennis players under the age of (16 years), which achieved the aim of the research.

**Keywords:** Mechanical learning, Kinematic variables, Accuracy, Tennis skills, Young Player.

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## Introduction

Science has not only had an effective impact on many sports activities, but it has also played a great role in the development of tennis, which is considered one of the activities with high physical and technical requirements. Thanks to the theoretical sciences, many skills of this game have been improved and used to understand the important stages in each skill and facilitate the process of learning it. For example, sports science contributes to understanding the optimal movements and angles that players must make to achieve the highest possible performance in tennis, and analyzing movements and using mathematical models can help coaches and players improve their performance and correct their mistakes, (Easa et al., 2022) tennis has benefited from advanced technologies and devices in the field of motor learning and sports biomechanics, and kinetic analysis and sensing techniques have been used to understand the forces and balance that affect players' performance, (Kadhim, 2023) and this knowledge gained enables coaches to improve training and design more effective training programs and modify players' optimal movement pathways. This acquired knowledge enables coaches to optimize training, design more effective training programs, and modify players' optimal movement pathways, as confirmed by study (Satar & Makey, 2011) which is to focus on building good technique and identifying and correcting weaknesses that may occur during performance with the use of assistive devices (Obaid & Abdul Azeez, 2020).

The tennis backhand is a stroke that is made by swinging the racket from the non-dominant side of the player and is one of the most important skills in the game of tennis and is often difficult to learn and control effectively (Alexandros et al., 2013) Backhand accuracy in tennis varies among players based on their skill level and training methods and studies have shown that there is a significant correlation between the quality of technical performance forehand and backhand accuracy (Khan et al., 2017) (S. Zhang et al., 2022) and players with high accuracy tend to coordinate racket movements more effectively with impact heights and adjust speeds and racket angles based on improving accuracy (Matković, 2015).

Where the researchers confirmed the use of a training device to modify the kinematic pathways of the accuracy of the backhand in tennis, and a study (Alhawary, 2019) confirmed the use of the MFT device, and the Hexagon device, (Jawad Kadhim, M., & Salman Ahmed, 2016) in improving the kinematic path of performance, which is the main factor in giving the ball the correct path to enter, as there is a study that showed that exercises using specialized training devices significantly improve the accuracy of tennis players' performance (Feng et al., 2023).

Backhand accuracy in tennis refers to the precise execution of the backhand with a focus on hitting the ball in the correct direction consistently, and this includes factors such as success rate, accuracy of placement, and speed of the ball (Negro et al., 2023). Accuracy includes stages



such as perception, decision, execution, and feedback, focusing on technical and tactical aspects within the framework of the procedure (Ngatman et al., 2022).

The Problem, Through observation and analysis of the playing performance of these ages, it was found that there is a dispersion in the balls, and do not fall accurately in the required areas to achieve points, especially in the skill of the backhand due to the speed of the game during the match, so the researchers decided to go into this study and use a training device that helps in the accuracy of the performance of the skill of the backhand, to improve the technical level of tennis players aged (15-16 years) and identify the weaknesses and find the necessary solutions to avoid the problem.

#### **The aims of the research were**

- Identify the effect of training with the soft toss machine on some kinematic variables in tennis players U16 years.
- Identify the effect of training with the soft toss machine on the accuracy of the backhand in tennis players U16 years.

#### **The hypotheses of the research were**

- There are statistically significant differences by using the soft toss machine in some kinematic variables between the pre-test and post-test for the experimental and control groups of tennis players U16 years.
- There are statistically significant differences between the pretest and posttest of the experimental and control groups. In the accuracy of the backhand in the research sample.

#### **Fields of the research**

The research sample included (12) tennis players under (16) years old and the experiment with the applied method was performed on the courts of the Iraqi Hunting Club in Baghdad for the period from (1/2/2024) to (3/3/2024).

#### **Materials and Methods**

The researchers used the experimental method by designing the experimental and control groups with pre and post-tests as a basis for the implementation of the research (Ehab Mohammed Farhan & Abdulwahhab Ghazi Hammoodi, 2021), because of its suitability and the nature of the issue to be researched, and the research community was represented by young players in the courts of the Hunting Tennis Club in Baghdad, represented by (20) players as the original community, and the sample was selected by the random method, as the ages of the sample ranged from (15 - 16) years and the number of (12) players, where they represent (60%) of the community, and the researchers homogenized the research sample according to the variables of training age, chronological age, height and mass. (16) years and the number of (12) players, where they

represent (60%) of the community, the researchers conducted homogenization among the members of the research sample according to the variables of training age, chronological age, height, and mass, as shown in Table (1).

**Table (1): Characterization of sample homogeneity**

Mass kg	Height Cm	Training Age	The Age	The club	Player Name	No.
70	169	3	15	Hunting Club	Ahmed Mustafa	1
60	160	3	15	Hunting Club	Youssef Mohamed	2
65	167	3	16	Hunting Club	Murtaza Muftin	3
61	163	2.5	15	Hunting Club	Khattab Omar	4
66	170	2.5	16	Hunting Club	Harith Muhammad	5
71	175	3	16	Hunting Club	Hasnain Muhammad	6
59	159	2.5	16	Hunting Club	Muhammad Haider	7
65	173	2.5	16	Hunting Club	Muhaymen and Wissam	8
60	160	3	15	Hunting Club	Ali Abbas	9
63	168	3	16	Hunting Club	Mohammed Ismail	10
59	162	2.5	16	Hunting Club	Abdullah Zalzala	11
61	169	2.5	16	Hunting Club	Ayman Mustafa	12

The researchers used a set of devices, tools, and means of data collection, which consist of (a soft toss machine - a SONY digital video camera for filming field procedures - a triple camera stand - a computer (laptop) - An electrical plug- legal tennis balls - legal tennis rackets - whistles - electronic stopwatch - electronic scale - cones - tape measure).

The purpose of the device used is learning and training, which is the target part of the research, as well as adjusting the timing of the racket meeting the ball in addition to adjusting the correct places for the player's distance from the ball, which comes through practice and repetition that the interesting factor adds to the device during training to master the technique during play, and is used for training purposes and players' skills concerning backhand and backhand groundstrokes as well as working on and learning other skills for the game, and we can say that the device used is a basic modern work that the world uses at the present time and has become an essential part of learning and training Just like the equipment and tools used during training modules.

## Soft toss machine

### 1. Device stand

It has three arms covering an area of (60) cm to ensure stability and balance during work, made of aluminum material that is lightweight and rigid, and Figure (1) shows the device part.



Figure (1): Shows the device stand

### 2. The armrest or support

It is a tube made of aluminum material whose height can be changed by a gear located in the middle of the arm and the lowest height is (100) cm and the highest height is (170) cm and Figure (2) shows the device part.



Figure (2): Shows the armrest or support

### 3. setting sliders for the ball hugger

It is a ruler made of hardened aluminum material that is not subject to twisting, characterized by its hardness, contains from its center a hole (explanation) through which the slope of the ball incubator is controlled, and this slope determines the speed of the fall of the balls, as the greater the slope towards the ground, the faster the ball falls, and the less the slope is less, and Figure (3) shows the shape of the device part.



Figure (3): Show setting sliders for the ball hugger

### 4. Ball guide

It is a piece of aluminum that is smooth from the inner surface and contains slightly raised edges to ensure that the line of travel of the balls during the descent before the performance, its length (60) cm, the height of the side edges (4) cm and Figure (4) shows the part of the device.



Figure (4): show the ball guide

## 5. Ball holder

It is a part made of tempered aluminum material smoothed from its inner part to facilitate the sliding of the balls and contains edges on both sides with a height of (4) cm to ensure that the balls run in the same line, and consists of two front and rear pieces, between them is a separator (height separator) The task of the rear piece is to increase the rear piece is to increase the pressure on the balls Pressure on the balls, which is an auxiliary factor with the inclination and the force of attraction of the ground, which causes the smooth descent of the balls to the rear piece, the length of the stand as a whole for the rear and rear pieces (1) meter, the height separator consists of a small lever located from the sides that connects to (nets) and Figure No. (5) shows the part of the device.

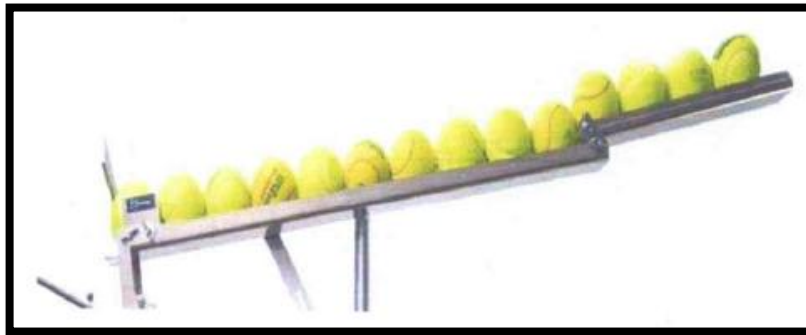


Figure (5): show the ball holder

## 6. Back stands

It is two pieces of aluminum attached to the ball hugger from the front and the ball guide from the middle, Tabet in the upper part, allows movement of the part attached from the bottom (ball guide), and its function is to carry the guide in addition to the smooth movement of the guide after compressing the balls when they descend, height (10 cm), and Figure (6) shows the part of the device.

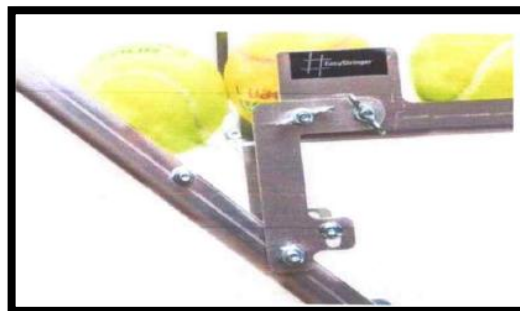


Figure (6): show the back stand

## 7. Interval lever

It is called the separating lever because it separates the fall of one ball from another during performance, the lever is a piece of metal made of aluminum that works mechanically (20) cm long, which is the strongest piece in the device, hardened and inflexible, and this part is very important as it is responsible for the descent of the balls sequentially one after the other and at the same times to ensure the control of variables During training, it is connected to the ball incubator from above in a way that facilitates its movement (up and down), similar to the work of the gate closing and opening, located at the front of the ball incubator, and from the bottom it is connected to the ball guide with a metal wire that will mechanically deliver the command to descend the ball to open the field again for the next ball and Figure (7) shows the part of the device.

**Figure (7): show the Interval lever**



**Figure (8): Shows the final shape of the device**





Regarding the exploratory experiment that was conducted on Monday (29/01/2024) at 5:00 p.m. on two (2) players from the research sample on the courts of the (hunting club), and the aim of this experiment was (initializing the device used and trying it before starting work on it and determining the locations of the players when using the device and determining the angles of photography that show the use of the device and players' work).

The field tests on the sample, namely the accuracy of the backhand, forehand, and backhand, were conducted by the International Tennis Federation (ITF), which are standardized tests that will be the first starting point for innovation using other exercises in the future in relation to the work on the device used in the research.

The main experiment for the tribal tests of the experimental group was conducted at 5:00 pm on Tuesday (30/01/2024) on the courts of the Hunting Tennis Club in which there were (6) players, where the device used was placed on the center mark of the baseline and cameras were used to photograph to review the work of the device and technique and preview the place of the fall of the balls, if necessary. The camera (No. 1) was placed behind the baseline and at a distance of (2) meters from the device, and camera (2) was placed along the sideline of the court and at a distance of (2) meters to ensure that the camera is not broken by playing balls, as well as taking into account the quality of photography and extracting some kinematic variables related to the research, namely (NAJAH Hussein & Thamer Mohsen, 2015):

**1- Elbow Angle:** This is the angle between the elbow line and the humerus line during the moment of the backswing.

**2- Knee angle at the moment of striking:** This is the angle between the hip line and the shin line at the moment of the backswing.

**3- Height of the release point:** It is the vertical distance from the center of gravity of the ball in the air to the ground.

**4- Release Angle:** It is the angle between the horizontal line connecting the two centers of gravity of the first ball at the moment of hitting the ball with the racket and the second after the ball leaves the racket when it is in the air.

**5- Release velocity:** It is the distance traveled by the ball over the time taken and is measured in (m/s).

The post-tests of the research sample were conducted at five o'clock on Tuesday

(05/03/2024) at the courts of the Hunting Tennis Club, taking into account the procedures taken in the pre-tests in terms of photography, recording results and all organizational and scientific matters related to the research.

The researchers used the statistical package (SPSS) to process the research results and data by extracting the following statistics: (mean, standard deviation, t-test for independent samples).

### Results

**Table (2):** shows the mean value, a standard deviation of the differences and the calculated t-value in the pre and post-tests for the control group for the backhand skill test

No.	Variables	control group		t-test value	Sig value	sig
		mean value	standard deviation			
1	Knee joint angle at the moment of hitting	10,82	4,77	26,441	0,051	non-significant
2	elbow angle	11,70	4,99	2,344	0,002	significant
3	Speed of the ball	3,22	1,03	3,126	0,071	non-significant
4	The height of the release point	5,11	0,89	5,741	0,000	significant
5	Ball release angle	2,01	0,51	3,941	0,001	significant

**Table (3):** shows the mean value, standard deviation of the differences, and the calculated t-value in the pre and post-tests for the experimental group for the backhand skill test

No.	Variables	experimental group		t-test value	Sig value	sig
		mean value	standard deviation			
1	Knee joint angle at the moment of hitting	8,99	0,34	26,441	0,001	significant
2	elbow angle	10,72	0,01	72,66	0,000	significant
3	Speed of the ball	2,10	0,03	70	0,000	significant
4	The height of the release point	5,12	0,66	7,757	0,002	significant
5	Ball release angle	1,33	0,02	66,5	0,001	significant

**Table (4):** shows the mean, standard deviations, calculated t-values, and significance of differences for the experimental and control groups in the post-test of the backhand skill.

Sig	Sig value	t-test value	S. error	Mean Difference	control		experimental		Variables	No.
					standard deviation	mean	standard deviation	mean		
significant t	0.000	8,57	1,02	6,68	2,99	177	7.24	162	Knee joint angle at the moment of hitting	1
significant t	0.001	7,33	1,07	20,55	0,22	134	2,33	173	elbow angle	2
significant t	0,001	7,01	0,71	1,88	0,12	1.26	1,77	2,88	Speed of the ball	3
significant t	0,010	3,66	6,88	31,01	3,44	145,27	0,19	128.5	The height of the release point	4
significant t	0.000	9,43	0,44	3	0.23	7	0,17	4	Ball release angle	5

The level of significance is significant when the value of (sig) is smaller than (0.05) and in front of the degree of freedom (df) (12-1=11) and through the display of table (2), we find that the results of the comparison were all significant except for two variables.

## Discussion

Table (3) shows that all the significant results in the post-tests in the experimental sample were attributed by the researchers to the factor of excitement and breaking the routine followed in training, which was added by the device used during the standardized exercises used by the researchers and aimed at the accuracy of the performance of the backhand and using the exercises on the training device performed by the players (AL-Rammahi & Sattar, 2022).

Any exercise that the player continues within the training schedule must have an impact on the player in terms of the accuracy of the performance of the skill and according to the direction of the goal of the exercise (Kocić et al., 2022), and because the exercises concerned with the skill that the specialized trainer gave to the experimental and control sample, which aimed in its details

and content to the accuracy of the performance of the backhand for players, we find that the results were significant for the experimental group, especially for the target variables of the research (Abdul-gani et al., 2024).



As for the non-significance of the results of the control group in the pre and post-tests, which appeared in Table (2), the researchers attribute it to the root cause of the issue, which is not using modern means that would add some important factors in training, including the factors of excitement and breaking the general routine of training in the use of modern equipment, in addition to the fact that the specialized trainer is the one who delivers the ball to the players and the trajectory of the ball was different, (Kazim et al., 2019) which leads to a difference in performance (Muttib et al., 2024). The path of the ball was different, which led to different performance, unlike the use of the training device that delivers a fixed path for the ball to maintain the accuracy of performance and repetition while maintaining the accuracy of the performance of the studied variables in the ideal situation and considering that the group is under development in training, which was the main goal to reach the stage of automation in the accuracy of the performance of the skill of the backhand (Obaid et al., 2022).

We find from Table (3) that all the research variables were significant for the experimental group, whose sequence was (1-2-3-4- 5) where the significance of the differences between the pre and posttests appeared, but with a more accurate and higher degree and reaching the stage of the mechanism in maintaining the studied variables by limiting the work of the coach only to give directions, instructions and correct errors for the studied variables since the device is specialized in delivering balls with an ideal motor path to the players in order to use the ideal motor path and the accuracy of the performance of the skill of the backhand during the use of the device, which was shown by the test results and this confirms the importance of the exercises used by the effect of the device used (Salman & Jabbar, 2021), the use of mechanical feedback in sports training is currently a field that achieves optimal results in adjusting the accuracy of skill performance (Abdulkareem & Hameed, 2017), which highlights the possibility of progress in monitoring and improving sports performance through modern technologies and devices (X. Zhang et al., 2019).

Through the display and analysis of table (2), we find that the results of the control group for the studied variables (2-4-5) came significant for the backhand, while the studied variables, which were sequenced (1-3) and not significant for the backhand, and this is what the researchers worked on in the exercises used and the lack of influence of the device used according to the steps of the experimental research, the stimulus always plays a large role in the outcome of what the player does during performance. (Ali & Jameel, 2020)

Through the display and analysis of table (4), we find that the results of all studied variables were significant in favor of the experimental group, and this indicates that the device used had a significant role in the response of the players in the performance, in addition to the instructions of the coach in modifying the motor path when hitting the ball (Abdulhusein et al., 2024)

One of the things that must be mentioned is that the device used worked on the movement mechanism and its mechanics completely from the moment the stimulus appears until the ball is



hit, starting from the preparatory mode in which the player stands to prepare until the final mode, which is to hit the ball and continue, and through the use of these devices, players can simulate different presentation modes, improve their skill abilities and gain perfect information on the mechanics of performance in tennis from the initial stimulus to the point of hitting the ball (Wilkins, 2021)(Zaher Yahya et al., 2024).

### **Conclusions**

Based on the results presented above and the researcher's analysis and discussion of those results, the following conclusions were reached

- The device used proved to be effective in practicing the accuracy of the backhand skill of tennis players.
- The results of the experimental sample were characterized by the introduction of modern technology with the effect of the device used had an effective role in the emergence of significant differences for all research results without exception.
- The used exercises that were given to the control group, which aimed at the accuracy of the performance of the skills targeted by the research, had a positive effect on the backhand.
- Despite the similarity of the objective, format, and schedule of the exercise between the experimental and control samples, the experimental results were better than the control group due to the modern method in which the exercise was carried out by using the device by the researchers, which provided the most important elements of a successful exercise.

### **Recommendations**

In light of the conclusions reached by the researchers and based on the discussion of the results and what can be concluded, the researchers make the following recommendations:

- Using the Soft toss machine to measure and test the accuracy of the backhand in tennis.
- Use the Soft toss machine to measure the technique used during performance on all age groups in tennis.
- Conduct similar research using new exercises for all age groups in tennis using the Soft toss machine.



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## Prevalence of Obesity and Physical Activity among Individuals at Umm Al-Qura University

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2224](https://doi.org/10.37359/JOPE.V37(1)2025.2224)

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**Article history:** Received 3/ October /2024 Accepted 28/ October/2024 Available online 28/ March /2025

### Abstract

To assess the prevalence of obesity and physical activity among individuals at Umm Al-Qura University, a cross-sectional study design was applied from January to August 2024. Data collection was conducted through a questionnaire titled "Prevalence of Body Mass Index and Physical Activity in University Individuals" administered at Umm Al-Qura University. Participants completed an online, self-administered questionnaire that gathered information on sports participation, age, height, and weight. The results of this study showed that 23.2% of the participants were overweight and 16.7% were obese. Specifically, 11.59% of male were obese and 14.21% were overweight. Among females, 8.9% were overweight, and 5.10% were obese. Regarding physical activity 47.2% did not engage in any form of physical activity. Among those inactive, 21.10% were male, and 26.7% were female. Additionally, 12% of overweight and 8.55% of obese individuals reported no participation in any physical activity. This study will help in creating awareness among university people to adopt a healthy lifestyle.

**Keywords:** prevalence, obesity, physical activity, Umm Al-Qura University

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## Introduction

Obesity is recognized as a global health issue (Arman Shafiee et al., 2024). Both obesity and lack of physical activity (PA) are significant risk factors contributing to the rising incidence and progression of various chronic diseases, such as cardiovascular diseases, diabetes, hypertension, dyslipidaemia, and certain cancers (Oguoma et al., 2021). These conditions, in turn, reduce quality of life and elevate the risk of premature mortality (Altowerqi et al., 2020; Chen et al., 2023; Okati-Aliabad et al., 2022; Shafiee et al., 2024).

The rising prevalence of obesity has prompted the World Health Organization (WHO) to identify it as a major global health issue (World Health Organization, 2024a, b; WHO, 2024). According to WHO data, in 2022 about two and half billion adults worldwide were reported to be overweight, of whom more than 890 million people were obese (the World Health Organization, 2024a). Globally speaking, 37% of men and 38% of women are overweight with a body mass index (BMI) greater than 25 kg/m<sup>2</sup> (Shafiee et al., 2024).

Unfortunately, obesity, a prominent disease of the twenty-first century, is becoming increasingly prevalent globally and in the Eastern Mediterranean region. El-Sahli (2023) reported alarming obesity rates in Gulf Cooperation Council countries, including Kuwait, Qatar, and Saudi Arabia (SA). According to the WHO, the prevalence of overweight and obesity in SA is 68.2% (males 67.5% and females 69.2%), and 33.7% (males 29.5% and females 39.5%). A recent comprehensive survey collecting data from all areas of SA indicated that the prevalence of obesity is 24.7%. (Salhah Alsulami, 2023).

Conversely, extensive evidence indicates that maintaining an appropriate level of PA can enhance health and prevent chronic diseases (Altowerqi et al., 2020; Altowerqi & Bin Zainuddin, 2022; Okati-Aliabad et al., 2022). According to the WHO, PA is any body movement that requires energy and is performed by skeletal muscles (the World Health Organization, 2024b).

Low levels of PA contribute to obesity, thereby increasing the risk of type 2 diabetes (Altowerqi & Bin Zainuddin, 2022). However, integrating PA into daily routines can reduce



the likelihood of obesity and improve psychological well-being (Sayyd et al., 2021). Participation in sports during adolescence often continues into adulthood (Altowerqi & Bin Zainuddin, 2022). Access to PA opportunities is also influenced by social, economic, and cultural factors, as well as the physical environment (Drenowatz et al., 2010).

The university student age range (18–25 years) represents a transitional phase between late adolescence and early adulthood, marked by independent living and a heightened vulnerability to weight gain. During this period, a decrease in PA, shifts in dietary habits, and increased social interactions contribute significantly to weight gain (Deforche et al., 2015; Ilić et al., 2024; Winpenny et al., 2018). The great growth in wealth and consequent development of SA has resulted in major lifestyle changes. Fast food chains, easy access to vehicles, growing popularity of processed foods, lack of PA, and other factors have contributed to an increase in obesity in South Africa (Mahfouz et al., 2024).

There is limited study on health risk behaviours among university students in SA, particularly concerning physical inactivity and obesity among undergraduate students. This study aimed to assist university students in enhancing their health behaviours and to develop their awareness about health. It is conducted to evaluate the prevalence of obesity and the level of PA among individuals at Umm Al Qura University.



## Methods

This is a descriptive study aimed at evaluating the prevalence of body mass index (BMI) and PA levels among university students. Data collection was conducted through a questionnaire titled "Prevalence of Obesity and Physical Activity Level" administered at Umm Al-Qura University. The study received approval from the Ethics Committee of the Faculty of Education. Participants were recruited via university email and WhatsApp, with the study's objectives and details thoroughly explained to them. A total of 725 individuals, including 502 students, 127 lecturers, and 96 staff members – all Saudi nationality – consented to participate. The study was conducted between January and August 2024. Participants completed an online, self-administered questionnaire that gathered information on sports participation, age, height, and weight. BMI was calculated as weight in kilogrammes divided by height in metres squared. For comparisons with World Health Organization (WHO) data, overweight was classified as a BMI of 25–29.9, while obesity was defined as a BMI of 30 kg/m<sup>2</sup> or higher (the World Health Organization, 2024a).

## Data Analysis

All collected data were numerically coded and managed using Microsoft Excel 2016 before being analysed with SPSS version 23. Statistical significance was set at p-values of <0.05. Descriptive statistics were applied to summarize the study variables, utilizing percentages and frequencies for categorical data and means and standard deviations for numerical data. The chi-square test was employed to examine associations between categorical variables.

## Results

Among the 725 individuals who participated in the study, 69.2% (n = 502) were students, 17.5% (n = 127) were lecturers, and 13.2% (n = 96) were staff members (Table 1). The gender distribution included 51.7% (n = 375) females and 48.3% (n = 350) males.

Regarding BMI classifications, 23.2% (n = 168) of the participants were categorized as overweight, and 16.7% (n = 182) as obese (Figure 1). Specifically, 14.21% of males were overweight, and 11.59% were obese. Among females, 8.9% were overweight, and 5.10% were obese.

PA levels were also assessed, revealing that 342 participants (47.2%) did not engage in any form of PA such as exercise, walking, or jogging (Figure 2). Among those inactive, 21.10% were male, and 26.7% were female. Additionally, 12% of overweight and 8.55% of obese individuals reported no participation in physical activity.

Table 1 Study characteristics of participants

Gender	Male 48.3% Female 51.7%
Age	18–23 81.1% (72 male, 121 female) 24–27 18.9 (18 male, 27 female)
Engage in physical activity	Yes 52.8% No 47.2%
Type of participants	Students 69.2 % (n = 502) Lecturers 17.5% (n = 127) Staff 13.2 % (n = 96)
Mean Weight	68.12 kg
Mean Height	164.85 cm

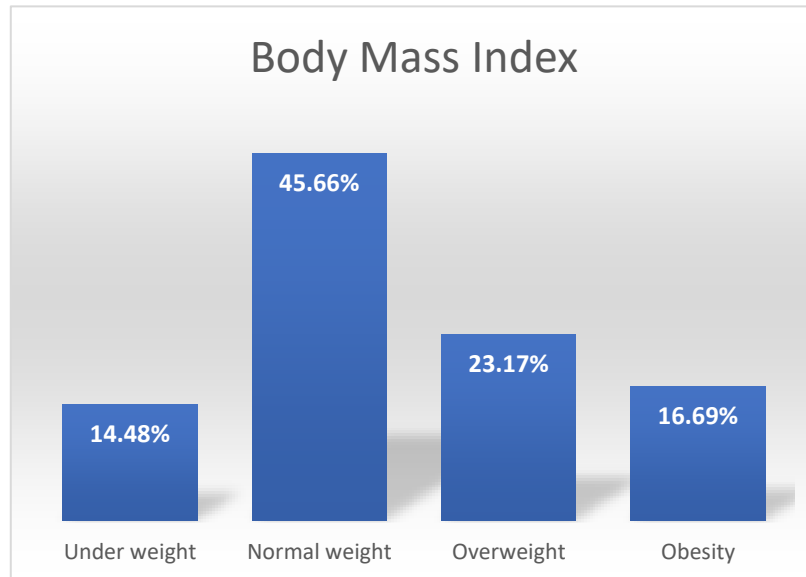


Figure 1 Prevalence of overweight and obesity.

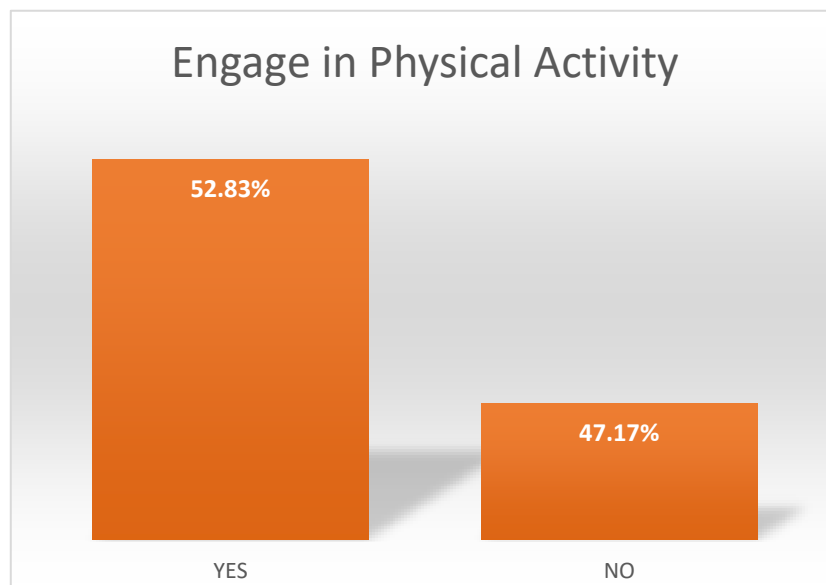


Figure 2 Prevalence of engaging in PA.



## Discussion

Overweight and obesity are increasing at an alarming rate in both industrialized and developing countries, affecting practically every element of social and economic life, regardless of age, gender, or ethnicity. This study assessed the prevalence of obesity and PA levels among individuals at Umm Al Qura University.

In the present study, results indicated that about 39% of participants had a BMI above 25 kg/m<sup>2</sup>. Overweight and obesity together accounted for 23.2% and 16.7% of the population, respectively. Males are more likely than females to be overweight or obese, according to the study's findings. The result for this study is in concordance with Salhah Alsulami's study (2023) conducted in Makkah, where there was higher prevalence of overweight among males than females. They revealed that the prevalence of overweight was 41% among males and 28.9 among females. Similar results have been reported by Ahmed Mahfouz et al., 2024, who indicated that the prevalence of overweight and obesity in men was higher than in women.

The prevalence rates in the current study were similar to those published by Makkawy et al., (2021), which indicated that 11% of people were obese and 23.2% of participants were overweight. Additionally, the frequency of obesity was 8.4% and overweight was 21.7% at Northern Border University in SA.

The prevalence of obesity (23.2%) in this study is concerning. All these overweight persons are at risk of becoming obese, thus action must be taken right away. These people must adjust their eating habits and lead healthier lifestyles. We hypothesized that healthy nutrition and high- to moderate-intensity physical activity could help reduce the risk of obesity.

Regarding PA, the Saudi Health Interview Survey (n = 10,735) revealed that 50% of participants watched television for more than three hours a day and 46.5% of individuals did not engage in any regular physical activity at all (Salem et al., 2022). According to this study, men who were active had a lower risk of obesity than men who were not active. (Salem et al., 2022). The result of their study is like the result of this present study, which revealed that 47.2% of participants did not engage in any form of PA. The General Authority for Statistics of SA



issued a recent report about sports practice, which showed that more than 50% of Saudi people do less than 30 minutes per week of PA (The General Authority for Statistics, 2022). According to the report's results, the percentages of adults who did not practise PA for at least 30 minutes per week in Hail Region is over 50%, while in the Eastern Region is about 50%. All these data indicated that the PA level did not reach the recommended level set by the World Health Organization, the majority of people should practise moderate-intensity physical activity for at least 150 minutes per week, high-intensity physical activity for at least 75 minutes per week, or a combination of both.

### **Conclusion**

Since obesity is a major risk factor for several comorbidities, it is critical to prevent and manage it with the appropriate measures. The current study concluded that men were more likely than women to be overweight. Of the individuals, almost 39% were obese or overweight. One of the pillars of the Saudi Vision 2030 is adopting a healthy lifestyle, and it is hoped this study will raise awareness of the importance of this among university students. One of the indications of the Quality-of-Life Programme of the Vision Programme, which attempts to encourage the practice of sports in the community, is engaging in physical activity for at least 30 minutes a week. Umm Al Qura University need to address their obesogenic environment and the need for their administration to promote healthy lifestyles as proposed by the the WHO Global Strategy on Diet, Physical Activity, and Health.

In the future, other tests, such as lipid profile, glucose intolerance, hypertension, and fatty liver can be performed. More study is needed to find the best effective health promotion and chronic illness reduction techniques that can be implemented at Umm Al Qura University and throughout Saudi Arabia.



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## The effect of an educational curriculum using Snokel swimming for new learners aged (8-10) years

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2068](https://doi.org/10.37359/JOPE.V37(1)2025.2068)

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**Article history:** Received 25/ March/2024 Accepted 3/ April/2024 Available online 28/ March /2025

### Abstract

The research aimed to design an educational curriculum using the Snokel device in learning freestyle swimming for learners aged (8-10) years, and to identify the effect of an educational curriculum using the Snokel device in learning freestyle swimming for learners aged (8-10) years. The researcher chose the experimental curriculum in the style of two equal groups (experimental and control), with a pre- and post-test. The researcher selected learners in the specialized school affiliated with the Central Iraqi Aquatics Federation aged (8-10) years. Randomly from the research population, which numbered (23) learners, (3) learners were excluded for the exploratory experiment, so that the sample number became (20). After that, the researcher randomly divided the sample into two equal experimental and control groups, each group consisting of (10) learners. The educational units were prepared using the Snokel device in learning free swimming. After completing the duration of applying the educational units, the researcher reached several conclusions, which are: An educational curriculum using the Snokel device affected the tests for free swimming (for the experimental group), and the effect of the prepared curriculum. by the coach in the freestyle swimming tests (for the control group), and the preference for an educational curriculum using the Snokel device prepared by the researcher over the curriculum prepared by the coach in the freestyle swimming tests.

**Keywords:** educational presentation strategy, freestyle swimmer.

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## introduction:

Free swimming is one of the four types of swimming that scientists and specialists have paid attention to in studying the movements that the swimmer makes in the water, which consists of the movement of two main parts of the body, namely the arms and legs, in different directions, in addition to the position of the body and breathing and how to connect them, which brought the standard numbers to levels close to the miraculous, as free swimming depends on complex details for all parts of the body, from the entry of the arms into the water, the method of pulling, the backward movement of the arm, and the position of the head and body. The movement of the legs and the method of breathing all require a high level of concentration for the learners, so it has become necessary for the teacher to teach all of these movements individually and then link them together, which takes a relatively long period of time.

Technological development has contributed to the innovation of auxiliary devices and tools in teaching swimming, which have become an urgent necessity for the success of the educational process. Therefore, specialists in motor learning have recommended the necessity of using them in the educational unit to achieve the optimal goal. The teacher must explain and clarify to the learners the benefit of the auxiliary devices and tools used and the method of performing using them in order to have an image of the movement he is performing. (Jawad Kadhim, M., & Salman Ahmed, 2016)

Assistive devices and tools are defined as “ a group of physical capabilities that take multiple shapes and different sizes and serve varying goals. The percentage of their contribution to teaching motor skills ranges from simple to complex, and they are included in the parts, subtleties, and details of motor skills in form and content ”(Al-Sheikhly, 2000). It is also known as “ devices, tools, and materials that are used for the purpose of improving the education and training process ”(Al-Dulaimi, 2008), and it is also known as “ a group It is one of the means and equipment used to facilitate the learning process, as it increases interest and diversity in the educational process (Al-Sakrana, 2011)

Assistive devices and tools are used to achieve specific goals, and for the purpose of developing, developing and teaching basic skills during the educational process, and this is what was confirmed by (Dia Al-Khayyat and Nofal Al-Hayali, 2001) that “ the importance and benefit of assistive devices and tools lies in developing and improving the performance of the individual athlete in terms of physical, motor and skill through their use in education to develop sensory abilities and sense of movement, in addition to the thrill that accompanies the learner through performing with a tool in his possession or moving on it in appearance ”.His abilities".

There is a special importance for auxiliary tools in the sport of swimming, as they help in the process of learning to swim, as these tools are used to strengthen and improve swimming techniques and help learners avoid drowning and maintain their stability in the water. One of these tools is the Snorkel tool, as it works to enable the swimmer to focus on basic swimming techniques without the need for frequent breathing. Thanks to this tool, the swimmer can better



focus on the correct performance of free swimming and improve body orientation and movement of body parts, in addition to overtaking Their fear of choking, helping them learn basic movements easily and build confidence in the water.(Jawad, M., & Jabbar Shinen, 2016)

Hence, the idea of research was manifested in preparing educational units using tools to help learners understand the exercises and thus apply them correctly to achieve the ideal freestyle swimming performance, in addition to using the Snokel tool, which facilitates the breathing process and thus helps the learner to focus on the arm movements and leg strikes.

research aims to:

1. Identifying the effect of an educational curriculum using Snokel on learning freestyle swimming for learners aged (8-10) years.
2. Identifying the advantage of learning freestyle swimming between an educational curriculum using Snokel prepared by the researcher and the educational units prepared by the teacher, the curriculum followed by learners aged (8-10) years.

research hypotheses were:

1. There are no statistically significant differences between the pre- and post-tests for the experimental and control groups in learning freestyle swimming.
2. There are no statistically significant differences between the experimental and control groups in the post-tests in learning to swim freestyle.

### **procedures:**

The researcher chose the experimental method in the style of two equal groups (experimental and control), with a pre- and post-test, as“ experimental research is a deliberate and controlled change of the specific conditions of a particular incident and observing and interpreting the resulting changes in this same incident ”(Kandalji, 1993), and it was in the style of two equal groups“ ,as the two groups are equivalent in all circumstances except the independent variable (Mahjoub, 199).

The researcher selected the population of origin for his research, namely the new freestyle swimming learners in the (110) course of the specialized school courses affiliated with the Central Iraqi Aquatics Federation, aged (8-10) years, whose number reached (23) learners, and they fully represent the research community. The researcher selected the learners and (3) learners were excluded for not adhering to the educational units, so that the number of the sample became (20). The researcher resorted to finding the homogeneity of the sample by (height, mass, and age). Homogeneity of the research sample to determine whether the research sample is normally distributed using the skewness factor, according to Table .(1)

**Table (1) It shows the homogeneity of the research sample in (length and mass)**

T	Measurements	Unit of measurement	Arithmetic mean	deviation Standard	The mediator	Torsion coefficient
1	height	m	145.3	7.363	146	0.318
2	Cluster	kg	38.1	2.971	37.5	0.360
3	the age	year	9.1	0.788	9	0.186

We notice from Table (1) that the skewness values were limited to ( $\pm 3$ ), which indicates homogeneity of the values within the normal curve. After that, the researcher randomly divided the sample into two equal groups, experimental and control, each group consisting of (10) learners. For the purpose of ensuring that the two groups start with the same line of work and to verify that the results are moderately distributed between the two research groups, the researcher conducted equality in the research variables as shown in Table.(2)

**Table (2) It shows the equality of the two research groups (experimental and control) in the research variables**

T	Tests	Experimental group		Control group		value (t) Calculated	Error level	Differences
		Q	A	Q	A			
1	10sec apnea test	3.7	1.059	3.4	1.074	0.628	0.537	random
2	Horizontal float test on the abdomen for 10 seconds	2.1	0.737	1.8	0.788	0.878	0.391	random
3	Flow test	3.03	0.703	2.93	0.644	0.331	0.744	random
4	Freestyle swimming test	3.8	0.918	3.7	0.823	0.256	0.800	random

Table (2) above shows that the error level values for the research variables are greater than the significance level (0.05), which indicates that there are no significant differences in



the research tests between the experimental and control groups, which indicates the equality of the two research groups, and starting with a single starting line for the two groups.

After reviewing a group of scientific sources and references specialized in swimming, and through the researcher following the swimming game, consulting with the supervisors, and conducting personal interviews with experts and swimming specialists, the research variables were presented to the members of the scientific committee, and the most important basic variables in swimming were identified, which are (breathing, buoyancy, flow, and complete free swimming) and they were agreed upon.

After the researcher prepared the necessary tools to conduct all the tests, the researcher conducted the pre-test for the research sample, which numbered (20) learners, on Wednesday, August 9, 2023, at 10 am in the closed Al-Shaab Olympic Swimming Pool/Baghdad. The educational units were prepared with aids for learning freestyle swimming, and they were applied on Saturday, August 12, 2023, at 10 am. The experimental group, whose time ranged from (50-60) minutes, consisted of two sections: the first was the educational section, which ranged in time from (5-10) minutes, and the applied section, whose time ranged from (50-55) minutes, was assigned to the experimental group.

**The educational units include the following:**

1. The main experiment began on Saturday, 8/12/2023, and ended on Wednesday, 9/6/2023.
2. The duration of the units is (4) weeks divided into (4) educational units per week, meaning (16) educational units.
3. Educational unit days (Saturday, Sunday, Tuesday, Wednesday).
4. The time for the educational units is 10 a.m. according to the time allocated by the Central Iraqi Federation for Swimming and Water Sports.
5. The duration of the educational unit is (50-60) minutes.
6. The main section consists of two parts: the first educational section, which ranges in time between (5-10) minutes, while the applied section, which ranges in time from (50-55) minutes.

The researcher conducted the post-test on Saturday, September 9, 2023, after completing the period of implementing the educational units. The researcher was careful that the conditions under which the post-test would be conducted were similar to the conditions of the pre-test in terms of tools, place and time of conducting the pre-test, method of implementation and sequence of tests, as well as calculating grades and with the help of the same assistant work team in the pre-test. The researcher took care that the sequence of tests be the same as the sequence of tests in the pre-test.

The social statistical package (SPSS) was used to process the results of its research to extract the following laws:

Arithmetic mean, standard deviation, median, skewness coefficient, t-test for symmetrical samples, t-test for asymmetrical samples.

## Results:

**Table (3) It shows the results of the arithmetic means and standard deviations for the free-swimming tests between the pre- and post-tests for the experimental group.**

variable	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
10sec apnea test	second	3.7	1.059	9.8	0.421
Horizontal float test on the abdomen for 10 seconds	second	2.1	0.737	9.3	0.823
Flow test	m	3.03	0.703	7.3	0.674
Freestyle swimming test	m	3.8	0.918	45.4	5.910

**table(4) It shows the difference of the arithmetic means, its standard deviation, and the value of) t Calculated and significant differences for free swimming tests between the pre- and post-tests for the experimental group**

variable	Unit of measurement	F	A F	value) t( Calculated	Error level	Meaning of differences
10sec apnea test	second	6.1	1.286	14.991	0.000	spiritual
Horizontal float test on the abdomen for 10 seconds	second	7.2	0.918	24.776	0.000	spiritual
Flow test	m	4.27	1.029	13.117	0.000	spiritual
Freestyle swimming test	m	41.6	5.796	22.694	0.000	spiritual

(\*)Degree of freedom.(9=1-10)

(\*)Significant if the error level is smaller than the significance level.(0.05)

It is clear from Table (4) that there is a significant difference in favor of the post-tests in the results of the free-swimming tests between the pre-test and the post-test for the experimental group. This indicates that the learners have begun to perform free swimming at a high level, and the researcher attributes the reason for this. The researcher used the auxiliary tools in the educational exercises, namely the Snokel, which is one of the auxiliary tools that facilitates the breathing process and allows the learner to focus on the movements of the arms and the strikes of the legs, as the auxiliary tools work Developing motor paths for the learner's skill performance and improving the individual's athletic performance, as well as adding an element of excitement and suspense and keeping away boredom, (Mondher et al., 2023) and also enhancing the approach to achieving its goals with the least effort and the shortest time. Any type of tool can be used in any game, provided that it suits the age group of the players and their level of performance, and through the optimal use of the tools and employing them in special skill exercises that serve the game or activity that the athlete practices, as it is defined as " a machine or means to be used ".To perform a task "(Abbas Ahmed Al-Samarrai and Abdel Karim Mahmoud, 1991), as assistive tools are " a group of physical capabilities that take multiple shapes and different sizes and serve varying goals. The percentage of their contribution to teaching motor skills ranges from simple to complex, and they enter into the parts, subtleties, and details of motor skills in form and content "(Al-Sheikhly, 2000), as they are " used for the purpose of improving the learning process ".(Al-Dulaimi, 2008), and both (Dia Al-Khayyat and Nofal Al-Hayali) emphasized that " the importance and benefit of assistive devices and tools lies in developing and improving the performance of the individual athlete in terms of movement and skill through their use in education to develop sensory abilities and



sense of movement, as well as the thrill that accompanies the learner through performing with a tool in his possession or moving on it, demonstrating his abilities ”(Al-Hayali, 2001). In the process of motor learning, it“ helps save the effort and time expended by the teacher and the learner, contributes to acquiring various skills and movements and consolidating them quickly, contributes to increasing the learner’s ability to learn the skill or movement, and helps to exclude wrong movements and reinforce the correct ones ”(Al-Sakranah, 2011), and this is what happened with the experimental group as it helped speed up learning and increase the learners ’drive to learn swimming in addition to their acquisition of many movements that require more time and effort from the teacher and learners. To acquire it. (Kadhim, 2023)

Using the snorkel helps the learner not think about breathing and helps increase the learner’s focus on the arm movements and leg strikes, which helps in the correct motor performance of freestyle swimming, as the assistive devices“ have great importance in helping the individual perform the movement over a wide range, and their use requires skill) ”Zahran, 1997).

When choosing the Snokel tool, the researcher took into consideration that it should be age-appropriate and have a factor of durability and ease of use, and this is what was emphasized by (Zakia Ibrahim et al., 2001) that the assistive tool“ helps achieve the goal for which it was developed or designed, suitable for age and gender, has a factor of security and safety, low costs, has a factor of economy and quality, has the durability of the material from which it is made, and ease of use is taken into account”.

“Scientific research has proven that most of the time in learning is spent waiting and giving instructions, which reduces practice time. Therefore, using educational methods works to reduce wasted time and increase the time allocated for practice (Al-Karim, 1989).

**Table (5) It shows the results of the arithmetic means and standard deviations for the free-swimming tests between the pre- and post-tests for the control group .**

variable	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
10sec apnea test	second	3.4	1.074	8.1	0.737
Horizontal float test on the abdomen for 10 seconds	second	1.8	0.788	6.6	0.516
Flow test	m	2.93	0.644	5.1	0.737
Freestyle swimming test	m	3.7	0.823	25	4.876

**Table (6) It shows the difference of the arithmetic means, its standard deviation, and the value of) t The calculated results and the significance of the differences for the free-swimming tests between the results of the pre- and post-tests for the control group**

variable	Unit of measurement	F	A F	value) t( Calculated	Error level	Meaning of differences
10sec apnea test	second	4.7	1.059	14.030	0.000	spiritual
Horizontal float test on the abdomen for 10 seconds	second	4.8	1.032	14.696	0.000	spiritual
Flow test	m	2.17	0.924	7.420	0.000	spiritual
Freestyle swimming test	m	21.3	4.473	15.057	0.000	spiritual

(\*)Degree of freedom.(9=1-10)

(\*)Significant if the error level is smaller than the significance level.(0.05)

It is clear from Table (6) that there is a significant difference in favor of the post-test in evaluating the technical performance of free swimming for the control group. The researcher attributes the reason for this to the effectiveness of the exercises prepared by the coach, who has experience in the field of teaching swimming in addition to being a specialist in swimming, and whose approach to teaching swimming is distinguished by giving sequential exercises according to the stages of learning in swimming, in addition to sufficient repetition for the

learner and a thorough explanation of the movements that the learners must perform, and giving feedback to correct incorrect movements. They had, until they learned to move, and this led to learning to swim. We infer this from the experts' evaluation of the control group on the technical performance, which indicates learning to swim freestyle.

In addition to the teacher's use of assistive tools to facilitate learning to swim, "There are many tools that the teacher uses in teaching swimming movements, such as floatation boards, lifeguards, and other tools that make the learner more focused on performing the movements. They also help in overcoming and overcoming the fear factor, as they help to diversify learning and increase its excitement, which stimulates the learner's inclinations to improve performance to the best. The assistive tools are used as preliminary exercises to facilitate the possibility of learning difficult movements". (Saeed, 2004), and this is what he stated. The teacher uses it to break the barrier of fear among learners and obtain good results in freestyle swimming.

The aquatic environment is a new environment for children, especially when they hear from their social environment cases of drowning, and they become frightened and terrified when they enter the water with great caution due to social influences. Therefore, the use of assistive tools will increase the learner's confidence in the aquatic environment and make him forget the state of fear. Thus, the learner has overcome the barrier of fear of the new environment. (HalalAtiyah et al., 2024)

**table (7) It shows the arithmetic mean, the standard deviation, and the value of t The calculated percentage of errors and the significance of the differences in the free-swimming tests between the experimental and control groups in the post-test .**

variable	Experimental group		Control group		value) t( Calculated	Moral	Connotation
	Q	A	Q	A			
10sec apnea test	9.8	0.421	8.1	0.737	6.325	0.000	spiritual
Horizontal float test on the abdomen for 10 seconds	9.3	0.823	6.6	0.516	8.785	0.000	spiritual
Flow test	7.3	0.674	5.1	0.737	6.957	0.000	spiritual
Freestyle swimming test	45.4	5.910	25	4.876	8.419	0.000	spiritual

(\*)Degree of freedom.(18=2-20)

(\*)Significant if the error level is smaller than the significance level.(0.05)



It is clear from Table (7) that there are significant differences between the experimental and control groups in the post-test evaluating the technical performance of free swimming in favor of the experimental group. The researcher attributes the reason for this development to the teacher's use of assistive tools to facilitate learning to swim“ ,as there are many tools that the teacher uses in teaching swimming movements, such as buoyancy boards, floats, and other tools that make the learner more focused in performing the movements, and they also help in overcoming and overcoming the fear factor, as they help to diversify education and increase Stimulating it, which stimulates the learner's inclinations to improve performance to the best. Auxiliary tools are used as preliminary exercises to facilitate the possibility of learning difficult movements ”(Saeed, 2004). This is what the teacher did to break the fear barrier among the learners and obtain good results in freestyle swimming. (Kadhim & Mousa, 2024)

The aquatic environment is a new environment for children, especially when they hear from their social environment cases of drowning, and they become frightened and terrified when they enter the water with great caution due to social influences. Therefore, the use of assistive tools will increase the learner's confidence in the aquatic environment and make him forget the state of fear. Thus, the learner has overcome the barrier of fear of the new environment. (Salman et al., 2022)

In addition to using the Snokel, which allows the learner to breathe naturally with his head inside the water to focus on the movement of the arms and legs, as the state of fear of not being able to breathe in the water is one of the most difficult things that the teacher faces, as well as the learner while learning to swim, which gave preference to the experimental group in learning free swimming, as assistive tools are one of the means that help in performing multiple duties. A tool is“ a machine or means used to perform a task ”.(Abbas Ahmed Saleh Al-Samarrai and Abdul Karim Mahmoud, 1991), as“ many educational means are used in the field of learning sports movements and skills, some of which use purely educational means aimed at acquiring and learning different skills in sports, and some of which use safety means that help learners perform difficult and dangerous movements ”(Khayoun, 1994), and there is a specificity to the skill, which in turn leads to a difference in the type of method used in teaching it. In teaching swimming skills, the teacher uses educational aids and tools that differ from those used in teaching swimming. Teaching other sports skills, such as wrestling, for example, due to the different requirements and conditions for performing each of these two sports. In general, there are foundations for selecting educational methods that the teacher must take into account when choosing them, which are as follows (Al-Moneim, 1999):

1. It must be appropriate for the age and maturity level of the learners and linked to the curriculum.
2. The user must believe in its usefulness.
3. Selecting useful and advantageous ones, and not exaggerating their abundance, should have a clear purpose for using them.



4. Work to involve all learners in its work and use.
5. It must be free of complexity and details in order to fulfill its role, and it must be characterized by accuracy and clarity.
6. It must be derived from the learner's environment and according to his need for it.

This concept is often linked to the available devices, means, and capabilities that serve the performance of motor duties. Therefore, tools and devices are “a group of physical capabilities that take multiple shapes and different sizes and serve varying goals. The percentage of their contribution to teaching motor skills ranges from simple to complex, and they enter into the parts, subtleties, and details of motor skills in form and content” (Al-Sheikhly, 2000), as the goal of using assistive tools is serving motor skills and learning them better, and there are several points that must be taken into consideration when choosing or preparing the aid that must be taken into account. (Booth, 1993) confirmed that “the use of aids will give the learner excitement and longing and have a motivating and encouraging function”.

(Arnold, 1981) emphasized “The learner is required to apply various movements or exercises to implement the skill in different situations, and to practice performing the skill in a situation that is similar or close to the situations of the game's movements or activity as much as possible”, and (Zahran, 1997) stated “The use of small tools used in games is of great importance in helping the individual perform the movement to the widest extent”.

The use of assistive tools will help achieve the learning goal, and Ibrahim (2000) confirmed that there are conditions that must be met by the assistive tools, which are:

- Be appropriate for age and gender.
- It has a safety and security factor.
- Easy maintenance, low costs, and durability.
- Easy to use.

This is what the researcher was keen on in terms of choosing the type of Snokel that is suitable for young people in terms of age, in addition to using the two types that differ according to the level of learning that the learner has reached, as well as choosing the Snokel from an excellent source for the safety of the learners.

In light of the results reached by the researcher through presenting, analyzing and discussing the results, the researcher reached several conclusions, which are:

1. A series of videos based on the strategy of educational presentations with auxiliary tools had an impact on the freestyle swimming tests (for the experimental group).
2. A series of videos according to the strategy of educational presentations with assistive tools influenced the technical performance of free swimming (for the experimental group).



3. The educational units prepared by the teacher influenced the freestyle swimming tests (for the control group).
4. The educational units prepared by the teacher affected the technical performance of free swimming (for the control group).
5. The preference for a series of videos according to the strategy of educational presentations with auxiliary tools prepared by the researcher over educational units prepared by the teacher in freestyle swimming tests.
6. The preference for a series of videos according to the strategy of educational presentations with auxiliary tools prepared by the researcher over educational units prepared by the teacher in the technical performance of freestyle swimming.

In light of the conclusions reached by the researcher, the researcher recommends the following:

1. The necessity of using a series of videos according to the educational presentation strategy as tools to help teach freestyle swimming in schools specialized in teaching swimming.
2. Designing a series of videos according to the strategy of educational presentations with tools to help teach other types of swimming (butterfly, backstroke, breaststroke).
3. Conduct similar studies using a series of videos according to the educational presentation strategy on samples of different ages and in different games.
4. The possibility of using other teaching strategies to teach swimming to other samples.



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## **Psychological Endurance and its relation with skill performance of some players in excellent soccer clubs**

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2244](https://doi.org/10.37359/JOPE.V37(1)2025.2244)

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**Article history:** Received 8/ November/2024 Accepted 3/ December/2024 Available online 28/ March /2025

### **Abstract**

The researchers touched on the importance of psychological endurance among football players and its effective impact in raising the level of players' abilities and preparations to reach the athlete and the team to a high level of sporting achievement within league competitions. The aim of the research is to reveal the psychological endurance of players of some Iraqi Premier League football clubs, and its relationship to skill performance. Because psychological endurance is one of the most important psychological factors and certainly plays an important and fundamental role in preparing players and has a significant impact on the skill performance of football players, the researchers assume the existence of a significant correlation. Statistical significance between psychological endurance and skill performance among Premier League football players. The researchers used the descriptive approach in the form of correlational relationships because it is compatible with the nature of the research. The research community was identified with the Premier League football clubs in Iraq, which numbered (20) sports teams. The research sample was With teams of (7) clubs from Baghdad Governorate, divided into (15) players from each team, with a number of (105) players, and a percentage of (21%) from the research community who participate in the Iraqi Premier Football League for the season. (2024 - 2025), and they represent the research sample who were chosen deliberately. The researchers used a special means of measuring psychological endurance and a method of analyzing skill performance to reach the results of the research. The researchers concluded through the results of the research that Premier League players possess psychological endurance as for skill performance. It was also high among the research sample, and the results of this research clearly showed that there is a positive relationship between psychological endurance and

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skill performance among Premier League soccer players, and one of the most important recommendations of the researchers is Sports teams should be prepared psychologically at a high level during the preparation periods and expose the players to high-level matches with great psychological pressure, which helps to raise the state of psychological endurance and benefit from the players who have previously participated in the leagues. The researchers also recommend the necessity of using a research scale and also revealing the level of skill performance. As an effective means for the coach to identify the players' psychological endurance and skill performance, and to conduct further studies on the aspect of psychological endurance and link it to the physical and tactical aspects of the players.

**Keywords:** Psychological endurance, skill performance, football.

### **Introduction:**

Physical education and all sports sciences are among the most important means that reflect the development and progress of nations athletically and give their modern cultural concept as a result of the great progress in the scientific field, as there is development in many areas of life, including the sports field and in many sports, and among these games that have developed Much is the game of football, as the level of the player, whether technical, physical, skillful or psychological, depends on the intersection of several sciences, including sports psychology, which has a direct impact on the level of the player, especially in sports competitions. Football in Iraq requires serious scientific work and more. Striving for development, and avoiding any obstacles that cause delay in this modern scientific progress, which may therefore negatively affect and prevent the progress of the game in the country. (Al-Azawi & Kathom, 2012) Therefore, it is necessary to make a great effort in the development process, which has become the preoccupation of the minds of all coaches, players and specialists in the game of football. This is certainly done through discovering the dilemmas that most sports teams always face and their causes, and thus working to address them to develop the positive state required to achieve achievement. (Mousa, A. M., & Kadhim, M. J. 2024). This occurs through interaction with other sciences, which effectively contribute to raising this level, and since sports psychology is one of the modern sports sciences that has a direct role and influence in achieving this sporting achievement, sports psychology contributes to raising the level of performance in sports. All of them and at all levels and ages through the availability of psychological endurance among athletes, which works to provide more high-level performance despite the presence of psychological pressures during competitions, and in continuation of the work of the researchers who previously touched in their research on many areas of sports psychology, the two researchers carried out the work This research aims to develop appropriate explanations for many of the questions that occur in the game of football, trying to identify those main obstacles that hinder the continuity of achieving the best possible sporting achievement, and trying to overcome these obstacles and work directly to find the best solutions that suit them, and among the most important topics that are important and widely discussed. In the field of sports psychology, which has a major role in its direct impact on sports performance is psychological endurance, which is one of the necessary psychological characteristics that must be paid attention to because it represents the situation that the player

lives in and faces. It has the pressures of sports competition, which work to support the exertion of more technical and physical efforts. Its increase or decrease may consequently affect the results of the team as a whole, considering that attention to psychological endurance is a basic pillar for the player, as psychological endurance is “the individual’s ability to tolerate differences in ideas and beliefs.” and behavior among people” (Baha Matta, 2003), Jasim, H. T., & Ali, A. L. 2023) ) and Jasim, H. T., Abed, S. R., & Ibrahim, S. S. 2023)) This is mentioned (Al-Azzawi, 2004: 2). Jasim, H. T., Hussein, A. H., & Ibrahim, S. S. 2021.) Psychological endurance is a... “The athlete’s ability to control himself in the face of training and competition events and to deal with them in a way that keeps the athlete away from the possibility of developing psychosomatic diseases caused by these conditions.” As well as his description (Bahaa Matta, 2003).Jasim, H. T., & Ali, A. L. 2023)) “It is the athlete’s ability to bear pain, difficulties, and pressures without bad adaptive consequences. That is, it is a mental readiness to confront beliefs and ideas, including habits, that may differ or may contradict the person’s beliefs.” He also mentions (Ahmed Oraibi Odeh, 2007: 386) and Khudhair, M. O., Abed, S. R., & Jasim, H. T. 2023.) Quoting (Rodrik) that it is the psychological activity that is directed to controlling the actions, thoughts and emotions of the individual for the purpose of reaching the desired goals while overcoming the various difficulties that the individual faces on the way to reaching the goal. Therefore, we sometimes find that the football player tries during the match to adapt his energies and psychological abilities and to bear all the pressures and variables of the matches. Jasim, H. T. 2024)) and Khudhair, M. O., Jasim, H. T., & Hani, A. T. 2022)) This is generated through some traits, including the psychological endurance that he possesses, and therefore the extent to which he possesses this trait will affect his performance during matches, and all of this contributes to recording good positive results for the team, and in order to benefit greatly from this important psychological aspect, we must know the type of relationship between the two variables. They are psychological endurance and the player’s skill performance, and this is what will be achieved through research.

The problem of this research is revealed by the fact that the player experiences many psychological influences during the time of competition and that these psychological influences may affect the level of performance of this player, and that the process of preparing the player psychologically is one of the necessary tasks carried out by the team coach and the psychological preparer of the sports team because of its importance. A distinctive role in influencing the rest of the other aspects of preparation. Therefore, the nature of the player’s good psychological preparation and high level of psychological endurance to face situations that may hinder any skill performance, and may negatively affect the outcome of matches. Through the observation of the researchers, they found this. It is clear to most football players when they may be affected by negative situations during the match. The impact of the result of the match, the decisions of the referees, the passage of match time, and the decline of the physical aspect may lead the players to lose their nerves. Shnawa, L. T. F., & Jasim, L. D. H. T. 2024)) This may be due to lack of experience and poor psychological preparation in the process of controlling arousal that may occur during many sudden match situations, such as fatigue or unsportsmanlike behavior on the part of competing teams during matches.

The goal of the research: Through this research, the researchers seek to provide an accurate and appropriate scientific method to measure the level of psychological endurance

of football players in the Premier League for the season (2024 - 2025). Through this, the level of skill performance and psychological endurance they have will be accurately identified, as well as the nature of the relationship. Between the two variables of the research, which are the psychological endurance of the football player and their skill performance, and through this research we can confront all the negative situations that always occur during matches, from weakness in psychological endurance, and seek to guide the player to control any difficult circumstance he may face and benefit from it. Effects to raise the skill state in a positive way. The researchers also hypothesize the existence of a statistically significant relationship between psychological endurance and skill performance among Premier League football players for the season (2024-2025).

**Method and tools:**

The nature of this study necessitated the researchers to use the descriptive approach in a specific way, which is the correlational method, which aims to “collect data directly to try to choose hypotheses or answer questions related to the current situation of the individuals in the research sample” (Mohamed Hassan Allawi and Osama Ratib, 1999). The research community included Premier League football teams for the season (2024-2025), numbering (20) sports teams, while the research sample consisted of club teams. Baghdad, which numbered (7) clubs, with a percentage of (35%) of the community, with (15) players participating in these teams in league matches, with a percentage of (21%) of the population of this research, as in Table (1).

**table (1)**  
**It shows the sports teams and the number of players within the research sample**

Sample number	Sports teams	T
15	Amanat Baghdad Club	1.
15	Al Hussein Sports Club	2.
15	Industry Sports Club	3.
15	Communications Sports Club	4.
15	Al-Kadhimiya Sports Club	5.
15	Electrical Industries Club	6.
15	Al-Masafi Club	7.
<b>105</b>	<b>the total</b>	

Determine the method of measuring skill performance One of the objectives of this study is to measure the level of skill performance of football players. After the researchers reviewed some sources as well as references and many studies in this field, and after inquiring with those with experience in the field of testing, measurement and football, the researchers concluded that one of the best The methods that help determine the level of skill performance of players during the match is to present the performance to sports analysts and academic experts who specialize in testing and measurement in the field of football.



The matches of the sports teams of the research sample were recorded on a CD and asked to Gentlemen, analysts and experts, watch and evaluate the skill performance of the players according to a form developed for this purpose of evaluation, which consists of five skills. After watching the match, the expert (evaluator) is asked to give each player a rating from (1-5) in front of each skill, knowing that these Ratings correspond to the following levels: Rating (1) corresponds to the level of weak, Rating (2) corresponds to the level below average, Rating (3) corresponds to the level of average, Rating (4) corresponds to the level above average, Rating (5) The corresponding level is very good, and thus the hypothetical mean for the skill performance measurement form is (15) points.

**Search scale:** The researchers reviewed many scientific sources and relied on the psychological endurance scale of the researcher (Haider Naji Habash, 2010), which consists of (16) situations that the player must answer. Each situation contains three verbal situations, as (the first situation) measures endurance to a high degree. (The second position) is moderate endurance, and (the third position) is low endurance, to which grades were given (1, 2, 3). The scale was presented in this form to a large group of experts and also specialists in The field of sports psychology, as well as testing and measurement, who expressed their opinion on the suitability of this scale with the conduct and purpose of this research, with some simple modifications in the wording of some statements, and the scale appeared in its final form as in Appendix (1), and that calculating the total score for this scale is any scale. Psychological endurance, which we mentioned consists of (16) situations, so the hypothetical mean of the scale will be (32) degrees, the highest score of the scale will be (48), and the lowest score of the scale will be (16) degrees.

**Validity of the scale:** Honesty is one of the most important scientific conditions for a good test, as a valid test can be described as “the test measures mainly what it was designed to measure and does not measure anything else.”(Mustafa Bahi, 1990)The two researchers verified the validity of this scale by finding its apparent validity. This comes by presenting the scale’s phrases to a group represented by experts and also specialists in the field of sports psychology and in the field of testing and measurement in football, as was mentioned previously.

**Scale stability:** He rose The researchers used Cronbach's alpha equation to extract the reliability coefficient, which reached the reliability value of the psychological endurance scale (80.7). This indicator is considered good and acceptable and indicates the stability of this scale.

**Exploratory experience:** The exploratory experiment was conducted in order to prepare directly for the main application of the scale on 11/2/2024 on the sample designated for the exploratory experiment, which numbered (5) players, noting that the exploratory sample has the same specifications as the main sample, in that they are players in Premier League football clubs and were excluded. The two researchers are the main experimenters.

**Main experience:** Filming of the matches of the teams that are part of the research sample for the Premier League for the season (2024 - 2025) was conducted during the holding of the league matches and for the period from (11/5/2024) until (12/25/2024), and the scale forms were distributed to each player from The sports teams that are part of the research sample of (105) players participated in these matches, and after marking the scale by the players, all forms for the scale were collected and then collected. Forms for evaluating skill

performance, transcribing these forms and processing them statistically using the system (SPSS) To get search results.

**Results:**

After the data was collected by filling out the questionnaires and working on processing them statistically, it was necessary to identify the value of psychological endurance among the research sample. Therefore, the researchers were asked to extract the value of (t) between the arithmetic mean and the hypothetical mean in the sample, which is as shown in Table (2).

**table (2)**  
**It shows the relationship between the arithmetic mean and the hypothesized mean for the psychological tolerance variable**

<b>Arithmetic average</b>	<b>Standard deviation</b>	<b>Hypothetical mean</b>	<b>value t</b>	<b>Error level</b>	<b>Connotation</b>
35.41	1.50	32	9.662	0.018	spiritual

In order to achieve the goal of the research in arriving at knowledge of the psychological endurance of the research sample, the researchers used the t-test for one sample, as the results of the research showed in Table No. (2) that the average psychological endurance score among the players of Premier League football clubs is equal to (35.41), and then compare it. The hypothesized average of the scale is (32) points, this indicates that the research sample has psychological tolerance.

**Table (3)**  
**It shows the level of skill performance of the players of the Baghdad teams in the Premier League**

<b>Connotation</b>	<b>Error level</b>	<b>value t</b>	<b>Hypothetical mean</b>	<b>Standard deviation</b>	<b>Arithmetic average</b>
spiritual	0.023	16.793	15	1.20	17.98

To reach the research goal of knowing the level of skill performance among Baghdad team players For the Iraqi Premier League in football, the researchers used the t-test for one sample, and the results showed that the research sample possessed skill performance, as the arithmetic mean of the research sample in the skill performance variable reached (17.98), which is a higher value than the value of the hypothesized average of (15) degrees, which gives An indication that the research sample possesses skill performance.

**table (4)**

**It shows the correlation coefficient and the calculated T-value for the significance of the correlation, the tabulation, and the level of significance**

Connot ation	Correlati on coefficient	Standard deviations	Arithmeti c circles	Variables	T
spiritua l	0,408	1.50	35.41	Psychological endurance	1
		1.20	17.98	Skill performance	2

Discuss the results It is clear to us from Table No. (2) that the value of the arithmetic mean that was calculated was a value higher than the hypothetical mean for the sample, and this is what we indicated as indicating their possession of psychological endurance, but the researchers believe that this degree is close to the degree of the hypothetical mean, and the researchers attribute the reason This is due to the lack of external and internal participation, which creates a kind of adaptation among the players, which increases their psychological endurance factor by adapting to the conditions of the match, and here also comes the role of the coach in directing the player not to become nervous. And be patient when exposed to sudden situations during the match, especially the influence of the crowd, which tries to arouse the rest of the teams in order to reduce their psychological tolerance and thus cause the competing teams to lose and the host team to win, and this is a valuable indication. (T) The calculated value was at a degree of freedom (104) and a significance level (0.05). This indicates the presence of significant differences. As for skill performance, Table (3) showed its value among the sample and the relationship between the arithmetic and hypothetical mean and its calculated (T) value, which was shown. The arithmetic mean is greater than the hypothesized mean, which gives us an explanation that the research sample possesses skill performance that helps them provide good levels during league matches, and this is what gives us an explanation for the skill level. The goodness provided by the players from the research sample, and this will certainly help their sports teams achieve positive results during the league competitions and maintain their presence in the advanced positions in the club rankings table and will also greatly help them to compete for the league title.

The relationship between psychological endurance and skill performance among the sample of this research: This comes through the researchers finding the correlation coefficient (Pearson) between the two variables of this research, as shown in Table (4), and it becomes clear to us from this table that the relationship is positive between psychological endurance and skill performance, and the researchers attribute the reason for this to many factors, including The sample is characterized by psychological endurance, which gives a good ability to exert more efforts and focus and provide high and appropriate performance for the course of the matches despite the presence of some influential pressures. This may result from the research sample having sports experience and good control of abilities. There is also a major role for advice and focused motivation that the coach provides directly to the player, as well as the availability of good and appropriate surrounding conditions, which



certainly have a major role in increasing skill performance during league matches, and this is confirmed by “The successful coach is the one who is skilled in organizing energies.” The players’ physical and also psychological skills and the method and method of controlling and controlling the feelings and thoughts of his players during competition, and this is what makes performance develop in the right direction” (Osama Kamel Rateb, 1995), and this also comes through guidance and high control of anger. (Kazim et al., 2019) Nervousness and control of negative thoughts, as well as trying to benefit from some of the available advice in order to withstand any sudden situation that players may be exposed to before and during matches. (Mousa & Kadhim, 2023) This leads to greater control over any psychological stress related to before, during, and after sports competitions, as thinking about situations that provoke... Stress before it occurs affects the athlete’s personal functions, including the skill functions that the athlete greatly needs during sports competitions, and this is what Amer Al-Khikani mentions: 2008, 62) “When the intensity of stress increases, it increases the psychological pressure on the player, changes his behavior pattern, and creates a state of imbalance. This leads to the player’s level fluctuating towards the worse in terms of skill and the appearance of signs of anger and muscle tension, which affects skill performance.” Therefore, it is necessary The players should be exposed to high-level psychological and skill preparation and strengthen them through conducting matches, including high-level trial matches, and actual contact with high-level situations. This raises the level of psychological endurance, which helps in reducing the level of stress, which depends on the level of stress. Sports activity. (Easa et al., 2022)

Through this, the hypothesis of the research is achieved that there is a relationship between psychological endurance and the skill performance of football players. The researchers explain the existence of this positive relationship as possible because psychological endurance is high, and this helps in raising the level of skill performance as well and positively affects the player’s skill performance, and this confirms it. (Osama Kamel Rateb: 2000, 397) It is mentioned that sports performance may change during the match and with different timings, the performance may be better during a certain period. By comparing it to other periods in the match, the player can provide a good performance when there is psychological preparation to provide a good performance, and this comes through psychological preparation at a high level, whether by the coach or through the psychological preparation during training periods, so one of the conclusions of the research is that the players of some league clubs have Excellent football has high psychological endurance and high skill performance as well. There is also a positive relationship between psychological endurance and skill performance among the sample of this research, who are players of some Premier League football clubs. (Kadhim, 2023) Among the recommendations of the research, the researchers recommend that teams be prepared. Sports at a high level during the preparation periods and exposing the teams to matches at a high level, which helps raise their state of psychological endurance to face stress and also deal with the referees’ decisions appropriately, and this is what helps them provide the best possible skill performance despite the presence of some stimuli and pressures, and benefit from new and previous participations in the leagues. For players in order to improve the level of endurance among themselves and their colleagues. The researchers also recommend using the research scale and also revealing the level of skill performance as an effective means for the coach to identify the players’ psychological endurance and skill performance and work to raise this.

Levels, and also conduct more studies on the aspect of psychological endurance and link it to the physical and tactical aspects of players.

**attached (1)**  
**Psychological endurance scale**

T	phrase
1	<b>If your family rejects your choice of the type of sport that you like and want to practice, then you:</b> Think about the reasons for their rejection Calmly convince them of your choice Show your anger towards them
2	<b>If you and a group of your friends decided to play an entertaining game and you were very excited about it, but the date of the game was postponed, then you:</b> Accept the situation calmly You feel upset Revolt against them
3	<b>If you are watching an important match and suddenly your TV stops turning on due to a malfunction, you:</b> Trying to practice a hobby You feel bored She is in a lot of pain and upset
4	<b>When you are hungry and know that the end of training will be late, you:</b> She endures hunger until the training is over You feel uncomfortable and appear upset You get upset and blame others for the delay
5	<b>If you want to contact someone and the coach prevents you, you:</b> She calmly faces his ban and tries to find out the reason She gets emotional without showing it to him You protest and refuse to stop him
6	<b>If you need to buy sportswear for an important match, but financial circumstances do not allow for this, then you:</b> Wait until your financial circumstances improve You feel pain She gets nervous and excited
7	<b>When you encounter controlling situations and are unable to solve them, you:</b> You keep thinking until you reach a solution It evades the solution and the arbitration situation She asks the trainer about her solution
8	<b>If you have an exam the next day and when you wanted to review your notebooks and discovered that a member of your family tampered with them, then you:</b> You try to deal with the issue calmly Get upset about the situation

	She becomes angry and angry
9	<b>If you are busy developing a plan for the match assigned to it by the coach and someone intervenes In your work, you are:</b> You continue your work quietly and do not care about him She feels uncomfortable with his interference She revolts and prevents him from interfering
10	<b>If you are going to an important match and a speeding car gets water on your clothes, you:</b> You try to handle the situation calmly You grumble to yourself You say harsh words
11	<b>If you are training for an important and urgent match and there is noise nearby, you:</b> You keep training and don't care You continue even though you feel uncomfortable She gets angry and leaves training
12	<b>If you expect a reward for your superior athletic performance and you do not get it for some reason, then you:</b> Try to get it without getting emotional after that She gets upset and tries to find another way to get it She suffers and complains
13	<b>If you are on a date with a friend to exercise and he is late, you:</b> Look at him for as long as possible She gets upset and tries to wait for him for a few minutes She gets nervous and agitated and does not wait for him at all
14	<b>If you lose a dear teammate, you:</b> You feel sad and accept the reality You suffer a lot with yourself Passivity and lunch
15	<b>If you are attacked during a game by the opposing team, you:</b> Try to face the situation calmly You feel afraid You are disturbed and panicked
16	<b>If you feel severe pain in your abdomen early in the match, you:</b> Trying to bear the pain until the end of the match You are disturbed and seek help from others Ask to be taken to the hospital



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## The impact of compound exercises (physical) supported by information technology (GPS Ubiko and Polar H9) on developing endurance in football players

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2251](https://doi.org/10.37359/JOPE.V37(1)2025.2251)

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**Article history:** Received 3/ February/2025 Accepted 10/ March/2024 Available online 28/ March /2025

### Abstract

Among the most often played team sports, football is played by players of various ages and skill levels. This sport's physical growth is mostly dependent on methodical training aided by contemporary technology, which has greatly improved athletic performance. High endurance capacity is necessary for exceptional football performance in order to maintain constant physical effort during practices and games, especially considering the competitive nature of the sport. This study aims to enhance speed endurance capacity among players of the Al-Talaba youth team (aged 19) in Baghdad by applying advanced technological tools such as the GPS Ubiko tracking device and the Heart Rate monitoring device (Polar H9). The implication of the research lies in introducing compound exercises based on modern technology, contributing to improved players' physical performance and the development of training strategies founded on accurate data. The research highlights the necessity of developing speed endurance among players, which requires the use of modern technologies for performance analysis and the implementation of compound exercises (physical) to enhance their ability to sustain physical effort during matches. The results revealed that exercises utilizing devices such as GPS and Polar significantly improve speed endurance, highlighting the importance of mixing these technologies into sports exercise programs to achieve optimal benefits.

**Keywords:** Compound Exercises, Speed Endurance, GPS Ubiko, Polar H9.

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## Introduction

To satisfy training goals and game needs, training techniques are always changing. Training regimens for football, a competitive team sport, must be created to satisfy the demands of speed endurance required for game performance. The inclusion of the ball in training sessions and competitive elements are among these prerequisites.

According to the researcher's experience as a trainer at Al-Talaba Sports Club, the youth players (19 years old) have a physical deficiency that affects their ability to maintain high speeds throughout specific game phases, particularly in the latter half. The absence of emphasis on high-speed endurance training at speeds above 21 km/h is the main cause of this impairment. GPS tracking devices, which are important tools for evaluating a player's physical performance during training and matches, are used to measure these speeds. (Kadhim, 2024b)

The researcher suggests using advanced IT technologies such as GPS Ubiko and Polar H9 to address the problem as they help provide the coach with accurate data on the physical performance and movements of players during training sessions and during matches. These technologies, supported by the development of fourth and fifth generation communication networks (Maab Fathi, et al., 2022), monitor performance and analyse the collected data to measure endurance at high speeds. This scientific approach relies on analysing the data collected from the devices and using integrated (physical) training programs that focus on improving the players' ability to maintain high speeds, thus improving the quality of training and increasing the efficiency of the team's performance in matches, which positively affects the team's overall results. (Kadhim et al., 2021)

### **The importance of study**

The study importance lies in providing training modules (physical) to help young players (19 years old) at the AlTalaba Sports Club to develop their speed endurance. Using advanced IT technologies such as GPS Ubiko and Polar H9, the study follows a scientific approach that makes it possible to measure and analyze physical performance throughout training and competition with high accuracy. This technology provides reliable scientific data used to create training plans that increase players' ability to maintain high speeds and raise training standards. Players' performance in matches may improve and thus also help the team achieve its goals and win matches.(Manaf, 2022)

### **Research Objectives**

- By using Information Technology devices like GPS tracking devices Ubiko and Polar H9 to preparing compound exercises for develop speed endurance for youth players of AlTalaba Sports Club (19 years old) in Baghdad.
- By using Information Technology devices like GPS tracking devices Ubiko and Polar H9 to Knowing the effect of compound exercises (physical) in developing speed endurance for youth players of Al-Talaba Sports Club (19 years old) in Baghdad.

### **Research Fields:**

- **The Field of Human:** Youth Players of the Al-Talaba sport Club (19 years old) 2024 in Baghdad.
- **The field of Time:** The period from (10/9/2024) to (12/9/2024).
- **The Spatial field:** The bitch of the College of physical education and sport sciences - University of Baghdad.

### Terms:

- **Ubiko GPS device:** It is a technological device used in the sports field, especially in football, to track and analyze the physical performance of athletes during training sessions and matches. The device collects various accurate data such as distances and speeds, which helps fitness trainers evaluate the performance of players. It is characterized by ease of use and accuracy of data, which makes it an effective tool for developing training programs based on its readings. It is an important tool for improving the athletic performance of players in various team and individual sports, as shown in Appendix (1).
- **PolarH9 device:** It is an advanced device used to monitor heart rate and is characterized by its high accuracy in providing reliable readings. It is widely used in various sports fields and is considered an important tool for tracking physical activity and measuring heart rate, training intensity and calories expended during training units and matches. Coaches can use it to improve training systems by pairing it with compatible tablets via Bluetooth. As mention later in the first Appendix.

### Related works

#### **The study by Haitham Jawad et al. (2024)** (Jawad, Lateif, & Fathi, 2024):

The study's goal was to create competitive drills that would improve the speed of AlTalaba Sports Club players competing in the Iraqi Stars League utilising GPS devices like PlayertekPlus and PolarH9 devices. The study used an experimental research approach, and the findings demonstrated that the experimental group's physical attributes, especially speed, were significantly improved by integrated (physical) exercises created using GPS tracking device information. Additionally, the study stressed the value of using the PolarH9 for monitoring the heart rate during the training to attain the best results and the relevance of using the GPS tracking device to help athletes improve their speed on an individual basis.

#### **Other Study in 2023 by the student Karrar A. Karim:**

A master's dissertation with the title "An Analytical Study to Evaluate Physical Condition Using Information Technology for Players of AlTalaba Club in the Iraqi Premier League.". The objective of study was to assess the physical state for AlTalaba footballers in the League who use information technology. The research utilised the PLAYERTEKTEAM gadget and a descriptive survey approach. Depending on the skill levels of the other teams, the researcher discovered that the GPS device's readings were either positively or adversely correlated with Al-Talaba Club's style of play. In addition to suggesting that other Iraqi league clubs that have not yet implemented it utilise the PLAYERTEKTEAM equipment, the student emphasised the need of using it to measure the physical state of soccer players. Additionally, the study recommended adding lectures on the device's use to the coaching programs offered by the Asian-Football-Confederation (AFC).

#### **Other Study in 2018 by Alamir Haider H.:**

A research paper entitled "Using GPS Recorder and Polar H10 Devices to Analyse Some Physiological and Physical Indicators and Compare Them Between Playing Positions for Players in the Iraqi Premier League." Using electronic instruments that assess numerous physical characteristics and heart rates, the study aimed to investigate the specificities of each football playing position. The study used a descriptive methodology and discovered

that the Polar H10 and GPS Recorder devices produced different findings for heart rate, speed, distance travelled, and other physical characteristics. In order to control exercise load and evaluate the physiological and physical prowess of League players, the study suggested using contemporary electronic gadgets.

**Other Study 2021 by John E., Michael S., et al.:**

A research paper entitled "Impact of GPS Technology on Sprinting Performance in Youth Soccer Players." The research looked at GPS device may assist young football players become more proficient sprinters. The findings demonstrated that using GPS tracking devices greatly improved young players' performance during training and competition by raising their top speed and total distance covered at high speeds(John R, et al., 2021).

**Method and tools**

**First: The Research methodology, and the community of research and sample:**

The compound exercise and population used by the researcher were defined as the youth players of AlTalaba Sports Club (19 years old) of 24 players. Additionally, out of the 240 players in the original community of the central region of the youth league, 20 players remained for the study after goalkeepers and injured players were subtracted, for a total of 5 players. This suggests that the ratio of the research community to the original community was 8.33%. Using a random approach, the remaining individuals were split into two groups: a control set and an experimental set. This led to the assignment of ten players to the experimental set and ten players to the control set. Table 1 indicates that the two groups are equivalent.

**Table (1):** It indicates the equivalent of the two sets (control, experimental) in pre-test for the endurance index.

Variable quantity	Units	Experimental		Control		T Value	Error-Level	Significance
Speed endurance Test	Second	Mean	sd	Mean	sd	0.605	0.553	Not Substantial
		29.3490	0.4828	29.4750	0.4475			

**Second: The test of the Search:**

**Speed endurance test**

- **Test Name:** 180-Meter Sprint Test from a Stand Start (Jawad, 2015)
- **Objective of the Test:** To measure speed endurance.
- **Equipment:** Whistle, Stopwatch, Markers (4) with a distance of 15 meters between each marker.
- **Test Procedure:** After giving the starting signal (whistle), the player starts from the first marker (the start) to the second marker and returns to the start and runs towards the third marker and returns to the start and then runs towards the fourth marker and returns to the start, and thus the player has completed the test. As in Figure (1) which shows the rebound running test (180m).

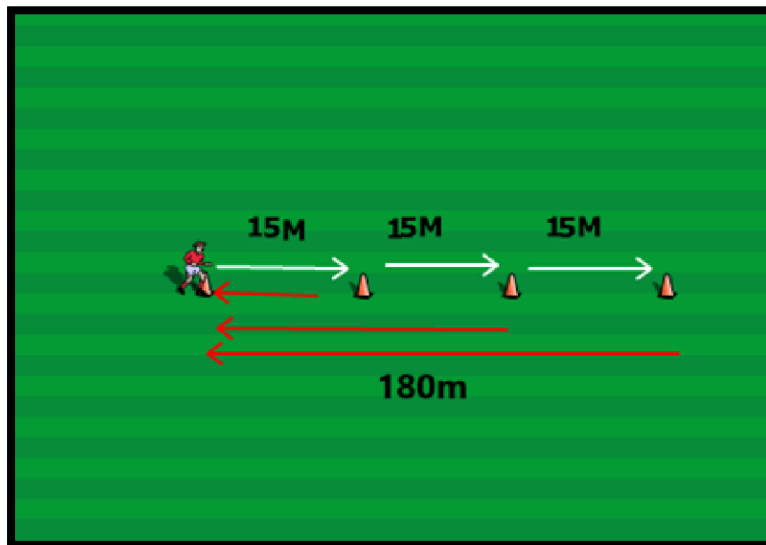


Figure (1): The test of Speed endurance

### Third: Trial Study

On 10/14/2024, at 11:00 AM, The researcher and the assistant work team, under the supervisor of the scientist, conducted a survey experiment on five youth players of AlTalaba Sports Club (19 years old), who were not part of the initial research sample. The experiment yielded the following results:

- Confirm the validity of the Ubiko and Polar H9 GPS devices in recording data and their suitability for use by players.
- Verify the validity of the test of speed endurance and its ease of application, in addition to ensuring the duration of the test.
- Evaluate the validity of the compound (physical) exercises and measure the effectiveness of the support team and its ability to implement the required competitive activities accurately and successfully..

### Fourth: Pre-Test

At 4:30 pm on Saturday 10/19/2024, the researcher, with the help of the assistant work team, conducted the pretests on the study trial at the College of physical education and sport sciences Stadium - University of Baghdad. During the test of the speed endurance of the experimental and control sets was measured.

### Fifth: The primary experiment

The primary experiment, prepared on Thursday 10/24/2024, and continued until Tuesday 12/24/2024, at a rate of three days per week (Thursday, Saturday, Tuesday), with 24 training units over two months of the special preparation phase and before the competitions. These units included part of the main section, with a focus on the physical aspect, as a specific time was allocated for it and the high-intensity and repetitive interval training method was used as the most appropriate.

The Compound exercises (physical) speed endurance was used in the experimental set during the special training period and before competitions. To ensure the accuracy of measuring training intensity, the researcher relied on GPS Ubiko and PolarH9 devices to determine the required intensity. The researcher used the high-intensity and repetitive

interval training method within the speed endurance training units, where the exercise intensity ranged between (85-97%) of the players' maximum intensity. The monthly intensities were distributed as follows:

- The intensity of First month: 85-91%
- The intensity of Second month: 91-97%
- The average intensity: 91%

The distributed of the research was the components of the training load based on determining the maximum intensity of the players' abilities by use the GPS devices Ubiko and PolarH9. Rest periods were also determined based on pulse measurements via the same devices to adjust training rest, and the rest between sets is (3) minutes. Regarding determining the exercise volumes, the researcher relied on repetition as a basis for planning training units, which ensures that the goals of the training program are achieved accurately and efficiently.

#### **Sixth: Post-Test**

Through the help of the assist team, the post-test was conducted on the study sample on Friday 12/27/2024 at 4:30 pm. The test was implemented in the College of Physical Education and Sports Sciences bitch at the University of Baghdad, where the speed endurance of both the experimental and control sets was measured.

#### **Seventh: Statistical Methods**

The researcher used the Statistical Package for Social Sciences (SPSS) to extract and analyze statistical data.

### **The Result and the discussion**

**First: The result presentation of both (Pretests, Post-tests) for Speed endurance for both (experiment and Control) sets:**

**Table (2):** It illustrates both (means and standard deviations (sd)) for pretest and posttest of the endurance index.

Variable quantity	Units	Pretest		Post-Test	
		Mean	sd	Mean	sd
Control Set	Second	29.4750	0.4475	29.2500	0.5035
Experimental Set	Second	29.3490	0.4828	28.5450	0.9252

**Second: The result presentation of the Differences Between Pretest and Post-Test of the Speed endurance in the control set:**

**Table (3):** illustrate results of the change in both (means, standard deviations (sd)), and T value, and the significance of the differences between the pretest and post-test for the speed endurance indicator in the control set.

Variab les quantit y	Units	Set	Mean	sd	Mean difference (F - S)	T Value	Error Level	Significance of Differences
Speed	Seconds	Control	0.2250	0.3489	0.1104	2.0390	0.072	Significant
		Experime ntal	0.8040	0.5812	0.1837	4.3740	0.002	Significant

### Third: The result Discussions of Pretest and PostTest for the speed endurance in both (the Experiment and the Control) sets:

The results in Table (3) indicate that there are a differences in the level of speed endurance between the pretest and posttests using T test, as the experimental set showed a significant improvement in the post-tests. The attributes of research this improvement to the effectiveness of compound (physical) exercises, which depend on integrating two or more basic skills into an organized motor performance, (Kazim et al., 2019) which contributes to the development of physical and skill capabilities. These exercises were designed based on accurate readings from the GPS tracking device, as the training program was prepared with great precision to determine the level of intensity, rest periods, and the number of repetitions required.

(Al-Khashab, 1999) also explained that "compound exercises contribute to developing the physical qualities and functional abilities of players, which helps the body adapt to high physical effort and different playing conditions." (Al-Saffar, 1987) confirmed that these exercises "allow the player to acquire more than one skill or physical ability during training".

According to (Qassem, et al., 2011), "the extent of the neural response and its compatibility with the muscular response to perform movements in the shortest possible time is a decisive factor for implementing motor duties, which helps achieve a balance between the external and internal training load, while enhancing the intense neural and muscular response for short periods."

The study also relied on the use of IT devices such as GPS and Polar H9, which helped the team significantly improve their speed endurance, which was reflected in their ability to quickly transition between defense and attack, which enhanced counterattacks and contributed to scoring goals. As for the complex exercises, they contributed to developing performance, such as defensive tasks like intercepting the ball and monitoring opposing players, which (Jawad, 2019) described as "complex exercises that should be exciting, in addition to their importance in raising the player's motor and skill efficiency in different playing situations, as well as their cognitive, perceptual and physical importance for the player". It is believed that the combination of these elements constitutes an important incentive for athletes, prompting them to complete training with greater accuracy, speed and intensity. The researcher confirmed that the integration of GPS tracking devices and the use of diverse training programs enhances physical fitness, including speed endurance. As (Jawad, et al., 2024) and (Madhkur, et al., 2008) indicated, the necessity of gradually

increasing the intensity of exercises to achieve the required challenge and develop physical systems, and both confirm that “work is done to make exercises more difficult as they progress, to achieve continuity and challenge the body’s systems and achieve development.” (Bastawisi, 1999) indicated that "high-intensity training is one of the basic training methods for improving physical abilities based on achieving adaptation between work periods and recommended rest periods." (Ibrahim and Ali, 2013) also explained that diversifying exercises helps break the state of boredom among athletes and motivates them to train effectively. According to (Turki, et al., 2016) and (Jawad, et al., 2019), transitional speed includes the player's ability to move quickly and efficiently in different directions, whether in wide or narrow spaces, with full control of the ball. This shows the importance of combining the neuromuscular response and performance speed to achieve the required efficiency, as explained by (Qasim, et al., 2011), "the extent of the neurological response and its compatibility with the muscular response to perform movements in the shortest possible time".

**Table (4):** The Result of Post-Test for the Speed endurance

Variable quantity	Unit	Experimental set		Control set		T Value	Error Level	Significance
		Mean	sd	Mean	sd			
Speed endurance Test	Second	28.5450	0.9252	29.2500	0.5035	2.116	0.048	Significant

**Fourth: The result and the discussion Between both (the Experimental and the Control) sets in the Post-Test for the speed endurance Index**

The results of the speed endurance test shown in Table (4) showed a significant superiority of the experimental set compared to the control set in the speed endurance variable. The test also proved its effectiveness for the experimental set, as the results showed significant differences between the pretest and post-tests. This development is attributed to the use of the GPS tracking device and the heart rate monitor (PolarH9) during the implementation of the training units. The compound exercises applied with the help of these devices contributed to significantly improving the performance of the experimental set. The training curriculum prepared by the researcher also played a fundamental role in developing the speed endurance trait, through systematic gradual increase in loads, taking into account the difficulty of the exercises and starting training gradually. (Kadhim, 2024a) Mufti Ibrahim stressed the importance of this gradual approach in designing exercises to achieve the required physical adaptation and develop performance, saying "If the difficulty of the exercise is increased in the same training unit, the gradual approach from first step (easy) to difficult must be taken into account" (Ibrahim, 2009). The gradual increase in training loads, (Mousa & Kadhim, 2023) whether in terms of strength, size, rest periods, and components of the load in general, which follows the principle of moving from easy to difficult (as in compound exercises), is a major factor that contributed to the development of speed endurance exercises. (Kazar & Kazim, 2020) Muhammad Reda Ibrahim pointed out the importance of this gradual approach, emphasizing its role in improving physical performance and enhancing the ability of players to adapt to the increasing requirements of training, saying "The increase in gradualism will require athletes to implement training requirements within the limits of their capabilities and functional abilities at the beginning of each new training period or stage in order to obtain new adaptations that lead to raising their level to the highest possible level" (Ibrahim, et al., 2013)

The researcher confirms the validity of the justifications for the experimental set's transition to using compound (physical) training units as an effective means of developing physical performance. This depends on enhancing the adaptation of muscle sets and their acclimatization to the motor duty, which enhances the ability to adapt to physical effort and respond positively to it. Compound exercises are considered one of the diverse and necessary means for developing a football player, as they follow motor paths derived from the game and combine more than one skill and physical ability. (Kadhim, 2023) These exercises are performed in conditions similar to those of official matches, which was confirmed by Jawad et al. (2015) in their research (Jawad, et al., 2015). This was witnessed by both Mahdi Kazim Ali and Muhammad Redha Ibrahim. "Introducing various exercises into training curricula in a precise manner in order to keep the athlete's desire to carry out the requirements of strenuous training and transform them from a state of boredom and tedium to a state of happiness, joy, and enjoyment during training." (Ibrahim, et al., 2013) and it was also confirmed by Fadhel Kamel Madhkur and Amer Fakher "In order to progress and advance in the training curriculum, work is done to make the exercises more difficult as they progress, to achieve the survival and continuity of the challenge of the body's systems and achieve development" (Madhkur, et al., 2008) "Through organizing the training curriculum that was determined in a precise manner in terms of the scientific time period for intensity, rest, and repetitions, which contributed to the harmony of the external training load with the internal load, which in turn led to the development of speed endurance within the players' capabilities and abilities in conditions similar to the match, and the absence of a competitive atmosphere in the exercises leads to boredom and failure to implement the repetitions correctly, meaning (with one intensity)." (Haitham Jawad, 2015) The researcher confirms this by observing the improvement in the players' speed endurance during compound (physical) training and during official matches, as the data recorded by the Global Positioning System (GPS) showed a noticeable development in this aspect. Al-Jumaili et al. (2023) pointed out this point, stressing the importance of compound training in improving speed endurance and developing the players' physical performance, as (Al-Jumaili et al., 2023) stated "the athlete's ability to perform various repetitive transitional movements, as the athlete's body covers certain distances in the shortest possible period of time" (Al-Jumaili et al., 2023). , as Ahmed Amin Fawzy confirmed by saying "What is required of the player is not only the quality of performance and mechanism, but what is required of him is to have the ability to withstand speed, which makes the player able to perform the skill with consistent quality and mechanism at the beginning of the match as well as at its end" (Fawzy, 2008, p. 138)

Players at the present time are distinguished by their ability to withstand speed in the defensive and offensive parts of the field and movements in all parts of the field such as pressuring the competitor, supporting and escaping from the competitor to score the goal and quickly returning to the defense areas as mentioned by Haitham Jawad and others (Jawad, et al., 2018) as well as Thamer Mohsen and others in his saying "These important exercises are what develop the important principles of football such as pressure, support, liberation from the competitor and cutting". (Thamer Mohsen, et al., 1999)

The Global Positioning System (GPS) calculates the player's ability to run distances at high speed during the match. A player's total speed endurance distance during a match can range from (1-2.5) km per match, however this can vary depending on the player's position, playing style and game dynamics. In these intense periods, players can run a speed distance

of more than (150-200) m. The longer his speed endurance distance during a match, the higher his physical fitness in speed endurance. (CatapultSport, 2022)

### The research Findings and suggestions

#### I. The Findings:

- Compound (physical) exercises based on readings from modern technological devices such as the Ubiko tracking device for the experimental set have a significant impact on enhancing the physical component (speed endurance).
- It is essential that each player uses a dedicated GPS tracking device in order to develop his/her speed endurance.
- A dedicated device like the PolarH9 for each player to monitor heart rate should be used through speed endurance exercises.

#### II. The suggestions:

- Emphasizing the need for fitness trainers in the Iraqi Premier League to use GPS monitoring devices to improve other physical features of their training.
- Highlighting the importance of fitness trainers in the Iraqi Premier League using the PolarH9 heart rate monitor to improve different physical features.
- Emphasizing that fitness experts in Iraqi Premier League rely on readings of the above devices to design competitive exercises that help each player improve other physical qualities.

#### The Acknowledgments:

I would like to giving thanks and gratefulness to AlTalaba Sports Club for helping and providing me the support and the chance to complete this research.

### Appendices

#### Sample of Training Units and Exercises:

##### Training Unit 1

- **Location:** Baghdad University, Jadriya
- **Week:** First
- **Training Date:** Tuesday, 24/10/2024
- **Month:** First
- **Goal:** Speed endurance Development

##### Main Section of the Training Unit during Special Preparation Phase

Exercise Name	Intensity	Performance Time	Rest Between Repetitions	Repetitions	Sets	Rest Between Sets	Total Time
Speed endurance (1)	%88	25sec	↕ 2	3	2	2.5min	13 min
Speed endurance (4)	%85	25sec	↕ 2	3	2	2.5min	13 min

##### Training Unit 5

- **Location:** Baghdad University, Jadriya
- **Week:** Second
- **Training Date:** Wednesday, 30/10/2024

- **Month:** First
- **Goal:** Speed endurance Development

**Main Section of the Training Unit during Special Preparation Phase**

Exercise Name	Intensity	Performance Time	Rest Between Repetitions	Repetitions	Sets	Rest Between Sets	Total Time
Speed endurance (2)	%90	25sec	2min	3	2	2.5min	13min
Speed endurance (4)	%90	25sec	2min	3	2	2.5min	13 min

**Training Unit 9**

- **Location:** Baghdad University, Jadriya
- **Week:** Second
- **Training Date:** Sunday, 24/11/2024
- **Month:** Second
- **Goal:** Speed endurance Development

**Main Section of the Training Unit during Special Preparation Phase**

Exercise Name	Intensity	Performance Time	Rest Between Repetitions	Repetitions	Sets	Rest Between Sets	Total Time
Speed endurance (4)	%94	30sec	2min	3	2	2.5min	13.5min
Speed endurance (5)	%92	30sec	2min	3	2	2.5min	13.5min

**Training Unit 10**

- **Location:** Baghdad University Campus, Jadriya
- **Week:** Second
- **Training Date:** Tuesday, 15/11/2022
- **Month:** Second
- **Goal:** Speed Development

**Main Section of the Training Unit during Special Preparation Phase**

Exercise Name	Intensity	Performance Time	Rest Between Repetitions	Repetitions	Sets	Rest Between Sets	Total Time
Speed endurance (1)	%97	25sec	2min	3	2	2.5min	13 min

Exercise Name	Intensity	Performance Time	Rest Between Repetitions	Repetitions	Sets	Rest Between Sets	Total Time
Speed endurance (6)	%95	25sec	2min	3	2	2.5min	13 min

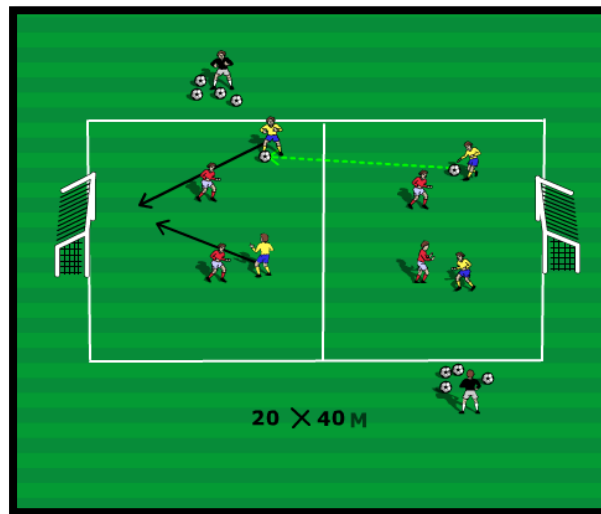
### Speed Endurance Exercise (1)

The exercise is done in the form of a square (35 x 35) m. There are (6) players inside the square and (4) players outside the square on each side of the square. There is a coach outside the square with balls. When the whistle is heard, the coach hands the ball to one of the two groups and the game becomes competitive (3 vs. 3). The team with the double bus ball plays with the support, then switches with the support players after the end of the specified time for the exercise.



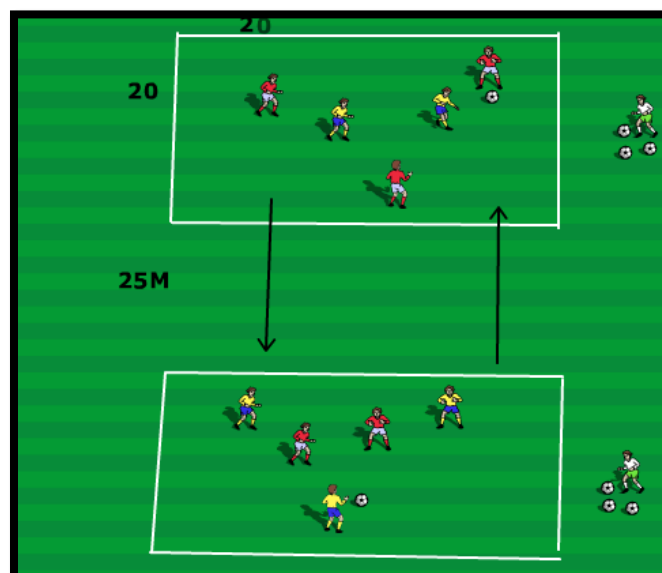
### Speed Endurance Exercise (2)

The exercise is done in a rectangular shape (40 x 20) m with two large goals (legal) and there are (4) players (two defenders and two attackers) in the middle of the field on the right side and (4) players (two defenders and two attackers) in the middle of the field on the left side and there is a coach on each side. When the whistle is heard, the coach hands it to the defending players and they try to move the ball to the other half of the field without entering the other half of the field so that the game becomes competitive (2 vs. 2) between the players and the attackers and scoring on the goal. In the event that the ball is cut off, the defending players move the ball to the other half of the attackers and score on the goal and so on until time runs out.

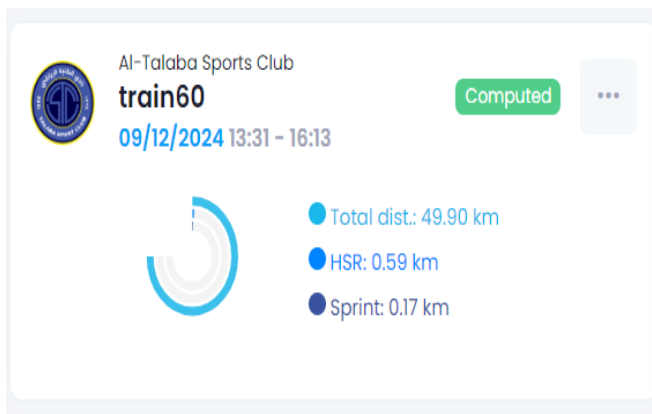


### Speed Endurance Exercise (3)

The exercise is done in the form of two squares (20 x 20) m, with a distance of (25) m between them. There are (5) players in each square, and there is a coach and an assistant coach with balls on each square. When the first whistle is heard, the coach hands the ball to the three players so that the game becomes competitive (3 vs. 2) with possession of the ball by (3) players and interception by the defenders. When the second whistle is heard, the two groups exchange places in the two squares, then the coach hands the ball to the three players and the game becomes competitive (3 vs. 2) again. The exercise continues until the end of the specified period for the exercise.



**Appendix 1: Images of GPS Ubiko and Polar H9 Devices**





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## The effect of qualitative exercises with bodily-kinesthetic intelligence activities on developing accuracy the skill of the undulating serves from the jump (flotter) in volleyball among first-class players for the 2022/2023 season

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2253](https://doi.org/10.37359/JOPE.V37(1)2025.2253)

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**Article history:** Received 18/ June/2025 Accepted 24/ March/2025 Available online 28/ March /2025

### Abstract

Volleyball is considered one of the most important team sports, which is practiced by women and men for different age groups. Specific exercises contributed to the type of body kinetic intelligence activities clearly at the level of this sport, as it is considered the ideal, fastest, and most applicable solution, as the researcher found his problem in the lack of interest in these exercises. In proportion to its importance for effectiveness, the research aims to prepare specific exercises for bodily kinetic intelligence activities. The importance of the research lies in developing the skill accuracy of the undulating serve skill of jumping (flutter), the researcher used the experimental method with two groups, control and experimental, with pre- and post-tests. The tests were conducted to measure the accuracy of the skill (serving from the top (flutter)) and the research population consisted of first-class players for the 2022/2023 season, which are (6 clubs). Al-Hussein Club was chosen by a deliberate random method, and the research sample consisted of (12 players) after excluding two players (liberos). They were divided into two equal groups and the bag was used. Statistical analysis (SPSS) was used to extract the results, and after presenting and discussing the results, it was concluded that there is a positive effect of specific exercises with bodily kinetic intelligence activities on the accuracy skill of the undulating serve from jumping (flutter) with a volleyball between the pre- and post-tests for both groups, as well as between the control and experimental groups, and in favor of the experimental group and the researchers recommended the necessity of using these exercises and conducting future studies and other on and other samples and for different skills.

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**Keywords:** specific exercises, sensory-motor intelligence, undulating jump serve, flutter.

## Introduction

Specific exercises are considered one of the best modern methods for reducing effort, time, and costs in order to reach the best results. They are defined as “ a group of exercises that are similar in motor path to the accuracy of specialized skill performance (Khattab et al., 2006) and differ from other general exercises that can be applied to all games and special ones that specialize in activities only (Fahmy, 1990). Grander suggested that every individual possesses at least seven Intelligence at a minimum, but in varying proportions, and thus the concept of intelligence expands to include many abilities, and the types of these seven intelligences become clear as follows: (linguistic intelligence, logical/mathematical intelligence, spatial/visual intelligence, physical/kinesthetic intelligence, musical intelligence, social intelligence, personal intelligence (Al-Fattah, 2011). Bodily-kinetic intelligence is considered “ the ability to control bodily movements and deal with movement skillfully ”.Such as using the ball ” (Amer, 2008) and that volleyball is one of the activities that most requires intelligence and excellence in the sense of movement in accordance with the requirements of movement and the physical, skillful and psychological capabilities the body possesses . “Since the motor sensitivity of the muscles is the main component of sensory-motor perception, the development of this characteristic in the fine muscles of the palm is a very important matter for the volleyball player, as a good player outperforms his average counterpart by two and a half times in the characteristic of motor sensitivity of the muscles of the palms in particular ”( Hassanein and Abdel Moneim, 1997), and since the ball is the tool that the volleyball player controls, developing feeling and developing control of the ball is among the most important skills in this game (Al-Qaisi, 2002). The wavy serve performed from jumping has a great peculiarity as it requires high precision in the movements of the hands and a very high compatibility between the movements of the legs and hands .Here the importance of the research lies in the fact that the use of a huge amount of specific exercises clearly contributes to the advancement of the skill level of the serve“ ,as it is considered the ideal, quickest, and most applicable solution ”(Mohamed, 2009)... The serve is considered the beginning of success in volleyball, and according to this research study, there is a clear weakness in the use of specific exercises with high skill specialization. This research contributes to reaching the provisions for implementing the skill in particular and improving the collective performance of the entire team, as the applications of multiple intelligences are considered training. An ideal solution for rapid skill development....And here the researcher found his main problem in the lack of attention to these exercises in proportion to their importance to the effectiveness and to the specific skill, as the skill of the wavy serve from jumping is considered one of the modern forms of applying the



skill of serving from above, and the principles of jumping and ripple serve are combined in it, and the majority of current exercises lack high quality in dealing with these two principles.. The aim of the research is to prepare specific exercises with physical-motor intelligence activities and to know the effect of these exercises on Developing the accuracy of the wavy serve skill from jumping (flutter) in volleyball among first-class players for the 2022/2023 season. As for the research hypotheses, it was that there Statistically significant differences between the pre- and post-tests in the level of accuracy of performing the wavy serve skill from jumping (flutter) for the research sample.

And I aimed A study by (Hashim, 2017) to prepare a special study for differentiated education and find out its effect on students 'sensory-motor intelligence and peaceful shooting skills. The researcher used the experimental method and his sample was students from the College of Physical Education and Sports Sciences / University of Karbala. The researcher concluded that the presented strategy was effective in achieving its goals and the researcher recommended the necessity of using similar strategies for other activities and skills only and the available samples and applying them to higher samples .While a study by (Shehayeb, 2019) to prepare measures of psychological flow and bodily-motor intelligence and to identify the relationship between them and the accuracy of the technical performance of goalkeepers in elite handball league matches. The research assumed that there is a statistically significant relationship between them. The researcher used the descriptive approach using the survey method and correlational relations. His sample was of goalkeepers in elite handball league matches, which consisted of (21) goalkeepers. He used appropriate statistical methods for his research, and the researcher concluded the variation in skill level and flow. Psychological and kinetic intelligence for them, and he recommended adopting a special program for goalkeepers that includes research vocabulary and the possibility of including other vocabulary.

### **Method and tools**

The researcher used the experimental method to suit the nature of the problem, and the research population was determined by the volleyball players participating in the first division for the 2022/2023 season (the middle group), and they are (6 clubs) (Al-Hussein - Al-Dhuluiya - Al-Tarmiyah - Hit - and Al-Samoud - Habhab). Al-Hussein club was chosen intentionally and the research sample consisted of (14 players). After taking into account that there are players who do not perform the serving skill, two players (libero) were excluded. The number became (12) players and they were divided into two equal groups, an experimental group and a control group. The players were randomly divided into two groups: the experimental group and the control group. This was done using a random drawing method based on odd numbers

(experimental group) and even numbers (control group). The experimental group consisted of 6 players, and the control group included 6 players. The two groups were equivalent, as shown in (Table 1).

Table (1): Shows the equality of the experimental and control groups in the wavy jump transmission accuracy test (flutter)

Indicator	Unit of measurement variable	Experimental group		Control group		Calculated T value	Tabular T value	Moral
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Accuracy test Transmission performance Flutter	degree	11.33	1.032	10.83	0.752	0.89	2.23	Insignificant

Under a degree of freedom (12-2=10) and a probability of error of 0.05

### Tests used

The researcher, using his personal experience as a former player and current volleyball coach, as well as reviewing some similar research and expert opinions, chose the appropriate test to measure the required skill. Secondly, the researcher used the following test

Testing the accuracy of wavy jump transmissions (Al-Sumaidaie et al., 2010)

- Test name: Testing the accuracy of wavy jump transmissions (flutter)
- The aim of the test: to measure the accuracy of the wave transmission from the jump (flutter)
- Tools used: a legal volleyball court, (30) volleyballs, tools for recording test results, a recorder.
- Test specifications: The player stands in the middle of the end line of the court (the half facing the planned half of the court at a distance of (9 meters) from the net). The player performs the serve facing the designated areas (1-4) as in Figure.(1)

•Test conditions: Each player has (10) attempts and the ball must be sent to one of the specified areas.

•Scoring: 4 marks for each attempt inside the zone(4)

3marks for each attempt inside the zone(3)

2marks for each attempt within the zone(2)

1mark for each attempt within the zone(1)

Zero score when the ball falls outside the court or does not cross the net

When the ball falls on a common line between two areas, the higher area score is counted

The attempt will be canceled if a legal error is committed.

The maximum score for the test is 40.

Figure (1) shows the accuracy test of the wavy jump transmission (flutter)

### **Exploratory experience:**

The researcher, accompanied by the assistant work team, conducted a pilot exploratory study on 9/9/2022 at 10:00 am on 5 players from a community of one of the first-class clubs who did not belong to the research sample. The following observations were recorded:

•The suitability of the jump serve test and the ease of its application to measure the level of skill performance in order to complete the test in the best way.

•Identify the suitability of qualitative exercises for the selected research sample and evaluate the efficiency of the assistant team or work team.

### **Pre-test**

Pre-tests were conducted on the research sample with the help of the assistant team, and under the supervision of the researcher, at three o'clock in the afternoon on Sunday, 9/11/2022. The wavy jump transmission test was conducted and all test results were recorded with high professionalism and professionalism after benefiting from the comments of the assistant work team after the reconnaissance experiment, which contributed to overcoming the difficulties and making the tests successful.

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### **Main experience:**

The researcher, in agreement with the training staff, took time between (10-15) minutes from the total of the main part of the training unit, which amounts to (120) minutes, to perform some special specific exercises that the researcher prepared by preparing the training units for the main experiment, starting on Tuesday, corresponding to 9/13/2022, and ending on Tuesday, corresponding to 10/25/2022. The training units were held on Saturdays, Tuesdays, and Thursdays, with 3 sessions per week, with a total of 18 training units over a period of a month and a half during the special preparation phase of the team before the competitions. The researcher focused on the physical aspects on one side and the motor aspects on the other related to the skill and in the main section of the training unit, where he identified, in consultation with experts and specialists, the muscles that should be focused on in this skill (the palm, the forearm, the bilateral brachial muscle, the triceps muscle, the golf, The anterior quadriceps muscle) in addition to creating combined physical-motor exercises, and after determining the time for the main section of the physical aspect, the researcher used the interval training method, as it is more appropriate to the needs of the players, as effort and rest are distributed according to the physical ability of the players, using clear signs of fatigue and exhaustion, such as a high pulse and high respiratory output of the body's circulatory system.

### **Post test:**

The post-test was conducted on the research sample with the help of the assistant team at three o'clock in the afternoon on Thursday, 10/27/2022. The wavy jump transmission test was conducted in the Al-Hussein Club Hall, and one of the important conditions that the researcher emphasized was that the atmosphere and conditions of the pre-tests were identical, and he succeeded in this.

### **Statistical methods:**

The researcher used statistical methods from the SPSS program to extract the statistical results, which are (arithmetic mean - standard deviation - (t-test) for independent samples - - (t-test) for linked samples - Pearson simple correlation coefficient).

## Results

Table (2): shows the arithmetic means, standard deviations, standard error of the differences, the calculated (t) value, and the probability value for the experimental and control groups and for the pre- and post-tests for the results of the jump serve skill test.

Tests	lonlines s Measurement	Pretest		Posttest		f"	F" H	Calcu lated t value	Tab ular (t) valu e	Signifi cance level
		Avera ge Arith metic	Stan dard devia tion	Avera ge Arith metic	Stan dard devia tion					
Femal e office r	degree	10.83 3	0.75 2	12.33	0.81 6	0.8 62	1.4 858	2.83	2.57	spiritu al
empiri cism	degree	11.33 3	1.03 2	14.00	1.41 4	0.5 06	1.8 777	375	2.57	spiritu al

Under a degree of freedom (6-1=5) and a probability of error of 0.05

Table (3): shows the arithmetic means, standard deviations, standard error of the differences, average differences, calculated (t) value, and probability value for the experimental group for the pre- and post-tests for the results of the jump serve skill test.

Variable s	Pretest		Posttest		F	FH	value(v) Calculat ed	value(v) Tabulati on	Significa nce level
	Q	A	Q	A					
Totals									
empiri cism	11.3 33	1.03 2	14.0 0	1.41 4	9.31 2	3.75 6	2.679	2.57	spiritual

Under a degree of freedom (6-1=5) and a probability of error of 0.05

### Discussing the results.

The results presented in Table (2) showed that using the t-test, a significant effect was observed in the results of the wavy serve skill test from jumping between the results of the pre- and post-test in favor of the post-test in the control group (and in small percentages). The researcher attributed these results to coordinating daily training and controlling the accuracy of performance due to the presence of research and the general atmosphere it provides for the sport of progress and development“. This improvement was achieved by increasing the team’s quick movements when moving to the competitive atmosphere during training ”(Kazim, Hussein, and Hamza, 2024). These concepts have been confirmed by many scholars, as“ the player will not achieve a high level of physical fitness or accuracy of skill performance for the requirements of the tournament through dreams, but rather the player must train ”.(Al-Damad, 2000) Especially in an activity such as volleyball, which is characterized by wide variables and stimuli, the player faces, during the accuracy of the performance, many stimuli such as the opponent, the ball, the net, and the teammate (Hussein, The effect of special exercises in developing some aspects of attention and coordination abilities with accuracy in the skills of smashing and blocking among volleyball players aged (15-17) years, 2017)...

The use of diverse and variable training methods often needs to be changed with difficulty to ensure that the level of development is achieved, and this is what was confirmed by (Kamel and Amer, 2008)“ :In order to progress in a training program, the exercises must become more difficult as the program progresses to maintain the body’s adaptation, challenge it, (Kadhim, 2024) and achieve progress ”. This was also confirmed by Muhammad Reda Ibrahim and Mahdi Kazem Ali“ ,Introducing various exercises accurately into training programs helps maintain athletes ’desire to perform difficult training requirements and transforms them from boredom to a state of joy and enjoyment during training ”(Reda and Kazem, 2013).

The results presented in Table (3) showed a comment on the results of the performance accuracy test shown in Table (3). It was observed that there was a significant effect on the performance of the serve in the experimental group between the pre- and post-tests, in favor of the post-test, and in a greater percentage than in the control group... (Salman et al., 2022) The researcher attributed this improvement to the special specific exercises that the researcher prepared, as the opinion of experts and specialists had an important role in constructing these exercises, in addition to the researcher’s previous experience as a volleyball player and a specialist in blocking, which made It helped him a lot in building these exercises, and he benefited greatly from the progression of training and the transition from easy to difficult<sup>1</sup> <sup>i</sup>If the difficulty of the exercises is“ the training is increased during the same training session,

and this should be followed by a progression from easy to difficult, and from the known to the unknown) ”.Ibrahim, 2009).

In addition, it was proven to the researcher that the development of the experimental group’s performance at a higher level than that of the control group is due to the type of varied and special training that combined many of the vocabulary and principles of modern training, which led to keeping the players highly motivated as well as reducing boredom and monotony. He emphasized the importance of diversity in training to maintain the athlete’s participation, as pointed out by (Al-Mahdi, 2008).

The researcher also attributes the superiority of the experimental group in the post-test to the changes that occurred in the players as a result of the changes in weights and measurements and the very short time that the player has to perform the movement before landing outside the service area, which requires him to act quickly and thus improve the accuracy of the performance (Hussein, master’s thesis, 2010), and that the subject of change during training in all aspects of the accuracy of sports performance can have a positive impact on the skill performance during competition and that the accuracy of the player’s motor performance includes body movement supported by various thinking processes to make the appropriate decision, which On their basis, movement occurs, as“ intelligence is a potential related to the ability to solve problems and provide good performance outcomes during situations ”(Al-Hamid, 2003).

The researcher also attributes this development in level to the fact that the accuracy of sports performance has been greatly influenced by the overall diversity, change, and bodily movements that have been affected by bodily-motor intelligence exercises. (Kadhim & Mousa, 2024) This is what many scholars and thinkers have expressed, stating that one of the traits and characteristics of individuals with bodily-motor intelligence is“ the ability to use their mental abilities to coordinate the physical movements they possess and deal skillfully with things through movement, as they possess the ability to coordinate between the sense and movement organs in performing motor skills ”(Amer, 2008)

## **Conclusions and recommendations**

### **First: Research conclusions:**

- 1- Specific exercises for physical-motor intelligence activities had an impact on the skill of the jump serve (flutter).
- 2- Using bodily-kinesthetic intelligence activities is important to improve the player's intelligence in various game skills.

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**secondly. Research recommendations:**

- 1- The researcher recommends that club and national team coaches use body-motor intelligence exercises in their training to develop the skill of the undulating serve from jumping.
- 2- The researcher recommends that club and national team coaches use body-motor intelligence training in their training to develop all volleyball skills due to the effective need for intelligence.
- 3- The researcher recommends conducting other experiments using physical-motor intelligence activities training on different activities.

**(Appendix 1)**

**Topics included in the special specific exercises**

- 1- Use balls of various sizes, hold the ball and throw it at a specific place on the wall, alternating between different sizes and specifying the same place.
- 2- Use a few weights in the form of short sticks and control the movement of the sticks from the wrist joint and place them in the palm.
- 3- Using specific areas on the wall (5-6 areas), holding the ball with one hand and switching between hands or two, using the sense of sight to help determine the places, pushing the ball with the fingertips to the specific place, and switching between areas.
- 4- Move in different directions (front - back - right - left) with one or two steps, making a single jump, then moving.
- 5- Move in different directions (front - back - right - left) with one or two steps, making a single jump, then a move, and the player holds the ball in one or both hands.
- 6- Take a step forward or backward with both feet and move sideways to the right or left, and the player moves according to the guidance of the coach.
- 7- Take a step forward or backward with both feet and move sideways to the right or left while the player holds the ball and the player moves according to the guidance of the coach.
- 8- Controlling the front and back quadriceps muscles, tightening them, raising the body up, and standing on the tiptoes without jumping.
- 9- Controlling the front and back quadriceps muscles, tightening them, raising the body up, standing on the tips of the toes, and performing light jumps to various sides.
- 10- Raising the body by jumping, carrying the ball and throwing it with one or both hands to a specific place above the net.
- 11- Using varying directions, heights, force used, and other force control principles used for accuracy of performance.



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## **The effect of high-intensity interval training (HIIT) on the special endurance and some offensive skills of handball players**

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2291](https://doi.org/10.37359/JOPE.V37(1)2025.2291)

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**Article history:** Received 3/ February/2024 Accepted 16/ October /2024 Available online 28/ March /2025

### **Abstract**

The importance of the research emerged in using a type of modern methods as an attempt to improve performance and develop special endurance. A set of exercises in the HIIT style was developed as a comprehensive and intensive training program in a scientifically studied manner that can enhance and develop special endurance and various offensive skills for female handball players. These qualities contribute greatly to increasing endurance and improving their offensive performance on the field. The research aimed to prepare exercises according to the high-intensity interval training (HIIT) method in developing special endurance and offensive skills for female handball players. The researchers adopted the experimental research method by designing a single group with tight control in the pre- and post-tests. The research community was represented by the players of the Al-Talaba Sports Club, numbering (10) players who continue training. They were chosen intentionally. The training program was implemented on Sunday (10/3/2024) until (10/6/2024). The duration of the training program was (12) weeks, with three training units per week, and the total number of training units was (36) training units. The training days were Saturday, Monday and Wednesday. The training unit time (120) minutes, and the time of the main part of the training unit was (80) minutes, and the intensity used ranged from (85 - 95%), from the first training unit to the last training unit, and the total repetitions ranged from (3-10) and the groups (3-4) within the training unit, and these exercises are characterized by the presence of an intermediate rest between the exercises in the form of positive rest (jogging or stretching exercises), and the pre-tests were conducted on the research sample on (Saturday and Sunday)

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corresponding to (10-9/3/2024) at 3 pm and the experiment was completed by applying the post-tests on Wednesday and Thursday (12-13\6\2024) and the researchers used the statistical package SPSS version (26) to calculate the values of the arithmetic mean, standard deviation, skewness coefficient, percentage and t-test, and the researchers concluded that the interval training (HIIT) had a positive effect in developing the special endurance, which was reflected in developing the performance of the players in the research sample, and the researchers recommend using High-intensity interval training (HIIT) method in developing physical abilities and offensive skills of female handball players.

**Keywords:** Interval training HIIT, endurance, offensive skills, handball.

## Introduction

Longer training) HIIT (It is one of the modern methods of training that simulates the style of attack and defense skills in handball in terms of using high-intensity periods during the match accompanied by periods of low intensity and for a short period .Confirms 2014) Schmid ( Anaerobic interval training (HIIT) is more convenient, because it makes workouts more challenging and effective .As it is considered) HIIT (Excellent style To regulate cardiorespiratory training, which involves performing repeated bouts of short bouts of exercise, which include times of high-intensity exercise interspersed with periods of low-intensity. Known as Mark Jones (Mark Jones.2014 ,p52)"

Amr Farag (2012) adds“ ,Success in the training process depends on the extent to which the coach is able to take into account the specifications of the training sample from all internal and external aspects, envision the experimental conditions, and use special means and methods to achieve the goals set for the stages of sports preparation, which achieves a balance between the various aspects of the individual and the nature of the sports activity that is being planned on the other hand”.(Amr Bassiouni Farag: 2012).

The researchers used the high-intensity interval training method) HIIT (Which has a role in developing personal endurance, and this matter positively affects the performance of skills in the required form and with high efficiency throughout the match without decreasing the level of performance of the players. Also, the most important feature of this method is its economy of time , “as the air breaks provide a safe and comfortable way to withdraw from rest-8) ”.p195 .Moran T. G & Meglynn)

This is what she indicated studies) Martin Jabala (Professor of HIIT exercise physiology at McMaster University in Canada ,His studies have proven that the training benefits that we can reap from a full hour of aerobic exercise, we can reap in several minutes of high-intensity interval exercises) .HIIT .(Many studies have confirmed that the faster and more difficult the exercise during exercise periods, the more effective it is and the shorter the duration it takes .(Martin Gbala, 2017)"



The importance of research has emerged Using a type of modern methods in an attempt to improve performance and develop special endurance Develop a set of HIIT-style exercises as a comprehensive and intense training program In a scientifically studied manner It can enhance and develop the special endurance and various offensive skills of female handball players, and these qualities contribute greatly to increasing their endurance and improving their attacking performance on the field. The problem of the research was that the development of physical and skill performance depends in particular on special endurance in executing skills, which is one of the things that Female handball players need it in the match, and in order for the players to reach the higher levels, those interested in the field of sports training tend to look for the use of modern training methods and approaches to develop endurance and skill performance, as it is the basis and an important pillar, as it is one of the basic conditions for maintaining consistency and stability of performance throughout the duration of the match, and physical performance is one of the basic requirements for deciding the outcome of the matches, (Kadhim & Mousa, 2024) and because the researchers are interested in this activity and through following it and watching many handball matches, the researchers noticed that there is a clear weakness in the endurance of skill performance and this appears clearly in the minutes. The last part of the match, where signs of loss of concentration and accuracy appear, and this does not enable the players to perform the role required of them in implementing the tactical plans and duties drawn up on the field. Given the great importance of endurance and skill performance in deciding the results of the matches, and for the purpose of determining the level of skill performance of the players, the researcher therefore decided to study this problem. The aim of the research is to Identify the effect of exercises prepared according to the high-intensity interval training method) HIIT (In developing special endurance and some skills for female handball players .The researchers assumed There are statistically significant differences between the results of the pre- and post-tests of the research sample in developing special endurance and some offensive skills among female handball players, in favor of the post-test.

**Research areas:-**

**Human domain** :Girls Sports Club players.

**Temporal domain.**(2024\6 \13 -2024\3\2) - :

**Spatial domain** - :Sports activity hall in Ziona for the Student Sports Club.

**Method and procedures:**

The researchers adopted the experimental research method by designing one group with tight control in the pre- and post-tests. The research population and sample were represented by the girls 'sports club players, numbering (10) players continuing to train, chosen intentionally.

**Choose search tests**



The researchers deliberately chose the research tests through their experience in this field and by relying on Arab and foreign sources in determining the physical and skill tests that are compatible with the nature of the research, as follows:

- 40 :1second running test):Muhammad Subhi Hassanein, p. 169(
  - :2Sit-and-jump test for (90) seconds) :Thamer Mohsen and others 114(
  - :3Test of bending and extending the arms from the forward leaning position for (30 seconds) , )Muhammad Subhi Hassanein, p. 236.(
  - :4Strength bearing of the abdominal muscles) :Muhammad Hassan Allawi and Muhammad Nasr al-Din Radwan, p. 137(
- Skill tests) :Diaa Al-Khayyat and Nofal Muhammad Al-Hayali, p. 494.(
- 1Handling and receiving speed test (measuring the speed and accuracy of passing)
  - 2Plump test.
  - 3Scoring test (to measure the high jump shooting test)

Exploratory experience:

The researchers conducted the first exploratory experiment on Saturday, March 2, 2024, for female students 'sports club players, on a survey sample of (5) female players from within the research community.

The aim of this experiment was to know the difficulties facing the researchers and work to overcome them, to know the time taken and the willingness of the players to conduct the tests, to overcome errors in the tests, to ensure the validity of the tests and their suitability to the research sample, to verify the scientific foundations of the tests, as well as to organize and cooperate among the members of the assistant work team.(Kadhim, 2024)

The researchers also conducted a second exploratory exercise experiment) HIIT (On Tuesday 3/6/2024 in the Student Club for the same female athletes, to determine the difficulty and suitability of the interval exercises for the sample, knowing the duration of work, the number of repetitions and sets, and the rest periods between them, as well as determining the resulting pulse for each exercise to determine the required intensity, ensuring the safety of the tools and devices used in the research, and verifying the execution time of the exercises within the main section.(Kadhim, 2024)

Apply exercises using high-intensity interval training HIIT

Starting to implement the training units for the research sample, taking advantage of modern scientific sources and their experience in this field, to prepare exercises in the interval training style that were included in the main section of the training units. The method of applying the exercises within the training units was in the method of high-intensity interval training, and the implementation of the training program began on Sunday (3/10/2024) until (6/10/2024). The duration of the training program is (12) weeks, with three training units per week and the number of training units. The college had (36) training units, and the training days were Saturday,

Monday, and Wednesday. The time of the training unit was (120) minutes, and the time of the main part of the training unit was (80) minutes .

The intensity used ranged (85-95%) from the first training unit to the last training unit, and the total repetitions ranged from (3-10) and groups (3-4) within the training unit. These exercises are characterized by the presence of an inter-rest between the exercises in the form of positive rest (jogging or stretching exercises).

The pre-tests were conducted on the research sample on (Saturday and Sunday) corresponding to (10-9/3/2024) at 3 pm in the student sports club hall, and the experiment was completed by applying the post-tests on Wednesday and Thursday.(2024/6/13-12)

The researchers also used the SPSS statistical package, version (26), to calculate the values of the arithmetic mean, standard deviation, skewness coefficient, percentage, and t-test.

Search results:

After the researchers finished conducting pre- and post-tests on the research sample and processing the results statistically to reach the research objectives and verify the hypotheses formulated therein.

Table (1) shows the results of the pre- and post-physical tests for the research variables

Tests	Pretest		Posttest		F	F E	T Calculate d	value themselves	level Connotation
	Q	$\frac{\pm}{A}$	Q	$\frac{\pm}{A}$					
Bearing speed	125.70	2.33	126.4	2.31	9.700-	0.650	-14.908	0.000	Dal
Carrying strength for the legs	13.90	1.197	18.30	1.33	4.400-	0.339	-12.944	0.000	Dal
Provides strength to the arms	16.40	1.505	21.10	1.79	4.700-	0.366	-12.818	0.000	Dal
Provides strength to the abdominal muscles	30.30	1.49	39.50	1.08	9.200-	0.442	-20.804	0.000	Dal

Significant: (Sig) (0.05) < at a significance level of (0.05) and degree of freedom (n) - 1.(9) =

Table (2) shows the results of the pre- and post-attack skills tests

Tests	Pretest		Posttest		F	F E	T Calculated	value themselves	level Connotation
	Q	$\frac{-}{+}$ A	Q	$\frac{+}{-}$ A					
Handling test	12.70	1.49	15.40	1.26	-2.70	0.335	-8.060	0.000	Dal
Plump test	24.90	0.73	20.80	1.31	4.10	0.388	8.128	0.000	Dal
Scoring test	4.70	1.15	7.50	1.08	-2.80	0.504	-7.203	0.000	Dal

By reviewing the results of the pre- and post-test physical tests in Table (1), it is clear that there are clear significant differences in all tests and in favor of the post-test. The researchers attribute that the reason for the appearance of the significant differences in the post-tests is the training curriculum prepared by the researchers and the diverse and new exercises that this curriculum contains for the research sample, as it effectively contributed to the development of physical abilities as well as the organized and continuous application in implementing these exercises.

The researchers also relied on the scientific foundations studied for the measured loads (intensity, volume, and density) to suit the level of the female athletes so that comfort was positive between repetitions, as well as the use of appropriate training tools and tools that contributed to raising the endurance and speed of the female athletes.

As mentioned)" Kamal Abdel Hamid and Mohamed Sobhi HassaneinEmploying these exercises using the same common muscle groups in motor performance, as specific endurance is an independent factor from general endurance, indicating that specific endurance is a physical ability that depends on the strength of the muscles and the efficiency of the connection between them and the nervous system, while general endurance depends mainly on the efficiency of the circulatory and respiratory systems in transporting oxygen and nutrients necessary for the continuation of muscle work and the speed of disposal of metabolic wastes (Kamal Abdel Hamid and Muhammad Sobhi Hassanein, p. 71, 1997).

The researchers believe that high-intensity interval training has a direct impact on increasing the development of endurance, because the high-intensity training method helps increase endurance,



as it trains the heart to pump more blood to the working muscles and trains the muscles to extract oxygen from it more efficiently, which makes dealing with all other exercises easier, thus increasing the endurance to perform optimally throughout the match.

As can be seen from Table 2, there is a clear development in the results of the tests (pre- and post-tests) of the skills, in favor of the post-tests. The researchers attribute the reason for the development in the post-tests at the expense of the pre-tests to the positive impact of the training curriculum prepared by the researchers, (Moayd et al., 2019) which includes special exercises that were prepared on scientific foundations and studied in a way that suits the capabilities of the research sample, which had a clear impact on the development of the skills of the research sample. The use of exercises in the high-intensity interval training (HIIT) method and the provision of appropriate training supplies and tools helped in an effective way to increase the extent of the difficulty and complexity of the exercises within the training unit and try to make them as similar as possible to the situations and conditions in which the female players are present during the match. The researchers believe that the variables in the selected training loads were largely compatible with the skill variables and had a positive impact on improving the level of skill performance. This is what Nagham Hatem and Schmidt pointed out, stating that the distribution of time for training practice is one of the important and basic factors that help raise the level of performance using high-intensity intermittent training that the learner performs continuously and consistently with a short period of rest to perform the required skill. This means that the player performs the training in A specific time and increasing the number of training attempts (Nagham Hatem: 215.16)

Conclusions and recommendations:

- 1-The interval exercises (HIIT) prepared by the researchers had an effective effect in developing the special endurance of female handball players.
- 2-The interval exercises (HIIT) prepared by the researchers had an effective impact in developing the offensive skills of female handball players.
- 3-The researchers recommend using the high-intensity interval training (HIIT) method to develop the physical and skill capabilities of female handball players.
- 1-The researchers recommend that the exercises prepared in this study be adopted by handball coaches, due to their positive impact on developing the physical abilities and offensive skills of handball players.
- 2- The researchers recommend the need to diversify the use of auxiliary training tools and methods by coaches in the training process because of their positive impact on developing and developing the players 'physical and skill abilities.
- 3- The researcher recommends using high-intensity interval training for different age groups and sports.

Using interval training on female athletes and in other sports.

attached(13)

Exercises used in research

Speed endurance exercises

Exercise number	Description of the exercise	Illustration
A1	<p style="text-align: center;">Shuttle running around (4) signs            (5pm - 10pm - 15pm - 20pm) Where he goes to the first marker and returns to the starting line, then he goes to the second marker and also returns to the starting line, and so on. Thus, the player has covered a distance of 100 metres.</p>	<p style="text-align: center;">20pm  15pm  10pm  5pm</p>
2A	<p>The player stands and the teammate ties him with a rubber rope from the waist area. When the whistle is heard, the player runs to the middle of the basketball court and returns to the starting point.</p>	
3A	<p>(Standing, dhamma) Jumping sideways with both feet inside circles on the ground, taking into account speed in performance.</p>	<p style="text-align: center;">2  1</p>



4A	The player jumps up and forward over (6) blocks, with a height of (40cm), where the distance between one block and another is (2m), pulling the knees up and taking into account speed in performance.	2 1 2m 40cm
5A	Running in place and upon hearing the signal, the player runs to the end of the field and then returns to the starting point.	
A 6	The player stands with one of his feet on a platform, and when he hears the whistle, the player jumps alternately with his right and left feet.	
7A	Exercise hopscotch on one leg to the middle of the court, then hopscotch on the other leg to the end of the court.	
8A	Run three laps around the field at full speed.	2

9A	The athlete jumps sideways from a 30cm height to the other side, then jumps to the other side, and so on, while pulling the knees up.	30cm
10A	Use a rope to perform various jumps continuously.	

Strength exercises for the legs

Exercise number	Description of the exercise	Illustration
1B	The player stands facing the box at a height of (40 cm). When he hears the signal, the player jumps high with both feet over the terrace before landing, taking into account speed in performance.	40cm
3B	The same exercise as the previous one, but the player holds a medicine ball and a pole (3 kg).	40cm
4B	Steps exercise: The player jumps with both feet from one step to the other, up to (10) steps, emphasizing pulling the knees toward the chest and opening the legs shoulder-width apart. Jumping from one step to another is according to the whistle.	

B5	The same exercise as the previous one, but the player holds a weight ball (2 kg).	
6B	(Full body weight dip) exercise, where an athlete bends and extends the knees for 60 seconds, taking care that the thigh muscles touch the leg muscles.	2  1
7B	The same exercise as the previous one, but the player holds a medicine ball weighing 3 kg.	2  1  3kg
8B	Partridge moves one leg to the middle of the court and then returns on the other leg to the starting position .	Starting line   Midfield   Finish line

9B	The same exercise as the previous one, but the player holds a medicine ball weighing (3 kg).	
10B	The player jumps sideways with his feet together over (6) medicine balls back and forth. The last ball, the player receives the handball from a teammate and performs the scoring.	2  1

Strength exercises for the arms

Exercise number	Description of the exercise	Illustration
1C	From the forward lean position, the athlete bends and extends the arms for 60 seconds.	1  2
2C	The player stands and holds the ball with his arms, then throws the medicine ball weighing 2 kg over the head after swinging the ball with maximum force to the teammate. The teammate does the same and returns it to the player.	2kg  4meters  2kg



C 3	The same exercise as before, but the weight of the ball is (3 kg).	4meters 3kg 3kg
4C	The player rests his hands on the ground and the tips of his toes are on the platform. When the whistle is heard, the player bends and extends his arms.	1 2
5C	The player leans back on the bench, and when he hears the whistle, the player quickly bends and extends the arms, emphasizing the full bending and extending.	2 1
6C	(Standing open) Throw a medicine ball weighing 1 kg upward with maximum force with both arms and pick it up.	1 2 2kg

7C	The same exercise as before, but with weight Ball (3 kg).	3kg  1  2
8C	From a lying position on the bench tilted upward, an athlete, while holding a dumbbell weighing 20 kg, bends and extends the arms.	1  2
C9	Forward support exercise (Shnow) with a medicine ball weighing (2 kg), where the player leans on the ball in one arm, and when he bends and extends, he pushes the ball to the other arm for a period of (60 seconds).	2kg  2kg  2  1
10C	From a standing position, the player pushes a medicine ball weighing 3 kg.	3kg  6pm



		4m
--	--	----

Strength exercises for the abdominal muscles

Exercise number	Description of the exercise	Illustration
1D	Exercise (leg raises): The player lies on his back, then raises the legs together, then lowers them for 45 seconds.	
2D	From a lying position on the ground and with the legs stabilized by a partner, the player bends and extends the torso up and down for 30 seconds, taking into account the speed.	
3D	The same exercise as before, but the player bends once to the right side and once to the left.	
4D	Plank exercise: The player leans on the forearms in a position similar to a forward lean and remains in this position for 60 seconds.	



5D	Side plank exercise: From the side lying position, the athlete rests on one arm and the arm is bent at a 90 degree angle for 60 seconds.	
6D	From a lying position on the back, the athlete raises the legs diagonally and holds this position for 50 seconds.	
7D	Alternating legs exercise from the lying position, where the player raises one leg alternately with the other leg for 50 seconds.	
8D	From a sitting position on the chair, the player bends and extends the legs for 40 seconds.	
9D	Exercise (sides with dumbbells) from a standing position. The athlete holds a dumbbell (15 kg) in his right hand. Then the athlete lowers and raises the dumbbells for 30 seconds, and does the same with the left hand.	
10D	Exercise (sides with the medicine ball): From a sitting position on the floor, the player rotates the ball from right to left and vice versa for 30 seconds.	



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## Special exercises using tools and their effect on teaching the skill of a front shoulder circle on the rings apparatus in artistic gymnastics for students

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2294](https://doi.org/10.37359/JOPE.V37(1)2025.2294)

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Article history: Received 11/ September/2024 Accepted 16/ October /2024 Available online 28/ March /2025

### Abstract

Sports skills in some individual games require physical and motor qualities to facilitate the process of skill performance and also require the instructor or trainer to use more than one strategy, method and way to bring the performance to the level of mastery and avoid injury. **The aim** of the research is to know the effect of using special exercises using tools and their effect on teaching the skill of a front shoulder circle. **The research hypothesis** is that using special exercises with tools has a positive effect on teaching the skill of a front shoulder circle on the rings apparatus. Research method: **The researchers used the experimental** method by designing two equal groups, the control and the experimental, to suit the research procedures. Research community: **The research community** was determined by (341) students distributed over (10) sections of the third stage of the College of Physical Education and Sports Sciences / University of Baghdad. As for the research sample, they are the third stage, Section (L), and their number is (30) students. The injured and failed ones were excluded and the sample settled on (20 students). The research sample formed a percentage of (5.86%). As for the exploratory experiment sample, the researchers used (5) students from the same department from outside the experimental sample. **The researcher concluded** that the exercises using the tools had a clear impact on learning the anterior shoulder circle skill - and that the design of the exercises was consistent with its fluidity and did not hinder the scope of learning the skill, in addition to adding a kind of comfort and safety when performing and not getting injured. **The researchers recommended** conducting other studies using special exercises in artistic gymnastics on other devices.

**Keywords:** Special exercises, ring device, artistic gymnastics.

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## Introduction

Sports skills in some individual games require physical and motor qualities to facilitate the process of skill performance. They also require the teacher or coach to use more than one strategy, style and method in order to bring the performance to the level of mastery and avoid injury, as some skills may cause severe injury due to their dependence on a specific part of the body, especially if this skill is taught at a certain age and training level or to students in colleges of physical education and sports sciences. Because of age and school stage, the student needs high physical strength as well as abilities. Movement to reduce the intensity of skill performance in sports, especially those that depend on the upper extremities of the body.

The artistic gymnastics game for men is one of the individual games with high physical and motor requirements due to the variety of gymnastics equipment and the number of motor skills required throughout the annual teaching stage. The throat apparatus is one of the difficult devices for the student because it depends on the grip strength of the throat handle and the strength of the shoulders. The front shoulder rotation skill is the most difficult skill for the throat apparatus. It is taught in the third stage after giving the basic skills in the second stage. This means that the student knows the difficulty of this apparatus and its requirements. Special exercises are considered one of the most important requirements for learning to perform the skills. Difficult movement, and auxiliary tools and devices are considered one of the foundations of the success of the educational process, and here it lies the importance of research Preparing special exercises using tools to learn the skill of a forward shoulder rotation on the throat device .As for the search problem It is manifested by reaching the level of performance through exercises with the tools used, which correct the work of the correct paths of the body and overcoming errors associated with performance, such as bending the arms and not reaching the body to the correct level before performing the forward shoulder rotation, to avoid injury and falling from the device. Much scientific research has addressed the importance of using exercises, devices, and assistive tools, and researchers agree with many studies, including one (Yassin & Akbar, 2024) .(The researchers concluded that the special exercises had an impact on learning and improving the performance of the skill of landing with a rounded back flip to stand on the horizontal bar. The use of special tools also had a not insignificant role in learning and improving the performance of the skill of landing with a rounded back air flip to stand .As for the study (Muhsen, 2024) The researchers concluded that the use of the two-way auxiliary balance device had a clear effect on some motor abilities and improved the performance of the handstand skill in men's artistic gymnastics, and that the two-way balance device was well designed and studied (Al-Saedeey & Salman, 2024) .(The most important conclusions were that the assistive device added to the sample a second and enjoyable training method that had a clear impact on learning the skill of standing on the hands by rotating half a turn outwards. Through the educational units and repetitions for players on the device, it becomes clear that it has a good design and can withstand their weights and repetitions. As for the study) Jehad et al., 2023 (The researchers concluded that special exercises that resemble the performance of the skill have a significant impact on developing Endo and Stalder skills in the pull-down apparatus for men. As for the

study (Shihaib et al., 2022) The researchers concluded that the educational method had a positive impact on learning the skill, and that the educational method was very good and supported the performance of all players.

**Research objective** It is knowledge of the effect of use Special exercises using tools and their effect on teaching the skill of forward shoulder rotation on the ring device in artistic gymnastics for students

**Force the search** The use of special exercises for tools has a positive effect in teaching students the skill of forward shoulder rotation on the ring machine in artistic gymnastics.

### Method and tools

### Research Methodology

The researchers used the experimental method by designing two equal groups, control and experimental, to suit the research procedures .**As for the research community - :**The research population was determined by (341) students distributed among (10) divisions for the second stage of the College of Physical Education and Sports Sciences / University of Baghdad. As for the research sample, the third stage was division (L) (30) students. The injured and those who failed were excluded from them, and the sample settled on (20 students), and the research sample constituted a percentage of (5.86%). As for the exploratory experiment sample, the researchers used (5) students from the same branch from outside the experimentation sample, and the following table shows the percentages of the full sample.

Table(1) It shows the sample size and percentages

Percentage	umber	the society	T
100%	341	earch community	1
5.8%	20	earch sample	2
0.014%	5	loratory sample	3

Table (2) The experimental design of the research group is shown in the table

Posttest	Pilot program	Pretest	Group
Shoulder cycle skill test	Teaching programme	Shoulder cycle skill test	Male officer
Shoulder cycle skill test	Tool exercises	Shoulder cycle skill test	Empiricism

The researchers used research methods (Arabic sources and references, observation and analysis, tests and measurement, the Internet), and the researchers also used tools and devices, including a stopwatch, a photographic camera, a legal throat device, a mini-trampoline device, jumps, inclined mats with a height of (30 cm) and a length of (1.5) metres, a mat with a height of (1) meter and a length of (1.5) metres, a training dumbbell device with variable heights.

### Exercises

After specifying the tools on which the exercises would be performed, the researchers designed the exercises in a way that had never been used before in learning this skill, and since the teachers were specialists in gymnastics (physique, learning, and training), the exercises were developed in a way that matched the abilities and level of the students without injury, since the skill, any error in its path and performance, would cause injury to the shoulder joint, and thus deprive the student of many practical subject lessons in college.

T	Explanation of the exercise	Performance form
1	Explaining the entire skill to students, indicating the keys to its success as well as the obstacles to performance. Explain the use of each tool and its function in helping good performance	
2	Use of a legal variable altitude assistive throat device. The student stands holding the two rings, using the hooks for stability, and extends the arms to the side so that the arms are extended to the sides in a straight line with the shoulder, and he jumps and does the full front roll.	

3	<p>same as the first exercise, but the height of the throat is higher than the first exercise, in addition to the student standing on a piece of sponge, 20 cm high, in addition to the use of the sponge roller, then the student performs the same first exercise and lands by placing the Z on the sponge roller.</p>	
4	<p>the same legal ring device with variable heights, he places the trampoline device and places the foam roller in front of it. The student holds the rings with the arms extended to the side and begins jumping to a level where the arms are equal to the shoulders and head. At the end of the jump, the student twists the arms inward.</p>	
5	<p>The same fourth exercise: At the end of the jump, the student performs a forward shoulder rotation and descends in the angled position on the foam roller</p>	
6	<p>same exercise as before differs only in that the student holds the boat in a standing position with the arms up, then from stability jumps up and does a forward shoulder rotation and lands on the foam roller.</p>	
7	<p>using a slanted sponge rug, where two of them are placed one on top of the other, forming a rug 30 cm high. The student stands on it in the middle, holding the throat in a hanging position, and begins jumping up, doing a forward shoulder rotation, and descending onto the rug.</p>	
8	<p>forming the skill is likely on a legal device with full assistance</p>	

Figure(1) Demonstrates exercises with tools

### Field research procedures:

The researchers conducted a reconnaissance experiment with the help of the assistant work team to find out the effectiveness of the exercises with the tools used on each side and the exercises designed by them. Are they compatible with the lengths and weights of the sample and whether the springs stabilize the student at the heights of the device in relation to the variable throat heights, in addition to the effectiveness of the exercises with inclined mats? The exploratory experiment was carried out in the gymnastics hall in the College of Physical Education and Sports Sciences, University of Baghdad, on a sample consisting of (5) students outside the experimental sample in the division, and each exercise was applied to one student.

### Pre-test of the skill of forward shoulder rotation on the throat machine

#### 1-4-2Skills test

-1**The purpose of the test** Measuring the ability to perform and knowing the final score that the player obtains for performing the skill of the forward shoulder rotation on the throat machine

**Testing tools** :Legal throat device, sponge mat with a height of (20) cm,

Evaluation of the test: The test is evaluated according to the technical performance according to what the arbitrators agreed upon by calculating the player's errors, as the highest score obtained by the player on the device is (10) degrees.

Test procedures: After helping the student to hang on the ring device, he then takes the starting position of the movement from the swing and performs three swings. With the third swing, he snatches the legs forcefully back so that the body position is horizontal with the ground and emphasizes the straightness of the arms to the side. Then he bends the hip joint and keeps the legs straight. The movement begins from the shoulder joint, bringing the chin to the chest and doing a forward roll. The final position of the skill is an inverted hang.

**To register** :The evaluation is carried out by four teaching referees specializing in gymnastics, and according to their internal evaluation. The average of the two scores is taken and divided by (2) for the purpose of extracting the player's final score, and the performance evaluation is made up of (10) scores, according to agreement, and as shown in the following figure.

**Figure(2)**

**Demonstrates the technician's performance of the skill of forward shoulder rotation on the throat device**

**Pretest** The researchers conducted the pre-test for the control and experimental samples to establish equivalence in skill performance, as shown in the following table.

Table(3)

It shows the arithmetic mean, the standard deviation, the calculated (t) value, the level of error and significance, the differences in the arithmetic means, and the deviation of the differences in the pre-test of a skill for the control and experimental research sample.

Type of significance	Error level	t value calculated	Experimental group		Control group		Unit of measurement	Landmarks
			±	Q	t			Statistics
Not a sign	1.	06.	63.	720	6.	70	degree	Shoulder standing skill

\*Significant at the confidence level (0.05) if the error rate  $\leq$  (0.05). Degree of freedom  $n-2 = 18$

**Educational curriculum**

For researchers, Az They relied on the vocabulary prescribed and set by the college and according to the vocabulary of the throat device for the third stage. It did not change the set vocabulary, and used the exercises for the tools in the curriculum set for the sample. The experiment lasted for (10) weeks and included (10) educational units of (1) one, as decided for the third stage, which is (2) hours per week. The time of the total unit was (90) minutes divided into two devices. For one educational unit, it is divided into two devices for each one (flying, jumping) and (flying, jumping), and the educational curriculum is applied in a period of time of(30)

Accurate for the parallel device. The researchers also relied on the principle of (repetition and rest), and they were keen that the educational curriculum that was developed by them and in consultation with the supervisor of the auxiliary device was in accordance with scientific foundations and principles.

After completing the application of the educational curriculum vocabulary using exercises with assistive tools, the skill of forward shoulder rotation on the throat device, the post-test was conducted in the same manner in which the procedures were conducted and as in the pre-test, as the researchers created the atmosphere and conditions in which the same pre-tests were conducted. After that, the skill was photographed, then it was transferred to a calculator and then to a laser disc, and then it was presented to the specialized teachers and the evaluation score was approved with a range of (10) degrees for the skill .The teaching referees adopted the international law of artistic gymnastics by excluding the highest score and the lowest score and adopting the arithmetic mean of the two middle scores from their scores. Divide it by two to extract the player's final score.

**Statistical methods**

The researchers used the statistical program SPSS, and the use included the arithmetic mean, standard deviation, percentage, and t-test value for correlated and different samples.

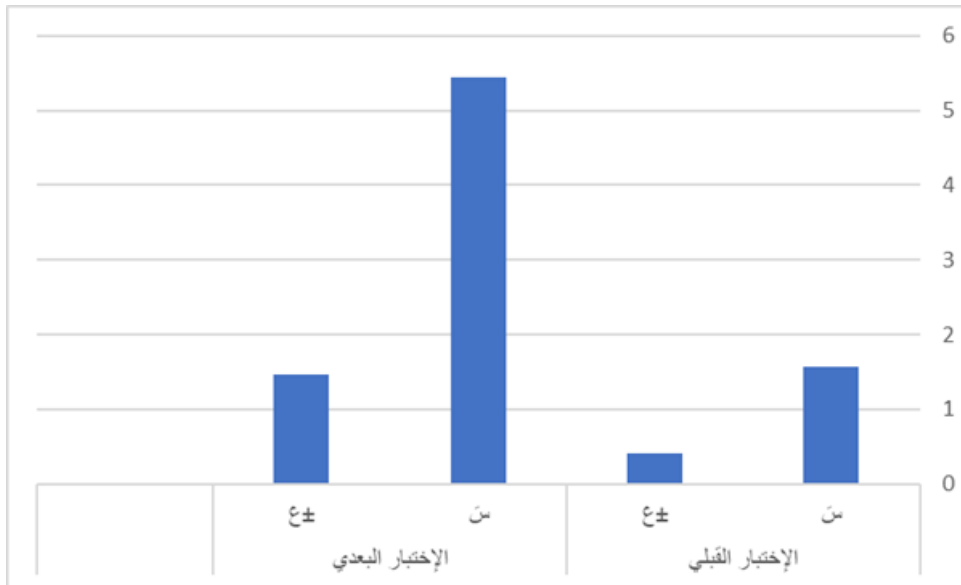
**Results**

Table(5)

Search variables	N	Unit of measurement	Pre-test		Posttest		t	p value	Significance level	Conclusion
			Q	ε	Q	ε				
Forward shoulder rotation skill	9	degree	570	56	450	1	0.7	0.07	0.00	Dal

It shows the arithmetic mean, the standard deviation, the calculated (t) value, the level of error and significance, the differences in the arithmetic means, and the deviation of the differences in the pre- and post-tests of a skill for the control research sample.

\*Significant at the confidence level (0.05) if the error rate.(0.05) ≥



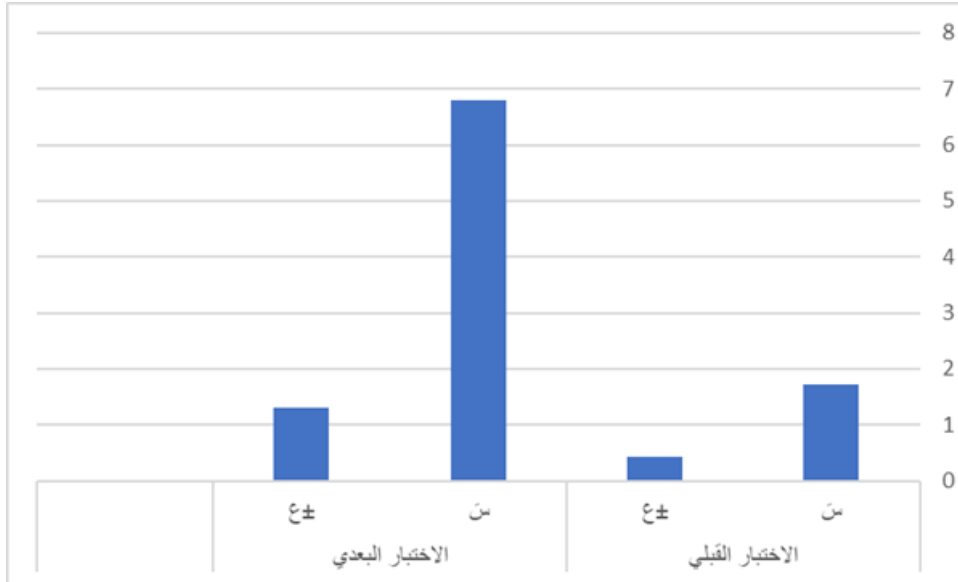
Figure(3) The histogram shows the means and standard deviations for the pre- and post-test for the control group

Table(6)

It shows the arithmetic mean, the standard deviation, the calculated (t) value, the level of error and significance, the differences in the arithmetic means, and the deviation of the differences in the pre- and post-tests of skill for the experimental group.

Research variables	N	Measurement	Pre-test		F	A F	value	level	notation		
			Mean	SD							
Shoulder rotation skill	9	the	1.720	.4263	6.800	1.316	4.880	1.344	11.47	.000	Dal

\*Significant at the confidence level (0.05) if the error rate  $(0.05) \geq$



Figure(4) The histogram shows the means and standard deviations for the pre- and post-test of the experimental group

Table(7) It shows the arithmetic mean, the standard deviation, the calculated (t) value, the level of error and significance, the differences in the arithmetic means, and the deviation of the differences in the two post-tests of skill for the control and experimental research sample.

Research variables	N	Unit of measurement	Control group		Experimental group		T value calculated	error level	Type of significance
			Mean	±	Mean	±			
Shoulder rotation skill	18	degree	5.450	1.461	6.800	1.316	2.170	044.	Dal

\*Significant at the confidence level (0.05) if the error rate.(0.05)  $\geq$

## Discussion

Based on the results shown in Table (5) and Figure (3) for the control group Mathematical circles showed that there is a significant difference between the two tests and in the style and method of teaching the curriculum developed by the teacher in teaching the skill of the front shoulder rotation. (p36 Nasser et al., 2024) confirms that through the teacher's experience in using the appropriate strategy in his own way and method in communicating the method of learning the skill at the time specified for it within his educational vocabulary“ ,as the technical and academic expertise of the teacher is one of the reasons for delivering the practical material in a manner that suits the students in colleges of physical education”. (Moayd et al., 2019) The goal of achieving good performance in the shortest period of time in all team and individual sports is the goal of the coach and player. This performance requires physical abilities to facilitate the learning process and keep up with the graph to perform the skill to be learned according to paths in its three parts: primary, basic and final. (p135 Al-Rida, 2021) As for looking at Table (6) and Figure (4) for the experimental group between the pre- and post-tests, it is noted that there is a significant difference between the arithmetic means in favor of the post-test, and (p73 Hussein et al., 2024) indicates that the process of relying on the use of auxiliary tools in the field of training works to reduce the time and effort expended to deliver the sequence of skill vocabulary to the learner in an easy and simple manner, which is one of the important things that he seeks. Those involved in sports, as well as the spirit of competition, suspense and excitement during sports performance. Researchers attribute this to the exercises for using tools that have proven effective in teaching a skill .A front shoulder course on the throat apparatus, (Kadhim, 2024b) by dividing the order of performing the skill into its three parts and using the tools, each according to the form of performance for it. As for the post-tests for the control and the experimental, and by looking at Table (7) and Figure (5), the difference appears clear from the middle for the post-test and in favor of the experimental, since the exercises using the tools according to a special approach other than the method of teaching the skill, as the special exercises are considered like a fingerprint for a particular skill, even though some of the skills are similar to the initial and final parts, the main part needs a method. It combines the three educational parts of the skill to be learned to students. (Al-Bayati, 2013, p. 351) indicates that most sports training scholars agree on the necessity of the training process for the skill to take place according to its motor path to achieve the desired goals, whatever the method or approach adopted in the training process. These reasons and variables affecting performance development have imposed on coaches to find effective specialized training methods and exercises, and if the need arises to find more than one specialized exercise that can be included within the curriculum to develop skill performance. As for what added to the experimental sample's learning level and surpassed that of the control sample, (Kadhim, 2024a) it was the diversity of tools used in a form and designed to correct them in line with the course of each of the three parts. She mentions (Shaima, 2022, p. 33) that the use of different educational means (tools) in the educational process makes the educational process more effective and

positive, as the learner becomes responsible and a positive participant to a large extent after he was a future person. In addition to activating the process of communicating information, the use of these means leads to speeding up the learning process. Learning (Kadhim & Mousa, 2024)

**Conclusions**

**The researchers concluded that** Exercises on using tools have clearly affected learning the skill of forward shoulder rotation

The design of the exercises was consistent with the flow and not obstructing the field of learning the skill, in addition to adding a kind of comfort and safety when performing and preventing injury.

**The researchers recommended** Conducting other studies using special exercises in artistic gymnastics on other equipment

**Appendix(1)** Build a daily educational unit for the experimental group Unit time: (90) minutes Objective: Learn to perform the technical skill of (front shoulder rotation). Number of group members :

Month	Unit	the time	the details	Duration
first month	the first week	throat	Explaining the entire skill to students, indicating the keys to its success as well as the obstacles to performance. Explain the use of each tool and its function in helping good performance	
		D		
	second week	throat 35D	Use of a legal variable altitude assistive throat device. The student stands holding the two rings, using the hooks for stability, and extends the arms to the side so that the arms are extended to the sides in a straight line with the shoulder, and he jumps and does the full front roll.	
the third week			Repeat the first week's exercise, after which the height of the mat will be higher than the first week's exercise, in addition to student standing on a piece of sponge with a height of 20 cm, in addition to using the sponge roller, when the student performs	

		Throat		<p>the same first exercise and lands by placing the angle on the sponge roller.</p>	
Fourth week				<p>the previous exercises are repeated and then on the same al loop device with variable heights. He places the mini-poline device and places the foam roller in front of it. The ent holds the rings with the arms extended to the side and gins jumping to a level where the arms are equal to the lders and head. At the end of the jump, the student twists the arms inward.</p>	
		Throat	5D		

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## The effect of special exercises using the (Blazepod) device to develop defense against shooting among advanced basketball players

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.1930](https://doi.org/10.37359/JOPE.V37(1)2025.1930)

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**Article history:** Received 11/ September/2024 Accepted 16/ October /2024 Available online 28/ March /2025

### Abstract

The purpose of this paper is to prepare special exercises for the kinetic response using the (Blazepod) device for advanced basketball players and to identify the effect of using the (Blazepod) device in developing defense against shooting among advanced basketball players. The researchers used the experimental method in the manner of two equal groups (experimental and control) with two pre and post-tests for its suitability and the nature of the problem to be solved. The sample was chosen by the intentional method, which consisted of (24) players from (Al-Adhamiya and Al-Tijara clubs) of advanced players, due to the availability of the sample and the ease of controlling it, and being one of the players participating in the Iraqi league for the first degree, since the sample is committed to daily training, as well as the availability of the hall and tools, and the sample was divided into two groups, one experimental, represented in the Al-Adhamiya Sports Club, the number of which is (12) players, and the other is a control group represented by Al-Tijara Sports Club, numbering (12) players. The experimental group applied the exercises of speed of kinetic response and defense movements prepared by the researcher on the device, and the control group applied the trainer's free exercises without a device. The two researchers conducted homogenization of the sample by extracting the torsion coefficient. One of the most important conclusions reached by the researchers is that the effect of the particular exercises prepared by the researcher using the (Blazepod) training device in developing the endurance of defensive performance significantly among the advanced basketball players (experimental group), and this is evident from the difference between the arithmetic mean between the pre and post-tests, and the effect of the exercises prepared by the coach in developing the endurance of the defensive performance was simple among the advanced basketball players (control group), and this is evident from the difference of the arithmetic mean between the pre and post-tests.

**Keywords:** Training, exercises, device, basketball

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## Introduction

Défense against shooting occupies a major role in the outcome of the basketball game, and this requires the use of exercises with auxiliary devices and tools during training that are as similar as possible to what happens during the match, so that the player is able to face the changes that occur during the match, and this is what the researchers will try to find on one of the training devices through special exercises on this device and see what it will do to increase the speed of the player's response to visual stimuli and develop his defense. From here lies the importance of research in developing the movement of the basketball defensive player using visual effects and his ability to stop shooting from In various regions, complex skills are an important factor in preparing players for the game of basketball, as through them the level of technical performance of players is raised, and through the researchers 'follow-up of many Premier League and first-class matches, they noticed that there is a problem represented by the weak speed of motor response among most of the league's players and the inability to face changes in the individual and collective offensive situation and thus reflected negatively on the individual and collective defensive performance of most clubs and then reflected negatively on their effectiveness and the results of their teams, and this generated in the researchers the perception that there is a need for study and research to prepare Special exercises using a modern assistive device that increases players 'effectiveness in performing defensive skills (defending against shooting)

Research objectives:

Preparing special exercises for motor response using a device) Blazepod)For advanced basketball players. Identify the effect of using a device) Blazepod (in developing defense against shooting in advanced basketball players.

Many previous studies have addressed topics similar to the research topic present These studies are :

Muhammad, 2021 (The researcher designed special exercises using a device) Xtra-Man(rate) in a manner similar to the methods of performing offensive skills and investing them to develop the motor response of advanced basketball players. The researcher concluded the effect of the exercises for using the) Xtra-Man (The rate prepared by the researcher in developing the motor response speed of basketball players for the applicants (the experimental group

Al-Taie p., 2015 :(The importance of the research lies in introducing devices and tools for the purpose of testing and measuring the variable motor response time. It was concluded that the modification made to the auditory stimulus device achieved the purpose of the modification, which is measuring motor response time.

(Mohamed A., 2008) The importance of the research lies in using an individual training method to develop the basic visual skills of the basketball player in Iraq for the purpose of achieving a broader purpose in sports training. Visual exercises have proven effective in developing basketball players' field of vision awareness.

## Method and tools:

The researchers used the experimental method in the style of two equal groups (experimental and control) with pre- and post-tests for its suitability and the nature of the problem to be solved. The sample was chosen intentionally, which is represented by (24) players from the Al-Adhamiya and Al-Tijara clubs, among the advanced players, due to the

availability of the sample and the ease of controlling it, and their being among the players participating in the Iraqi first-class league, as the sample is committed to daily training, in addition to the availability of the hall and tools, and the sample was divided into two groups. One was experimental, represented by the Adhamiya Sports Club, numbering (12) players, and the other was control, represented by the Al-Tijarah Sports Club, numbering (12) players. The experimental group applied motor response speed exercises and defense movements prepared by the researcher on the device, and the control group applied the trainer's free exercises without the device, and the two researchers homogenized the sample by extracting the contortion coefficient as shown in Table.(1)

Table(1)

It shows the variables, the unit of measurement, the arithmetic means, the median, the standard deviation, and the skewness coefficient for the homogeneity of the research sample

Variables	Unit of measurement	Arithmetic mean	Standard deviation	Torsion coefficient
the age	year	25.533	1.855	0.905
Training age	year	13.815	1.473	0.075

\*The sample is homogeneous if the value of the skewness coefficient does not exceed(1±)

In order to ensure increased randomness of distribution and differences, the two researchers extracted the parity of the sample in the research variable (under study), as shown in Table.(2)

Table(2)

It shows the arithmetic means, standard deviations, the value of (t), and the significance of the differences between the experimental and control groups in the pre-tests.

Tests	Unit of measurement	empiricism		Female officer		Calculated t value	Error level	Meaning of differences
		Q	A	Q	A			
Test defense against shooting	Second	15.752	2.272	15.991	2.306	4.719	0.197	random

\*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

### **Description of the tools and how they work:**

Device Utilities) Blazepod :(The device consists of) Six PodsIt contains light signals that the player tries to touch and extinguish the burning light from the pod and return to the starting point or move to the other pod according to the speed of the light's operation. Each pod gives the coach a time from when the light is ignited until the moment of extinguishing, and each one is separated from the other by distances determined by the researcher according to the playing positions, playing situations and defense options. These pods are placed on the ground, on cones, or attached to the poles according to the type of exercise and its purpose. They give

the player multiple options to face different playing conditions, and are ideal for improving the defensive player's movement and how to Assistance and coverage. They also help improve the physical aspect of speed, agility, and balance. The operation of these light signals is random without the player knowing which pod will light up first, which one will light up next, and when it will ignite. They make it difficult for the player where to go and when once the light in the pod is ignited. It gives the coach a time from when the light ignites until the moment of extinguishing, and there must be a sufficient distance between them, and then the distances are reduced so that the player's reaction is quicker in defense and coverage. The times we obtain give the coach an idea of where the light lies. Weaknesses of the players and which one is better and more responsive to attacking changes. The goal of this device is to develop the speed of motor response and reaction through some special exercises for the speed of the hands and legs without the ball. Then the exercises are made more difficult with the presence of the ball, and exercises are also put in place for tapping from one hand to another and turning off the light. Thus, these exercises and the operation of light signals and sensors will make the player live the atmosphere of the match by having attacking players in each exercise who must defend and cover his teammate, who in turn will perform this device and thus these exercises will facilitate the The player's work during the match makes him able to face changes in the match in terms of the attacker's position and what he does, and Figure (1) shows the shape of the device



Figure (1) device (Blazepod)

The researchers then identified some basic basketball skills Defense test against shooting (Hussein2012) ,

The researchers developed special exercises on a device) Blazepod (For the purpose of developing the movement of the defensive player in defensive basketball, the researcher took into account all scientific foundations and principles during this period, as follows:

- The training period lasted eight weeks.
- Total number of training units (24 training units).
- Number of weekly training units (3 training units).
- Weekly training days (Saturday - Monday - Wednesday).

-The duration of the special exercises training in one training unit is (35-60) minutes within the main section.

-The low- and high-intensity interval training method was used.

-The intensity used for exercises.(%100\_75)

-Intensity is set based on pulse.

-The undulatory load was 1:3 (three weeks increased intensity and one week decreased for adaptation purpose).

-The intensity of the defensive skill exercises in the training units was graded according to the players' ability, from easy to difficult.

-The exercises began on Saturday, 03/04/2023.

-The exercises were completed on Wednesday, 04/26/2023.

The researchers used the statistical bag) SPSS (which includes the appropriate statistical methods, which are (percentage, median, arithmetic mean, standard deviation, skewness coefficient, simple correlation coefficient (Pearson), T's law for independent samples, T's law for non-independent samples.

### Results and discussion

.1 Presenting and discussing the results of the defense against shooting test for the experimental group between the pre- and post-tests:

Table(3)

It shows the results of the arithmetic means and standard deviations for the experimental group between the pre- and post-tests in the defense against shooting test.

The test	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
Test defense against shooting	Second	15.752	2.272	13.923	0.894

Table(4)

It shows the difference of the arithmetic means, its standard deviation, the calculated (t) value, and the significance of the differences between the results of the pre- and post-tests in the defense against shooting test for the experimental group.

The test	Unit of measurement	F	A F	value (t) Calculated	Error level	Meaning of differences
Test defense against shooting	Second	1.829	0.465	7.967	0.000	spiritual

\*Degree of freedom.(11=1-12)

\*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

.2 Presenting and discussing the results of the defense against shooting test for the control group between the pre- and post-tests:

Table(5)

Results of the arithmetic means and standard deviations for the control group between the pre- and post-tests in the defense against shooting test.

The test	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
Test defense against shooting	Second	15.991	2.306	14.996	1.314

Table(6)

It shows the difference of the arithmetic means, its standard deviation, the calculated (t) value, and the significance of the differences between the results of the pre- and post-tests in the defense against shooting test for the control group.

The test	Unit of measurement	F	A F	value (t) Calculated	Error level	Meaning of differences
Test defense against shooting	Second	0.995	0.765	5.451	0.001	spiritual

\*Degree of freedom.(11=1-12)

\*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

.3Presenting and discussing the results of defense against shooting between the experimental and control groups in the post-test:

Table(7)

It shows the arithmetic mean, the standard deviation, the calculated (t) value, the percentage of error, and the significance of the differences between the experimental and control groups. The test of fear against correction in the post-test .

Offensive skills	Experimental group		Control group		value (t) Calculated	Error level	Meaning of differences
	Q	A	Q	A			
Test defense against shooting	13.923	0.894	14.996	1.314	8.103	0.00	spiritual

\*Degree of freedom.(22=2-24)

\*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

### Discussion:

It is clear from Tables (3 and 4) that there are significant differences between the pre- and post-tests, the defensive performance endurance test for the experimental group. The researcher attributes this to the effectiveness of the defensive exercises prepared by him, which were chosen in a way that anticipates the movements of the attacking playing situations of the competing teams, as well as the development of the speed of the motor response and the link between it and the movements of the defensive player and the different playing situations in terms of assistance, coverage, and stopping shooting from various areas in service of the team's required motor performance.

The speed of the defensive player's motor performance, which is represented by the speed of the motor response, is an important element in basketball as it is linked to the result

and time of performance, as it indicates the player's ability to perform a movement or a specific set of movements in the shortest possible time without compromising the skill, and this confirms the strong relationship and high correlation between the speed of the motor response and defense based on changing the positions of the player and the attacking team and the speed of the defender's response to this change to reach the best performance and result. In addition to that, the diversity of exercises and their progression from easy to difficult and the way to increase the intensity and volume. The appropriateness, as well as the appropriate rest given to the players, whether after each repetition or between sets, all of this brought about development in defensive skills and was reflected in the endurance of defensive performance, as the importance of developing the speed of motor response of the arms and legs of basketball players appears through the movement of the arms and legs to the defending player's movement, assistance, coverage and defense against shooting on an ongoing basis.(Issa et al., 2024)

Special exercises are the coach's means of applying and mastering defensive skill performance. This requires the coach to invent and form various formations of exercises that include the factor of suspense and excitement, in addition to the high physical aspect that serves the skill and performance so as not to get bored in the souls of the players. (Mahmood & Kadhim, 2023) This requires a progression of exercises from easy to difficult, and this requires "that the player be proficient in performing these skills with perfection and perfection so that he performs them properly under any circumstances of the match "(Hassan, 2000, p. 25), and that The choice of exercises must be based on the movement path of the skills, the diversification of the exercises, and their similarity to different playing situations. All of this gives the player the opportunity to face the changing playing situations that occur in competition, and this is what the researcher did through his exercises using a device) Blazepod ( training, which works to give different signals to the player to perform different and varied defensive movements depending on the type and location of the lighting to suit the nature of the variables of play and for a long period, as the goal of training in basic defensive skills is the diversity of their options and positions". The success of the player's skill performance depends on the degree of mastery of the motor skills, no matter how the circumstances change, (Kadhim & Mahmood, 2023) which leads to the player reaching a high degree of performance mechanism and effectiveness so that the inevitable result is the implementation of the desired goal".(Muhammad, 2002, p. 37), in addition to the quality of the exercises prepared by the researcher, worked to develop all the muscles working on skill performance through continuous repetition of the defensive skills in terms of movement of the legs, assisting, covering, and stopping shooting from different areas for long periods. It worked to improve performance endurance, and this requires continuous movement and alertness from the player, and thus improved speed of response, physical aspect, and coordination between sight and foot movements. High-intensity exercises inevitably lead to improved neuromuscular compatibility and the adequacy of working muscles. in developing their performance capabilities) "Al-Harhour, 2008, p. 101).

It is clear from Tables (5 and 6) that there are significant differences between the pre- and post-tests for the control group, even though the time that was shortened was much less than that of the experimental group. The researcher attributes the reason for this to not giving enough time for performance endurance exercises, both defensive and offensive. This negatively affected the movement of the defensive player because this skill is one of the skills in which the player reaches the stage of mastery and mechanism at the beginning of his training career as a result of the coaches' focus and their keenness for their players to master the



movement of the legs first and then the transition. To the complex defensive skills such as assisting, covering, and defending against shooting, as this requires a high physical effort during training by allocating a relatively large amount of time to training this skill in the training units, and this indicates the effectiveness of the training curriculum prepared by the coach in developing this skill, but with a lower rate of development than training on a device (Blazepod) training, which forces the player to complete the time allocated for the exercise, with more options and multi-tasking, as the experimental group's device exercises included various forms of performance, from easy to difficult, and included more options, individually and in combination, which reflected positively on the development of this defensive skill, which indicates that the overall training process was moving in the right direction“ ,as reaching exemplary performance with a small percentage of errors comes through effective and appropriate training, so that the player reaches quick and accurate performance, and this is one of the signs of skill mastery ”.Reaching the automatic stage in performance, in addition to previous experiences, increases the athlete's predictability and thus accelerates the possibility of his response. If training is done in advance to respond to a stimulus, his response will be rapid)”.Hassanin, 1997, p. 267)

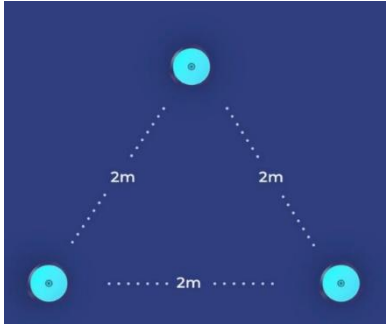
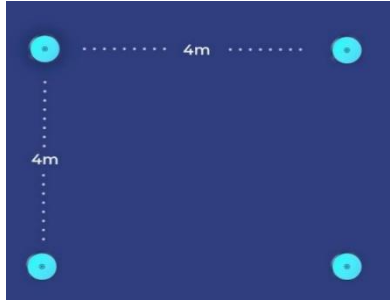
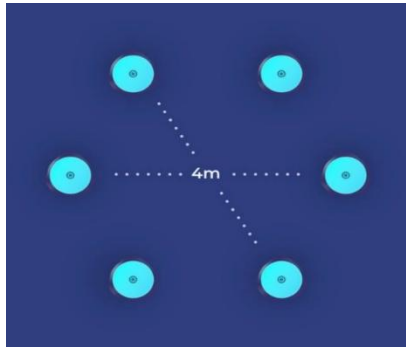
The researchers reached the following conclusions:

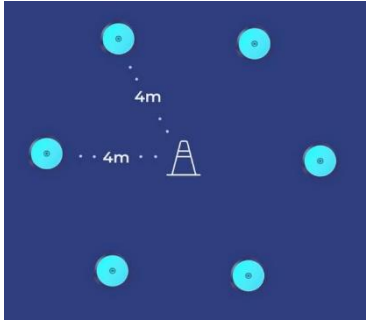
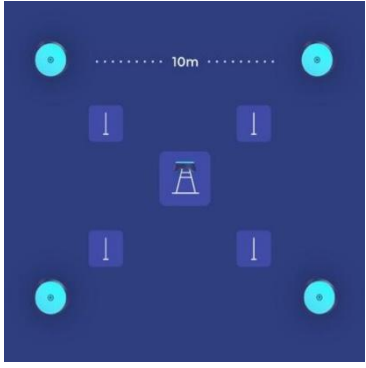
- 1- The special exercises prepared by the researcher using a device) BlazepodThe training program significantly developed the endurance of defensive performance among advanced basketball players (experimental group), and this is clear from the difference in the arithmetic means between the pre- and post-tests.
- 2- The effect of the exercises prepared by the coach in developing endurance in defensive performance was slight among advanced basketball players (the control group), and this is clear from the difference in the arithmetic means between the pre- and post-tests.
- 3- There is a clear advantage for special exercises prepared by the researcher using a device )Blazepod (Training on exercises prepared by the coach in developing the endurance of defensive performance among advanced basketball players, and this is clear from the difference in the arithmetic means between the post-tests.

## Appendices

### Appendix No(1) .

Exercise models used in research

<p>(1) One player does the exercise, and 3 pods are placed in a triangle The distance between the pods is (2 metres). The player performs the exercise by doing a side slide movement and turning off the light coming from the pod without knowing which pod will light up and according to the time allotted for the exercise.</p>	
<p>(2) Two players are exercising, and 4 pods are placed in the shape of a square (the first player's pod lights up blue and the second player's pod lights up red) The distance between the pods is (4m). The two players perform the exercise by running forward and backward continuously, as well as assisting and covering in defense, and turning off the light coming from the pod without knowing which pod will light up, according to the time allotted for the exercise.</p>	
<p>(3) 3players perform the exercise, and 6 pods are placed in a circular shape. (The first player's pod lights up in blue, the second player's pod lights up in red, and the third player's pod lights up in green.) The distance between the pods is (4m). The players perform the exercise by running forward to touch the pod and returning to the center to touch the chair continuously, as in assisting and covering in defense, and extinguishing the light coming from the pod without knowing which pod will light up, and according to the time allotted for the exercise.allocated for the exercise.</p>	

<p>(4)</p> <p>3 players are exercising, and 6 pods are placed in a circular shape with a funnel in the middle. (The first player's pod lights up in blue, the second player's pod lights up in red, and the third player's pod lights up in green)</p> <p>The distance between the pods is (4m). The players perform the exercise by running forward to touch the pod and returning to touch the funnel continuously, as in assisting and covering in defense, and extinguishing the light coming from the pod without knowing which pod will light up, according to the time allotted for the exercise.</p>	
<p>(5)</p> <p>4 players perform the exercise. 4 pods are placed in the shape of a square, a chair in the middle, and 4 poles at each pod. (The first player's pod lights up in blue, the second player's pod lights up in red, the third player's pod lights up in green, and the fourth player's pod lights up in pink). The distance between the pods is (10 m). The players perform the exercise by running forward and getting rid of the pole to touch the pod and returning to touch the chair continuously, as in helping and covering in defense and turning off the light coming from the pod without knowing which pod will It shines.</p>	

**Appendix No(2)** .Shows a sample of exercises used in the training units  
 Week and month: first and second\_first. Training unit number.(6,5,4,3,2,1) :  
 Exercise time: 35 minutes.  
 Location: The closed hall of the Adhamiya Sports Club

Section	Allotted time	Exercise number	Exercise time	Totals	Distress	Comfort between groups	Rest between exercises	Total performance time
Main	35d	1	30s	3	%75	2_1d	3_2d	7d
		2	30s	3				7d
		3	30s	3				7d
		4	30s	3				7d
		5	30s	3				7d



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## Impact of Blood Flow Restriction Resistance Training on Mobility, Balance, and Stability in Middle-Aged Adults

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2235](https://doi.org/10.37359/JOPE.V37(1)2025.2235)

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**Article history:** Received 7/ December/2024 Accepted 23/ December/2024 Available online 28/ March /2025

### Abstract

This study investigates the effectiveness of Blood Flow Restriction (BFR) resistance training in enhancing mobility, balance, and stability in middle-aged adults, key factors for maintaining independence and reducing fall risk. A total of 48 participants (mean age  $55.72 \pm 1.85$  years; mean height  $1.74 \pm 0.06$  m; mean weight  $73.47 \pm 8.18$  kg) were randomly assigned to either a BFR training group or a control group. The BFR group completed a 12-week low-intensity resistance training program, while the control group followed a traditional exercise routine. Functional Movement Screen (FMS) tests assessed mobility, balance, and stability before and after the intervention. Results revealed significant improvements in the BFR group for balance (mean increase:  $+1.33$ ,  $p < 0.001$ ), stability ( $+1.08$ ,  $p < 0.001$ ), and lower body mobility, particularly in the Active Straight Leg Raise (ASLR) test ( $+0.38$ ,  $p < 0.05$ ). Minimal changes were observed in the control group. These improvements align with enhanced neuromuscular activation, proprioception, and core strength induced by the hypoxic environment of BFR training. The findings highlight BFR training as a practical, low-intensity intervention for addressing age-related functional declines. It offers an accessible alternative for individuals unable to perform high-intensity resistance training, with potential applications in fall prevention, rehabilitation, and functional health optimization. Future research should examine its long-term effects and broader applicability across diverse populations.

**Keywords:** Functional Movement, Neuromuscular Adaptation, Fall Prevention, Proprioception.

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## Introduction

The gradual decline in physical function, including mobility, balance, and stability, begins to manifest during middle age and can significantly compromise independence and quality of life. This decline stems from physiological changes such as reduced muscle mass, flexibility, and proprioceptive abilities, as well as diminished neuromuscular coordination (Moreno et al., 2019). These functional components are foundational to daily activities and play a critical role in reducing the risk of falls, which are a leading cause of injury and disability among middle-aged and older adults (National Institute on Aging, n.d.; World Health Organization, 2021; Srivastava & Muhammad, 2022). Despite their importance, interventions specifically targeting these functional domains remain limited, particularly in addressing age-related physical decline.

Resistance training is widely regarded as an effective strategy to maintain and improve physical function in middle-aged individuals. Studies have demonstrated that resistance training enhances muscle strength, bone density, and joint health, thereby mitigating the effects of sarcopenia and osteoporosis (Alajlouni et al., 2023; Massini et al., 2022; Cheng et al., 2024). However, traditional resistance training often necessitates high-intensity exercise to achieve these benefits, which may be unsuitable for middle-aged individuals with joint discomfort, chronic conditions, or limited access to facilities. These limitations underscore the need for alternative approaches that provide comparable outcomes with reduced physical strain.

Blood Flow Restriction (BFR) training has emerged as a promising alternative. This innovative technique involves applying external pressure to restrict venous blood flow while maintaining arterial inflow, creating a hypoxic environment in the working muscles. This condition enhances metabolic stress and muscle activation, allowing significant physiological adaptations even at low-intensity loads (Cognetti et al., 2022; Saraf et al., 2022). Research has shown that BFR training effectively promotes muscle hypertrophy and strength gains comparable to high-intensity resistance training, with the added advantage of minimizing joint stress and physical strain (Chang et al., 2024; Mirzayev & Levitt, 2024; Geng et al., 2024).

Although the effects of BFR training on muscle hypertrophy and strength are well-documented, its impact on functional parameters such as mobility, balance, and stability has been minimally explored. Mobility, defined as the ability to move freely and efficiently, is a key determinant of physical independence and quality of life (Sunde et al., 2021; Elliott & Green, 2024). Similarly, balance and stability are essential for maintaining postural control and preventing falls. Current literature has inadequately addressed whether BFR training can effectively improve these parameters in middle-aged adults.

Existing studies have primarily focused on younger populations or clinical groups, such as individuals recovering from surgery or managing chronic conditions (Ma et al., 2024; Schmidt et al., 2022; VanWye et al., 2017). For example, Lim and Goh (2022) demonstrated that low-load BFR training improved lower limb strength and functional performance in older adults, while Han et al. (2024) emphasized its potential to reduce fall risk in rehabilitation contexts. However, limited research has explored the application of BFR training for middle-aged adults, a demographic that is pivotal for preventive health interventions aiming to delay or reverse physical decline.

The significance of investigating BFR training in this population lies in its ability to provide a low-intensity yet effective intervention for enhancing functional health. As Adams et al. (2023) note, early interventions during midlife have long-term implications for sustaining physical independence and reducing age-related decline. Understanding how BFR training affects mobility, balance, and stability could lead to the development of accessible, evidence-based exercise programs that promote healthy aging.

This study addresses this gap by evaluating the effects of BFR resistance training on mobility, balance, and stability in middle-aged adults. The objective is to determine whether BFR can serve as a practical intervention for enhancing these parameters, thereby offering new insights into strategies for midlife physical health. By contributing to the expanding field of innovative exercise techniques, this research aims to support healthy aging and long-term functional independence.

### Key Definitions

**Blood Flow Restriction (BFR) Training:** A training method involving the application of external pressure to restrict venous blood flow while maintaining arterial inflow, creating a hypoxic environment to enhance muscle activation and strength gains at low-intensity loads (Saraf et al., 2022).

**Mobility:** The ability to move freely and efficiently, encompassing joint flexibility and movement coordination (C.O. Spine and Joint, 2024).

**Balance:** The ability to maintain postural control and equilibrium during both static and dynamic activities (AbuEid et al., 2024).

**Stability:** The ability to counter disturbances in body positioning during movement (C.O. Spine and Joint, 2024; AbuEid et al., 2024).

## Materials and Methods

### Study design

This study employs a cross-sectional design aimed at evaluating the effects of Blood Flow Restriction (BFR) resistance training on essential physical functions, including mobility, balance, and stability.

### Participants

The sample size of participants was determined using Cochran's formula, taking into account a confidence level of 95%, a power of 80%, and an alpha of 0.05. From the total population of 54 middle-aged males who responded to the advertisements and invitations to participate in the study, a sample of 48 subjects was selected based on the calculated sample size. These participants were then randomly divided into two groups, BFR group 24 participants and control group 24 participants. The characteristics of the participants are presented in Table 1.

Table 1. Characteristics of the participants

Variable	BFR (N=24)	CON (N =24)	Whole Group (N=48)	Skewness
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Age (year)	55.86 $\pm$ 2.1	55.58 $\pm$ 1.6	55.72 $\pm$ 1.85	1.40
Height (m)	1.75 $\pm$ 0.07	1.73 $\pm$ 0.04	1.74 $\pm$ 0.055	0.46
Mass (kg)	72.45 $\pm$ 8.87	74.50 $\pm$ 7.48	73.47 $\pm$ 8.18	0.94
Body-mass index (kg/m <sup>2</sup> )	23.65 $\pm$ 2.98	24.87 $\pm$ 2.24	24.26 $\pm$ 2.61	0.98

### Eligibility Criteria

Participants consisted of middle-aged males aged 53–59 years, recruited from the Seasons Fitness Center in Amman, Jordan. The inclusion criteria were as follows:

1. Physically active individuals without a history of musculoskeletal disorders in the lower or upper limbs.
2. No history of neurological, psychological, or cardiovascular conditions.
3. Non-smokers and abstainers from alcohol consumption.
4. No uncorrected impairments in motor, auditory, or visual functions.
5. An ankle-brachial index (ABI) within the normal range of 0.9 to 1.4, indicating no risk of peripheral artery disease.

### Ethical Consideration

Prior to enrollment, participants were provided with detailed information regarding the study's objectives, potential benefits, and associated risks. Written

informed consent was obtained from all individuals to confirm their voluntary participation. The research adhered to ethical guidelines as outlined by the International Journal of Exercise Science (Navalta et al., 2019) and followed the principles of the Helsinki Declaration to ensure the protection of participants' rights, safety, and well-being throughout the study (World Medical Association, 2013).

## **Experimental Design and Procedures**

### **Baseline Assessments**

Prior to randomization into two groups, participants underwent baseline assessments to assess their initial physical and functional status. These assessments included:

1. **Physical Function Tests:** Assessments were performed using the Functional Movement Screen (FMS) to assess mobility, balance, and stability.
2. **Strength Assessment:** Assessments were performed using a one-repetition maximum (1-RM) test of key exercises to determine baseline strength levels.

### **Randomization**

Participants were randomized into two groups in a 1:1 ratio:

- BFR Resistance Training group (BFR group).
- Control group (CON group).

Randomization was performed using randomly permuted blocks, stratified by age and strength levels. The allocation sequence was generated using an online randomization tool (<http://www.randomizer.org>) by an independent researcher who was not involved in the study.

### **Blinding**

Given the nature of the intervention, double-blinding was not possible. However, to minimize bias, the lead researcher was blinded to group assignments and primary outcome data throughout the data collection and analysis phases.

## Intervention

### BFR Group

Participants in the Blood Flow Restriction (BFR) group completed a 12-week resistance training program, performed three times per week on non-consecutive days. Each session comprised four exercises targeting both the upper and lower limbs:

1. Squat.
2. Leg press (45°).
3. Supine press.
4. Biceps curl.

The training protocol adhered to the guidelines set by the American College of Sports Medicine (American College of Sports Medicine, 2009), and included:

- Three sets of 10 repetitions per exercise.
- Rest periods of 60 seconds between sets and 120 seconds between exercises.

The training load was determined through a 30-repetition maximum (30-RM) test. Blood flow restriction was implemented using H+ curved BFR cuffs calibrated to 50% of each participant's limb occlusion pressure (LOP). Limb occlusion pressure was measured using a Doppler ultrasound to ensure accuracy and participant safety. The cuffs remained inflated during exercises and rest periods and were deflated between exercises to minimize risks and ensure safety throughout the session.

### Control Group

Participants in the CON group maintained their traditional exercise routine, which included the same four exercises performed by the BFR group, without any additional interventions for the 12-week study period. To address ethical considerations, they were offered the opportunity to participate in a BFR resistance training program upon completion of the study.

## Outcome Measures

Physical function was evaluated using the Functional Movement Screen (FMS), a comprehensive tool designed to assess seven movement patterns across four key physical function elements:

1. **Balance Patterns:**
  - Overhead deep squat (DS)
  - Hurdle step (HS)
  - Inline lunge (ILL)
2. **Mobility Patterns:**
  - Shoulder mobility (SM)

- Active straight leg raise (ASLR)
- 3. **Stability Patterns:**
  - Trunk stability pushup (TS)
  - Rotary stability (RS)

Each movement pattern was scored on a scale of 0–3, with a maximum total FMS score of 21. Scores were further categorized as follows:

- **Balance:** 0–9
- **Mobility:** 0–6
- **Stability:** 0–6

This structured scoring system provided a detailed analysis of participants' physical function and movement quality (AbuEid et al., 2024)

### **Data Collection and Reliability**

All raters completed comprehensive training on the FMS protocol to ensure consistency and accuracy in evaluations. A calibration session was conducted to standardize assessment procedures across all raters. Inter-rater reliability was assessed using the Intraclass Correlation Coefficient (ICC), demonstrating a high level of agreement among raters (refer to Appendix 1).

### **Statistical Analysis**

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23 (IBM Inc., Chicago, IL, USA). Descriptive statistics were used to summarize participant characteristics. Paired t-tests assessed within-group changes, while independent t-tests compared differences between groups. Effect sizes (Cohen's d) were calculated to determine the magnitude of differences. Statistical significance was set at  $p < 0.05$ .

## Results

This section presents the findings of the study investigating the effects of BFR resistance training on mobility, balance, and stability in middle-aged adults. Results are summarized in tables and figures for clarity and ease of comparison.

### Baseline Functional Performance

Table 2 shows the baseline Functional Movement Screen (FMS) scores for both the BFR and CON groups, including subcategories for mobility, balance, and stability, as well as the statistical comparisons between the groups.

Table 2 Baseline (pre) FMS scores and differences summary

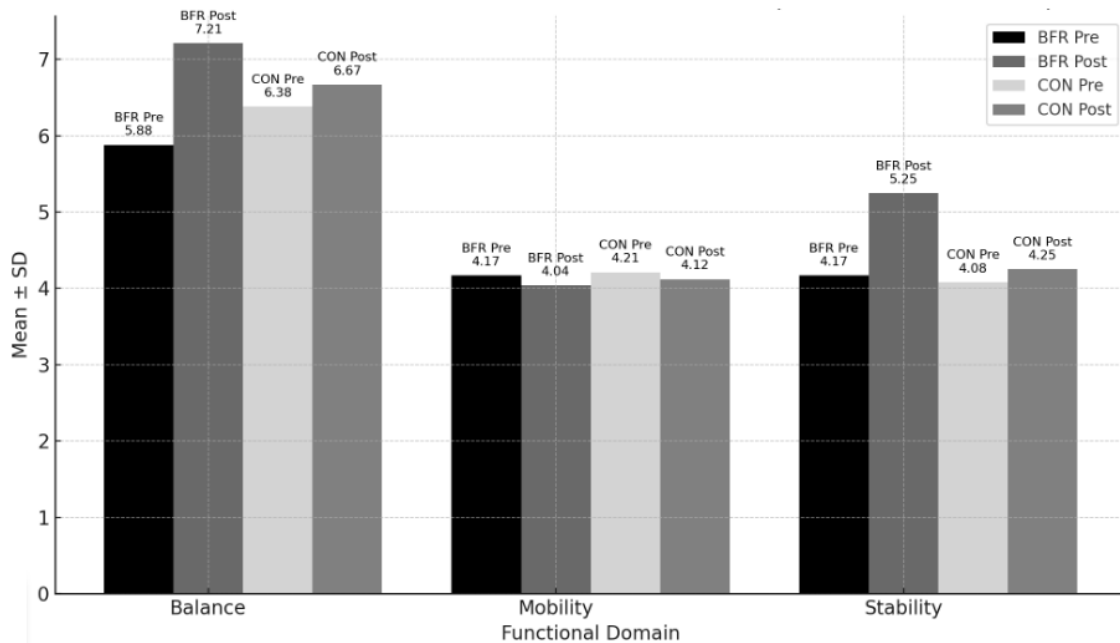
Subcategory	BFR Group (M±SD)	CON Group (M±SD)	p-value
Balance (DS)	2.12±0.85	2.38±0.58	0.24
Balance (HS)	1.96±0.55	2.12±0.74	0.38
Balance (ILL)	1.79±0.78	1.88±0.80	0.72
Total Balance	5.88±1.30	6.38±1.35	0.20
Mobility (SM)	2.42±0.58	2.25±0.53	0.31
Mobility (ASLR)	1.75±0.61	1.96±0.20	0.12
Total Mobility	4.17±0.92	4.21±0.59	0.85
Stability (RS)	1.75±0.61	1.71±0.55	0.80
Stability (TS)	2.42±0.58	2.38±0.58	0.80
Total Stability	4.17±0.92	4.08±0.65	0.71

### Training Intervention Outcomes

Table 3 provides a summary of within-group changes (pre- vs. post-intervention) and between-group differences (post-intervention) in FMS scores.

Table 3 Pre- and Post-Intervention FMS Scores

Subcategory	BFR Group Pre M±SD	BFR Group Post M±SD	BFR Group p-value	CON Group Pre M±SD	CON Group Post M±SD	CON Group p-value	Effect Size (Cohen's d)
Total Balance	5.88±1.30	7.21±1.18	0.001	6.38±1.35	6.67±1.31	0.09	BFR: 1.03, CON: 0.22
Total Mobility	4.17±0.92	4.04±0.46	0.57	4.21±0.59	4.12±0.54	0.62	BFR: -0.14, CON: 0.07
Total Stability	4.17±0.92	5.25±0.61	<0.001	4.08±0.65	4.25±0.61	0.33	BFR: 1.18, CON: 0.25



**Figure 1** illustrates within-group changes (pre- and post-intervention) in total FMS scores for balance, mobility, and stability for both groups.

### Detailed Analysis by Functional Domain

#### Balance

- The BFR group demonstrated significant improvements across all balance tests:
  - DS: +0.34 points ( $p < 0.05$ )
  - HS: +0.42 points ( $p < 0.05$ )
  - ILL: +0.59 points ( $p < 0.01$ )
- Control group showed minor improvements without statistical significance.

#### Stability

- Total stability scores in the BFR group increased significantly from 4.17 to 5.25 ( $p < 0.001$ ).
- RS and TS sub-tests showed notable improvements in the BFR group compared to minimal changes in the control group.

#### Mobility

- BFR group showed an improvement in ASLR (from 1.75 to 2.13,  $p < 0.05$ ), while the control group exhibited negligible changes.
- SM scores in the BFR group decreased slightly post-intervention, indicating enhanced efficiency.

## Discussion

The findings of this study collectively underscore the transformative potential of BFR resistance training in improving mobility, balance, and stability among middle-aged adults. These three functional domains are crucial for maintaining independence, reducing fall risk, and enhancing overall quality of life. The observed improvements highlight the unique advantages of BFR training in addressing age-related declines in physical function through low-intensity, high-adaptation protocols.

The significant gains in balance (mean change: +1.33,  $p < 0.001$ ) and stability (mean change: +1.08,  $p < 0.001$ ) emphasize the efficacy of BFR training in promoting postural control and core strength. Balance improvements were observed across all subtests, including the Deep Squat (DS), Hurdle Step (HS), and Inline Lunge (ILL), which collectively reflect dynamic and static balance. Similarly, stability gains were marked by improvements in both the Rotary Stability (RS) and Trunk Stability Push-Up (TS) tests, indicating enhanced core strength and the ability to counteract postural disturbances.

Mobility outcomes were more nuanced, with significant improvements in the Active Straight Leg Raise (ASLR) test for the BFR group (pre:  $1.75 \pm 0.61$ , post:  $2.13 \pm 0.58$ ,  $p < 0.05$ ). This suggests better flexibility and range of motion in the lower body. However, changes in the Shoulder Mobility (SM) test were negligible, indicating that upper body mobility may require more targeted interventions.

The control group showed minimal improvements across all functional domains, underscoring the unique benefits of BFR training in promoting functional gains through low-intensity exercise.

The observed improvements in mobility, balance, and stability are underpinned by the physiological adaptations induced by BFR training:

1. **Enhanced Neuromuscular Activation:** The hypoxic environment created during BFR training stimulates greater motor unit recruitment, which is critical for improving postural control, dynamic stability, and coordinated movement (Cognetti et al., 2022; Saraf et al., 2022).
2. **Increased Proprioceptive Feedback:** BFR training enhances sensory input from muscles and joints, leading to improved proprioception and movement accuracy, especially in balance and stability tasks (Mirzayev & Levitt, 2024).
3. **Core Engagement and Strength:** The inclusion of compound movements like squats and lunges in the BFR protocol contributed to greater core strength, which is foundational for both stability and mobility (Han et al., 2024).
4. **Flexibility and Range of Motion:** Lower body mobility improvements, particularly in the ASLR test, are likely due to increased hamstring extensibility and pelvic stability, driven by the unique metabolic demands of BFR training.

These physiological mechanisms explain the differential improvements across functional domains, with significant gains in tasks targeting lower body mobility and overall balance and stability.

This study's findings align with and expand upon existing research on BFR training:

- **Balance:** Lim and Goh (2022) reported significant lower limb strength and balance improvements in older adults following BFR training. This study corroborates their findings but extends the application to a middle-aged population, emphasizing dynamic balance enhancements in tasks such as the ILL test.
- **Stability:** The results align with Schmidt et al. (2022), who noted increased core stability and postural control following BFR training in clinical populations. This study broadens the scope by demonstrating similar benefits in a healthy, non-clinical demographic.
- **Mobility:** While mobility outcomes were less pronounced compared to balance and stability, the improvements in ASLR scores support findings by Elliott and Green (2024), who highlighted BFR's role in enhancing lower body flexibility and range of motion.

In contrast, negligible changes in SM scores suggest that upper body mobility may not benefit as directly from BFR training, highlighting the need for tailored interventions for this domain.

The results have several practical implications for promoting functional health in middle-aged adults:

1. **Fall Prevention:** Enhanced balance and stability reduce fall risk, a leading cause of injury and loss of independence in aging populations. BFR training offers a preventive strategy that is accessible and effective.
2. **Daily Functionality:** Improvements in balance, stability, and lower body mobility translate into better performance of daily activities, such as walking, stair climbing, and bending.
3. **Rehabilitation and Accessibility:** The low-intensity nature of BFR training makes it particularly suitable for individuals unable to engage in traditional high-intensity resistance exercises due to joint or physical limitations.

The findings align with studies demonstrating BFR's efficacy in improving strength, balance, and stability (Lim & Goh, 2022; Han et al., 2024). However, this study diverges by focusing on functional outcomes in a middle-aged, healthy population rather than younger or clinical cohorts. By demonstrating significant gains in balance, stability, and mobility, this research provides novel insights into the preventive potential of BFR training for addressing age-related functional decline.

Building on these findings, future research should explore:

1. **Long-Term Outcomes:** Assessing whether the observed functional gains are sustained over extended periods of BFR training.
2. **Tailored Interventions:** Developing protocols that target upper body mobility to complement the lower body and core benefits.
3. **Diverse Populations:** Examining the efficacy of BFR training across different age groups, genders, and individuals with specific balance or mobility impairments.
4. **Comparative Studies:** Comparing BFR training with traditional balance and mobility-focused exercises to identify the most effective approaches.

## Conclusions

The findings of this study highlight the significant potential of Blood Flow Restriction (BFR) resistance training as a practical, low-intensity intervention to enhance critical physical functions—balance, stability, and mobility—in middle-aged adults. These improvements are especially noteworthy for addressing age-related declines in functional independence and fall risk. By leveraging the physiological benefits of BFR training, this research establishes a foundation for integrating this method into preventive and rehabilitative fitness programs for middle-aged populations.

The results infer that BFR training may be uniquely suited to individuals unable to perform traditional high-intensity resistance exercises due to joint or mobility limitations. Furthermore, the observed improvements in neuromuscular coordination and dynamic stability suggest that BFR training could have applications beyond the scope of this study, including rehabilitation and sports performance.

Future research should build on these findings by:

1. Investigating the long-term effects of BFR training on fall prevention and overall physical independence.
2. Exploring its application across different age groups, particularly older adults and females, to validate its broader applicability.
3. Conducting comparative studies to evaluate the relative efficacy of BFR training against other low-intensity functional interventions.

These directions will refine the understanding of BFR training's potential and contribute to developing comprehensive, evidence-based strategies for promoting healthy aging and functional longevity.

## Appendix

### Appendix 1: Assessment of Inter-Rater Reliability Using Intraclass Correlation Coefficients (ICCs)

We utilize a two-way random-effects model (ICC 2,1) to assess inter-rater reliability to calculate intraclass correlation coefficients (ICCs). Table 1 presents the ICCs for single and average measures from two different tests, illustrating the consistency and dependability of evaluations provided by two raters.

Table 1 Intraclass Correlation Coefficients (ICCs) for Evaluative Consistency Across Bifurcated Tests

Test Number	Measure Type	ICC (2,1)	95% CI Lower Bound	95% CI Upper Bound	F Test Value	df1	df2	Sig
First Test	Single Measures	0.914	0.788	0.966	25.222	19	19	.001
First Test	Average Measures	0.955	0.881	0.983	25.222	19	19	.001
Second Test	Single Measures	0.922	0.813	0.968	24.548	19	19	.001
Second Test	Average Measures	0.959	0.897	0.984	24.548	19	19	.001

Note: The (ICC 2,1) values represent a two-way random-effects model where the effects attributable to subjects and the specific measures under consideration are treated as random components. Type A ICCs reflect an absolute agreement metric, while Type C ICCs are predicated on a consistency framework. Importantly, the calculation of Type C ICCs omits the between-measure variance from the variance component in the denominator, focusing solely on within-measure consistency.

Table 1 uses a two-way random-effects model (ICC 2,1), indicating that the effects of raters and measures are considered random.

In the First Test, Single Measures, An ICC of 0.914 suggests high reliability in the ratings of different raters. The 95% confidence interval (CI) from 0.788 to 0.966 indicates that if the study were repeated with different raters from the same population, we would expect the ICC to fall within this range 95% of the time. The F test is significant ( $p = .001$ ), further supporting the reliability of the ratings. First Test,

Average Measures: The ICC increases to 0.955, which shows an even higher level of agreement among raters when average measures are considered. The narrower CI of 0.881 to 0.983 reinforces this high reliability. The significance of the F test remains strong.

In the Second Test, Single Measures, The ICC is slightly higher at 0.922 than the first, indicating consistently high reliability across tests. The CI range of 0.813 to 0.968 remains tight, suggesting confidence in this estimate. Second Test, Average Measures: The ICC is again higher for average measures at 0.959, which indicates that averaging the ratings can reduce the impact of any random effects that might influence individual ratings. The CI of 0.897 to 0.984 and the significant F test value corroborate the high inter-rater reliability.

The note indicates that people's and measures' effects are random, which means the model accounts for variability among raters and the items being rated. Type A ICCs are calculated based on absolute agreement, suggesting that the raters are in strong agreement not just in rank order but also in the actual values of their ratings. Type C ICCs, based on consistency, would exclude between-measure variance from the denominator variance; however, this does not appear to be directly applicable to the results presented in Table 1.

In conclusion, the high ICC values across single and average measures, narrow confidence intervals and significant F test results indicate excellent inter-rater reliability. This suggests that the ratings are consistent and reproducible across different raters, lending credibility to the evaluation process used in the study.

Delving into test-retest and intra-rater reliability, Table 2 presents a nuanced analysis of the consistency in evaluations performed by the respective raters across the two testing intervals. The reliability was quantified via the ICC (3,1) model, which endorses a two-way mixed-effects analytical framework.

Table 2 Intraclass Correlation Coefficient Raters One and Two for the First and Second Test

Rater	Measure Type	ICC (3,1)	95% CI Lower Bound	95% CI Upper Bound	F Value	Test		
						df1	df2	Sig
1	Single Measures	.937	.848	.975	29.345	19	19	.001
1	Average Measures	.968	.918	.987	29.345	19	19	.001
2	Single Measures	.799	.566	.915	8.896	19	19	.001
2	Average Measures	.889	.722	.956	8.896	19	19	.001

Note: The ICC (3,1) delineates a mixed-effects model in which subject effects are modelled as random and measurement effects as fixed. The Type A ICC, employed herein, quantifies absolute agreement without assuming interaction effects, which remain un-estimated due to methodological constraints.

Table 2 presents the test-retest and intra-rater reliability assessment for two raters across two tests. It employs a two-way mixed-effects model (ICC 3,1), suggesting that the people effects (i.e., differences among raters) are considered random. In contrast, the effects of the measures are treated as fixed. This model choice is appropriate when the raters are a random sample from a larger population of possible raters and when the measure (e.g., the test or item being rated) is the same across all raters and is the primary interest of the reliability estimation. The ICC (3,1) also allows for assessing the consistency of ratings within raters across time, which indicates both intra-rater and test-retest reliability.

In Rater 1, Single Measures, The ICC of .937 indicates an excellent level of agreement in this rater's scores between the two testing occasions, suggesting very high intra-rater reliability. The confidence interval is quite narrow (.848 to .975), indicating that we can be very confident about the reliability of this estimate. The F test result is significant ( $p = .001$ ), confirming the strong reliability of the rater's evaluations. Rater 1, Average Measures, With an ICC of .968, the average measures for Rater 1 display even higher reliability than the single measures. This is typical because average scores are more stable and less affected by random error. The confidence interval (.918 to

.987) remains narrow, reflecting high precision in the reliability estimate. The significance of the F test remains robust, supporting the reliability.

In Rater 2, Single Measures: The ICC for Rater 2's single measures is .799, which is still considered good reliability but is noticeably lower than that of Rater 1. The wider confidence interval (.566 to .915) suggests more uncertainty about this estimate, which could indicate variability in Rater 2's scoring consistency over time. Rater 2, Average Measures, the ICC improves to .889 for the average measures, which, as with Rater 1, indicates that averaging across measures improves reliability by reducing the impact of random errors. The confidence interval (.722 to .956) is narrower than for the single measures but still wider than for Rater 1, reflecting greater variability in Rater 2's ratings.

The note clarifies that the ICC estimates are based on absolute agreement and do not assume an interaction effect because it is not estimable. This is important as it affects the interpretation of the ICC values — with absolute agreement, the focus is on how close the ratings are in absolute terms, not just their rank order.

In summary, Table 2 shows excellent intra-rater and test-retest reliability for Rater 1, with high consistency in their ratings across tests. Rater 2 shows good reliability but with more variability than Rater 1. Overall, the table suggests that the ratings are reasonably stable over time and consistent within each rater, which is crucial for the reliability of the study's measurements.

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## Scientific Translation for Publication: The Impact of Using Rubber Ropes and Balance Tools on Some Physical Abilities and Offensive Skills of Al-Karkh First Education Team Players Aged (14-16) Years

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2048](https://doi.org/10.37359/JOPE.V37(1)2025.2048)

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**Article history:** Received 12/ March/2024 Accepted 4/ April/2024 Available online 28/ March /2025

### Abstract

The study aimed to prepare exercises using rubber ropes and balance tools together, and to determine their effect on some of the physical abilities and offensive skills of the Karkh Primary Education players aged 14-16 years in handball. The researchers used the experimental method with two control and experimental groups with a pre-test and a post-test. As for the sample, it was chosen intentionally, namely the players of the first Karkh education team, aged (14-16) years, in handball. They were randomly divided into two groups, control and experimental, with (8) players for each group. The most important physical abilities were identified (strength characterized by speed, explosive power, and endurance of speed), and some offensive skills (dribbling, handling, and shooting). After which the appropriate tests for each variable were chosen and the exploratory experiment was conducted on a sample of the research community, for the purpose of identifying the suitability of the tests and tools used. After conducting the main experiment and extracting the results, appropriate statistical methods were used to treat them statistically. The researchers concluded that the use of rubber ropes and balance tools had a positive effect in developing some physical abilities and offensive skills in handball. The experimental group also achieved better results in the variables studied compared to the control group.

**Keywords:** rubber bands, balance tools, physical abilities, offensive skills, handball

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## Introduction

The educational process is the cornerstone of progress for societies throughout different eras. The primary task falls upon the coach to develop the players' capabilities and various skills to reach the highest levels by using educational aids and tools, as well as diversifying exercises using these assistive tools and integrating them. This is due to the added value and importance they provide in learning and training (Ahlam & Shaghati, 2015).

Rubber ropes are among the tools used in all sports because they work to develop the process of muscle contraction at high speed, in addition to stimulating nerve units and muscle fibers to a greater extent, and creating rapid timings for nerve signals. This was confirmed by (Sherzad Mohammed, 2015). They also work to increase neuromuscular work and have a direct impact on physical abilities, which is suitable for performing basic handball skills that require high speed in muscle contraction. (Khamees et al., n.d.)

Training with rubber ropes can be called flexible resistance training, which provides many directions of movement during exercise. This means a higher level of neuromuscular control. The resistance in them depends on the extent of elongation that occurs in the rope, unlike free weights and machines. In addition, it is possible to perform the exercise in the full range of motion of the joints, which improves flexibility, reduces muscle and ligament tears, and saves energy. (Mondil et al., 2023)

Exercises that use balance tools are appropriate for the skill in terms of different playing situations. The choice of method or style is the fundamental pillar of all development (Sadiq, Haitham; Sabaa, Ahmed; 2023). Balance exercises have a direct relationship with the physical and skill aspects in most handball skills, due to the requirements of changing direction, jumping, and then performing handling, dribbling, feinting, and shooting under the pressure of the defender and physical contact in many cases. Also, the player jumps and flies in the air, which requires maintaining balance in order to shoot and score a goal in the opponent's net. (Shukr, 2024)

Handball has a special character compared to other games due to the nature of modern performance, as well as the modifications and changes that have occurred in the rules of the game. It is also characterized by its need for high physical abilities and tactical aspects. However, without high offensive skills, the team will not be able to face other teams (Al-Sudani Ahmed, 2010). The application of exercises designed using rubber ropes and balance tools and their execution in play in the best possible way, achieving objectives with minimal effort and in the shortest time, and achieving victory, (Shukur et al., 2022) is crucial. Therefore, we see that coaches strive to use these tools to aid in developing various aspects of players. This leads to improving levels and achieving high results, in addition to using modern training methods and diversifying techniques to create a distinctive educational and training mix that helps prepare for training, reduces boredom, and brings joy to the players. (Wahed Issa et al., 2024)

The importance of this research also stems from breaking the usual pattern in developing physical abilities and offensive skills in handball, by implementing exercises that

use balance tools and rubber ropes together on the one hand, and linking them with offensive skills on the other.

Among the most important studies that addressed physical abilities and offensive skills are: the study by (Shaker, 2014) ("The most important physical abilities and their relationship to the performance of some offensive skills in handball for youth players"), the study by (Naji, 2014) ("Some special physical abilities and their relationship to the accuracy of performing the shooting skill from a pivot in handball"), and the study by (Qassem Muhammad, 2017) ("The effect of exercises with rubber ropes in developing some physical abilities for youth basketball players").

### **Method and Tools**

The researchers used the experimental method with two groups, a control group and an experimental group, due to its suitability to the research problem and objectives. The research population was intentionally selected and consisted of the players of the Al-Karkh First Education team aged (14-16) years in handball, totaling (18) players. The research sample was determined to be (16) players after excluding players who were not committed to training times, representing (88.88%) of the research population. Through a lottery, (8) players were selected as a control group, and (8) players were selected as an experimental group.

The researchers utilized the following research tools: sources and references, the internet, tests, an assistant work team (Appendix 1), and training tools (Appendix 2).

Tests for physical abilities in handball were identified as: (front support test for 10 seconds for distinctive arm strength, triple hop test for distinctive speed-strength for the legs, Sargent jump test for explosive power of the legs, throwing a 600g ball for explosive power of the shooting arm, and 25m x 8 shuttle run for speed endurance) (Jabbar & Khamees, 2020).

As for the tests of offensive skills in handball, they were: (passing and receiving against a wall for 30 seconds, dribbling in a zigzag pattern for a distance of 30m, and shooting accuracy test) (Al-Sudani, Ahmed; Mutaib, Fouad, 2018).

An exploratory experiment was conducted to ensure the safety of the equipment and tools and the efficiency of the assistant work team, as well as to standardize the training intensity and the time taken to apply the tests and exercises.

The designed exercises were implemented within the training program for the research sample using the tools (rubber ropes and balance tools). This was done by applying the exercises gradually and including them during the main part of the training unit. The time allocated for applying the exercises was (25-35) minutes of the training unit. The duration of implementing the exercises was (723) minutes over (24) training units. The researchers used the interval training method and the repetitive method when applying the exercises. Both research groups were trained on some physical abilities (strength characterized by speed, explosive power, and speed endurance) and some offensive skills (dribbling, shooting, and passing). It is noteworthy that the experimental research group used rubber ropes and balance tools together when

applying the exercises. After completing the necessary period for implementing the exercises, a post-test was conducted on the research sample, providing the same accompanying conditions as the pre-test. During this, the results were recorded and obtained through the use of the statistical package (SPSS) and by using the laws of arithmetic mean, standard deviation, and T-test for paired and independent samples.

## Results

Table (1)

Arithmetic Means, Standard Deviations, T-value, and Significance Level for the Pre- and Post-tests of the Control Group

Research Variables	Tests	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Diff.	SD Diff.	T-value	SI G	Significance
Explosive Power	Arms (600g medicine ball throw)	17.25	.707	19.88	.835	-2.625	.916	-8.104	.000	Significant
	Legs (Sargent test)	35.25	3.651	40.63	4.069	-5.375	5.397	-2.817	.026	Significant
Speed Strength	Arms (Front supp)	8.25	.707	11.13	.835	-2.875	1.264	-6.524	.000	Significant

	ort 10s)									
	Legs (Trip le hop right leg)	5.4 02	.3 28 6	5.9 26	.08 141	- .52 3	.32 566	- 4. 54 9	.0 0 3	Signifi cant
	Legs (Trip le hop left leg)	5.3 888	.2 74 0	5.9 66	.07 367	- .57 75	.25 645	- 6. 36 9	.0 0 0	Signifi cant
Spee d Endu rance	Shut tle run 25m x 8	43. 88	1. 26 2	41. 887	.92 447	2.0 00	1.8 45	3. 06 2	.0 1 8	Signifi cant
Passi ng	Pass ing and recei ving agai nst wall 30s	20. 50	1. 41 4	23. 13	1.9 59	- 2.6 25	2.7 74	- 2. 67 6	.0 3 2	Signifi cant
Dribb ling	Zigz ag drib blin	8.3 28	.5 83 2	7.4 12	.33 238	.91 625	.55 606	4. 66 1	.0 0 2	Signifi cant

	g 30m									
Shooting	Shooting accuracy test	1.88	.641	2.88	.835	-1.000	1.195	-2.366	.050	Significant

[Table data translated from source 94]

Table (2)

Arithmetic Means, Standard Deviations, T-value, and Significance Level for the Pre- and Post-tests of the Experimental Group

Research Variables	Tests	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Diff.	SD Diff.	T-value	SI G	Significance
Explosive Power	Arms (600g medicine ball throw)	16.88	1.126	21.38	1.506	-4.500	2.070	-6.148	.000	Significant
	Legs (Sargent test)	35.00	3.464	43.50	1.604	-8.500	3.780	-6.361	.000	Significant

Speed Strength	Arms (Front support 10s)	8.25	1.035	12.50	.926	-4.250	1.753	-6.859	.000	Significant
	Legs (Triple hop right leg)	5.4563	.34513	6.1213	.25091	-.66500	.46208	-4.071	.005	Significant
	Legs (Triple hop left leg)	5.3875	.27312	6.1700	.33954	-.78250	.45703	-4.843	.002	Significant
Speed Endurance	Shuttle run 25m x 8	43.7813	1.2239	41.152	.78290	2.6287	1.75262	4.242	.004	Significant
Passing	Passing and receiving against wall 30s	20.50	1.690	24.38	1.847	-3.875	2.997	-3.657	.008	Significant

Dribbling	Zigzag dribbling 30m	8.2875	.49796	7.0150	.52016	1.2725	.58292	6.174	.000	Significant
Shooting	Shooting accuracy test	2.00	.535	3.38	.744	-1.375	.916	-4.245	.004	Significant

Table (3)

Difference in Arithmetic Means, Standard Deviations, T-value, and Significance Level for the Two Groups in the Post-tests

Research Variables	Tests	Mean Diff.	SD Diff.	T-value	SIG	Significance
Explosive Power	Arms (600g medicine ball throw)	-2.125	.718	-2.959	.010	Significant
	Legs (Sargent test)	-2.500	1.493	-1.675	.116	Random
Speed Strength	Arms (Front support 10s)	-1.375	.441	-3.120	.008	Significant
	Legs (Triple hop right leg)	-.22250	.08182	-2.719	.017	Significant

	Legs (Triple hop left leg)	- .27500	.11942	- 2.303	.037	Significant
Speed Endurance	Shuttle run 25m x 8	.91625	.38614	2.373	.033	Significant
Passing	Passing and receiving against wall 30s	-1.750	.821	- 2.131	.051	Significant
Dribbling	Zigzag dribbling 30m	.49375	.22640	2.181	.047	Significant
Shooting	Shooting accuracy test	-.652	.350	- 1.784	.096	Random

## Discussion

From the tables, it is evident that the differences between the pre- and post-tests are significant in Favor of the post-test in the results of physical abilities and offensive skills. The researchers attribute these results to the continuity in training, the use of appropriate training aids and methods, and their preparation based on scientific foundations. Additionally, the exercises given during the training program were suitable for the sample's level in terms of intensity, volume, and rest. This aligns with what (Abdullah et al., 1991) indicated: that providing exercises according to the correct scientific method leads to an increase in the efficiency of the work of the muscle groups involved in performing various motor skills and physical abilities that the player acquires during training. (Al-Azawi & Kathom, 2012)

Furthermore, the experimental group achieved better results than the control group in most of the research variables. The researchers attribute this to the use of necessary tools such as rubber ropes and balance tools together, which achieved significant improvement in physical abilities. This forced the members of the experimental group to adopt the correct posture during performance for safety and to avoid the risk of injury, which positively reflected on the performance of the tests. Indeed, "rubber rope exercises require the correct body posture during performance to achieve the full benefit of the exercise, (Kzar & Kadhim, 2020) as the body position at the beginning of the movement, during performance, and at the end is very important to achieve direct resistance against the targeted muscles, thus achieving the exercise's

effectiveness represented in reaching the highest level of efficiency for the working muscles while achieving the greatest degree of safety and with the least risk" (Mohammed, Ahmed, 2016).

Also, the application of exercises using rubber ropes and balance tools on one hand, and linking the physical aspect with offensive skills on the other hand during the special preparation period, led to the noticeable development in the results of the experimental group and its superiority over the control group. This was confirmed by (Abd Al-Baseer, 1999), who stated that it is a mistake to think that there is a separation between the development of physical abilities and the development of motor skills.

Moreover, a handball player needs arm strength to be able to perform movements and shoot, as well as leg strength to be able to jump high and with the required speed to reach the appropriate place to perform the essential role in offensive skills (Tawfiq, 1989). Also, (Sobhi, Mohammed Hassanein, 2001) emphasizes that no matter how high the level of physical fitness of an athlete, they will not achieve the desired results unless all of this is linked to the complete mastery of sports motor skills in the type of specialized activity they practice.

The researchers also attribute the observed development to the positive impact of the applied exercises using assistive aids and tools (rubber ropes and balance tools), which were suitable for the players, their ages, and their physical and skill capabilities. In addition, their novelty and previous non-application were factors. Handball is one of the games that relies heavily on varied exercises. (Kadhim, 2024) This was pointed out by (Nassif & Hassan, 1988), who stated that the level of athletic achievement rises rapidly when using diverse and new exercises that the athlete is not accustomed to and that carry special loads.

## Conclusions

- The application of special exercises using rubber ropes and balance tools has a positive impact on the development of physical abilities (strength characterized by speed, explosive power, and strength endurance).
- Special exercises using rubber ropes and balance tools have a positive impact on the development of offensive skills (passing, dribbling, and shooting).
- The experimental group achieved better results in the studied variables compared to the control group.

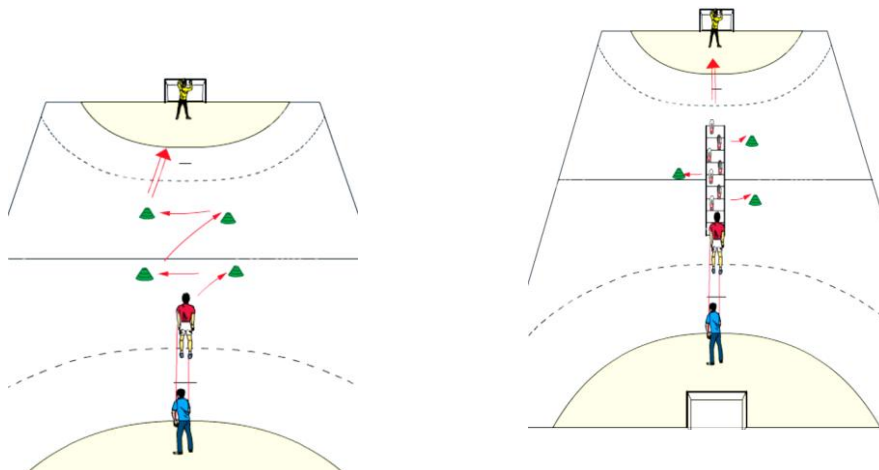
## Recommendations

- Emphasis should be placed on applying special exercises using rubber ropes and balance tools due to their significant impact on physical abilities and offensive skills in handball.





- Appendix (2) "Rubber Ropes and Balance Tools Used" contains images of the equipment.



Appendix (2) also contains "Applied Exercises Combining Rubber Ropes and Balance Tools" with diagrams and a sample training unit plan.

<p>مكان العمل: قاعة النشاط الرياضي / المنصور</p> <p>عدد افراد العينة: (8) لاعبا</p> <p>زمن الوحدة التدريبية: 112 د</p>	<p>«تطبيق التمرينات خلال وحدة تدريبية»</p>	<p>الاسبوع: الاول</p> <p>الوحدة: الاول</p> <p>اليوم: السبت</p> <p>التأريخ: 2023\1</p>
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رقم	أقسام الوحدة التدريبية	زمن كل قسم	مكونات الوحدة التدريبية	التمارين الخاصة	الحجم	الشدة الجزئية	زمن الاداء	التكرار	المجموع	الراحة بين التكرارات	الراحة بين المجموع	الوقت الكلي للعمل	الوقت الكلي للراحة		
2	القسم الرئيسي	77 د	التمارين الخاصة	التمرين )	الشدة الجزئية	الاداء	2	2	45 ثا	2	2	9.30 د	2 د		
		28.3 د							60 ثا					2	9 د
		0 د							45 ثا					2	1.30 د
3	القسم الختامي	33.3 د	تمارين مهارة	التمرين )	الشدة الجزئية	الاداء	2	2	45 ثا	2	2	5.30 د	1.30 د		
		0 د							45 ثا					2	1.30 د
		10 د							45 ثا					2	1.30 د
3	القسم الختامي	10 د	تمارين تهدئة واسترخاء	التمرين )	الشدة الجزئية	الاداء	2	2	45 ثا	2	2	9.30 د	2 د		
		0 د							45 ثا					2	1.30 د
		5 د							45 ثا					2	1.30 د

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## A comparative study of the psychological traits and group cohesion traits among the playing lines of young football players under (20) years of age

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2129](https://doi.org/10.37359/JOPE.V37(1)2025.2129)

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**Article history:** Received 9/ August/2024 Accepted 20/August /2024 Available online 28/ March /2025

### Abstract

This study investigates the differences in psychological climate and group cohesion across different playing lines (defense, midfield, attack, and goalkeepers) among youth football players under 20 years of age in the Iraqi Premier League. Recognizing the critical role psychological factors play in athletic performance, the researchers aimed to determine how these variables vary based on players' field positions.

A descriptive comparative approach was employed, involving a purposive sample of 148 players (representing 75.51% of the research population). Two validated scales were used: the Psychological Climate Scale (Al-Hayali, 2011) and the Group Cohesion Scale (Alawi, 1984). Data were analyzed using descriptive statistics, one-way ANOVA, and the LSD test for post hoc comparisons.

Findings revealed statistically significant differences in psychological climate among playing lines, particularly between midfielders and both defenders ( $p = 0.011$ ) and attackers ( $p < 0.001$ ), favoring attackers. No significant differences were found in group cohesion across the playing lines ( $p > 0.05$ ). These results suggest that midfielders experience distinct psychological pressures due to their pivotal role in connecting defense and attack, potentially affecting their perception of the team environment.

The study underscores the importance of tailored psychological training and leadership strategies that consider positional roles. Enhancing psychological climate—especially among midfielders—may contribute to improved performance and team synergy. Coaches are encouraged to promote balanced cohesion and address psychological disparities to foster a unified and mentally resilient team.

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**Keywords:** Psychological climate, group cohesion, football, youth athletes, playing positions, sports psychology.

## Introduction

Football is a team game that requires individuals to perform different skills and plans agreed upon by the coach to achieve the best level and win matches. This does not

come easily unless there are many scientific studies that identify the methods, physical and motor abilities, and psychological characteristics that contribute to the development of the game

Since football consists of different playing lines and playing positions, and despite the modern and comprehensive gameplay during the implementation of plans during matches, determining the technical duties of each specific playing position and line is necessary. (Mondil et al., 2023)

Since sports psychology has an impact on achieving the best levels, it consists of many characteristics, one of which is the psychological climate. Researchers consider the psychological climate to be an integral part of the social climate Al-Shaibani believes that the psychological climate overlaps with the social climate to form an integrated discourse, represented by the feelings, sensations, attitudes, and ideas that dominate the general atmosphere. This represents the external psychological atmosphere, while the internal aspect is represented by the player's view of the surrounding elements and components of the external environment and his responses to those elements and components. Any individual interprets what is happening in the surrounding external world within the framework of what is exciting and effective in him in terms of feelings, desires, attitudes, etc., because he is influenced by his internal psychological components. You find him selective in his perception of the surrounding environment (Shiban 1988, 165)

The psychological climate and group cohesion are considered among the basic factors that affect the performance of sports teams. Many studies have confirmed the importance of these factors in enhancing athletic performance and developing the team spirit among players in this context (Carron, Brawley, & Widmeyer, 1998). A football team needs this psychological trait, and many scientific studies and scientists have shown that an athlete's technical level is affected by the psychological climate, positively or negatively. (Shukr, 2024)

Alawi (1998) defines the psychological climate or atmosphere of a sports team as the cohesion and interaction of the players within the team, in addition to its impact on the degree of the player's emotion and the extent of his understanding of exciting situations. This varies according to his level of evaluation, his psychological makeup, and the difference in the group environment.

Al-Assaf (2011) (49) stated that a climate that encourages psychological growth depends on

**the availability of three conditions:**

( authenticity / acceptance and empathy). Players need people who help and encourage them in performing their technical tasks and accept them when performing their behaviors during training or matches, whether winning or losing, as well as not rushing to make decisions about them

The components of the psychological climate, according to Al-Badi (1979), still need to understand the nature of the psychosocial climate and interpret its components. Attempts have been few, as research has focused more on the organizational climate. The psychosocial climate is affected by two aspects: external to the environment and internal to the environment.

Understanding the nature of the psychosocial climate can be achieved in light of the views of scholars, including Brown and Liyf, that perceptions of the organizational environment constitute important aspects of the psychological climate, and that the diversity in perceptions and techniques that constitute the psychological climate can arise from individual differences and differences in situations, in addition to the interaction between the person and the situation. (Brown 1996) 358-368

The psychological climate reflects the psychological environment felt by players within the team, such as emotional support, trust, and mutual respect. A psychological environment

positive can lead to increased self-confidence and self-motivation among players, which enhances individual and group performance. A negative psychological climate can lead to tension and divisions among players, which negatively affects group performance.

Group cohesion is one of the psychological characteristics that has a high correlation in team formation. M. Alawi (1992) indicated, on the authority of David Prince and Donald Young (1992), that a sports team is not just a group of players wearing a uniform, but rather it goes beyond that. A sports team is a group of individuals who are committed to achieving specific goals in an interactive manner and will enjoy doing so by delivering high-value results

Muhammad Hassan Alawi (1998) defines it as a group of individuals linked by mutual relationships. Every athlete feels the need to belong to a social group. Their interaction is a positive, integrated interaction with the rest of the members of the sports group (sports team). Group cohesion among the players on a team results from their cohesion and remaining united within the group (team). The team is a social unit, and cohesion is the main means used to demonstrate the strength of the social bond between them.

Group cohesion reflects the extent of connection and belonging among team members and the extent of their cooperation to achieve common goals. A study conducted by Evans and Dion (1991) showed that teams with strong group cohesion achieve better results in the long term

The coach is primarily responsible for achieving this trait by changing his training methods and providing psychological and educational guidance. He needs to select some players to facilitate this task so that they influence the rest of the players. Psychological training programs and activities that enhance group cohesion can be effective tools for achieving this.

Improving the psychological climate and group cohesion can lead to better results in match performance, and increasing the chances of winning can lead to improved overall team performance. Training activities that enhance these factors can be effective tools for achieving this.

Smith, Arthur, Hardy, Callow, & Williams, 2013.

The importance of the research lies in providing instructions and leadership to the most acceptable players, educating coaches and team officials in this category about studies related to sports psychology, and emphasizing the connection between most psychological traits in order to provide guidance programs that will benefit them in the future.

This research aims to discuss a comparison of the psychological climate and group cohesion among players of different playing lines in sports clubs in Baghdad

### **Methods and Tools:**

The researchers used the descriptive approach with a comparative approach, as it is the best method for solving the research problem. The research sample was players from clubs in Baghdad Governorate

For the Premier League for youth under 20 years, the research community and sample were chosen intentionally, as their number was 148 players out of 196, and the sample represented 75.51% of the research community. The researchers used the psychological climate scale prepared by (Al-Hayali 2011), consisting of 7 domains, a total of 58 items, and five alternatives.

The group cohesion scale was by Diao Rahman, prepared by (Muhammad Hassan Alawi 1984), consisting of 34 items and five alternatives.

The two scales were distributed to the research sample according to the days agreed upon with each club. The scales were then received and transcribed into an Excel system, with each playing line assigned a separate sheet. The results were then processed using statistical methods, including percentages, arithmetic mean, standard deviation, median, skewness coefficient, independent sample tests, and the significant difference test (LSD).

### Presentation of results, discussion, and conclusions

The researchers filled out the two scale forms and obtained the sample results. The results were processed using appropriate statistical methods.

Table (1) shows the descriptive statistics for the research sample in the variables of psychological climate and group cohesion

Variable	Plaing llnas	Npar Of players	Arithmetic mean	Standard Deviation	Skewness coefficient
Climate Ps	Midfield	46	192.1957	16.25849	65.0
		57	200.2105	17.56492	0.73
	Offensive line	24	206.6250	14.12618	0.96
	Goalkeepers	21	199.8095	10.07283	0.85
Cohesion Group	Midfield	46	84.8478	12.16912	0.45
	Defense line	57	84.0877	12.28571	0.53
	Offensive line	24	84.5833	13.50657	0.32
	Goalkeepers	21	84.2857	11.95049	0.63

The table (2) presents the values of the analysis of variance (F) test, significance values, and their types among players in gameplay lines regarding the variables of psychological climate and group cohesion

T	Vari ables	Source ofVariables	SumS quares	Degree Calculatede	Mean Squares	Calcul ated Degree	Error Rate	signific ant
1	Clim ate	Groups	3609.34 3	3	1203.11 4	4.840	0.003	signific ant
		Within Groups	35791.5 76	144	248.553			
2	cohe sion	Groups	15.709 3	3	5.236	.034	.992	Not Signific ant
		Groups	22168.6 15	144	153.949			
<b>Below the significance level (0.05)</b>								

Table (3) illustrates the significance values of the differences (LSD) along with their significance levels and types.

ت	Playing lines	LSD value	Indicative value	Type of significance
1	Midfield_ Defensive line	-8.01487*	.011	
2	Midfield – attacking Line	-14.42935*	.000	<b>Significant</b>
3	Midfield _goalkeepers	-7.61387	.069	<b>Not Significant</b>
4	Defensive _offensive Line	-6.41447	.097	<b>Not Significant</b>
5	Defense line- goalkeepers	.40100	.921	<b>Not Significant</b>
6	Offensive line_ guards	6.81548	.150	Insignificant

### Discussion

The previous tables revealed significant differences between midfield players and players in the defensive and attacking lines, while the remaining lines showed non-significant results in the variable of psychological climate. Researchers attribute the significance of these differences to the fact that the average score of midfield players was lower than that of other lines. Midfield players are characterized by different cognitive abilities and behaviors compared to other players, and they are considered the key players during matches. There may be variations in psychological climate and group cohesion among different playing lines (such as defense, midfield, and attack) based on the nature of the tasks and responsibilities assigned to each line.(Kadhim, 2024)

Moreover, midfield players face considerable psychological pressure, especially when they make frequent mistakes during training or matches, as they serve as the link between defense and attack. Additionally, midfield players are generally well-accepted by other players due to their execution of strategies during play, and they tend to have balanced personalities. The traits of the psychological climate among midfield players increase with greater cognitive and social experiences, necessitating specialized training and ongoing varied guidance during daily practice.(Kazim et al., 2019)

This assertion is supported by Brown and Hewstone (2005), who noted that an individual's psychological climate is influenced by multiple complex factors, such as personality, past experiences, social support, and psychological pressures. This complexity makes it challenging to establish a direct relationship between group cohesion and psychological climate. Similarly, Cohen and Wills (1985) emphasize that external factors, such as life events, social pressures, or environmental changes, can play a significant role in shaping the psychological climate. (Salman et al., 2022)

Tajfel and Turner (1986) further confirm that the psychological climate of individuals can change over time due to internal or external alterations, whereas group cohesion may remain relatively stable, complicating the identification of a consistent correlation between the two. There may indeed be differences in psychological climate and group cohesion among different playing lines, such as defense, midfield, and attack (Eccles & Tenenbaum, 2004). A study conducted by Eys et al. (2009) found that defenders require a higher level of trust and coordination, while attackers rely more on creativity and adaptability. (Kadhim & Mousa, 2024)

As for the previous tables, they showed no significant differences between midfield players and those in defensive and attacking lines regarding the variable of group cohesion. Researchers attribute this to the fact that the average score of midfield players was higher than that of other lines, with many of them being team leaders (captains) who are entrusted with leading and managing the team. This is supported by Nehari (2015), who stated that as the traits of a sports leader increase, the level of cohesion in the sports team also rises. (Kadhim, 2023)

Moreover, most coaches develop or divide the team into small groups to implement tactical elements regarding understanding, cooperation, and organization within a single line. Simultaneously, coaches need to allocate more time during practices among playing lines or small groups to ensure a high, non-significant level of cohesion among the lines, so as not to affect team cohesion adversely. This finding aligns with Turman (2003), who emphasized that coaches prioritize fostering team cohesion in small groups by promoting cooperation, friendships, motivation, and other psychological traits that benefit the group. (HalahAtiyah et al., 2024)

The results of this research are consistent with Jaber (2008), who indicated the role of the duration of players' presence in training units and matches in enhancing their cohesion.

This view also aligns with Alawi (1998), who emphasized the importance of satisfying individuals' needs within the sports team, the role of effective leadership, strong social relationships among players, and continuous communication through participation in training and competitions.

This is further supported by Pettigrew and Tropp (2006), who noted that group cohesion can take on various forms (such as cooperation, communication, and understanding), each of which may influence the psychological climate in different ways, leading to a lack of a consistent correlation.(Khedir, 2018)

Most club coaches exert their utmost efforts to bridge differing viewpoints and diversify tactical training while rotating players among themselves to prevent the formation of player groups engaged in certain activities to gain incentives or attention from the coach. This is supported by Qwais (1997), who cautioned that any sports team coach must be vigilant against the formation of small groups, known as factions, that can negatively impact team cohesion when they follow their own path or execute plans that are not agreed upon in training.(Mondher & Khalaf, 2023)

## Conclusions

- The researchers concluded the following
  - There is a significant difference in the psychological climate variable between midfielders and defenders
  - There is a significant difference in the psychological climate variable between the midfielders and the linebackers Attack
  - There are no significant differences in the group cohesion variable among the players in the playing lines (defense, midfield, attack, and goalkeepers
- Lack of support for activities that serve the psychological climate in terms of tests and guidance exercises, and the absence of a specialist in this regard

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## Sultling thinking strategy and its impact on improving the accuracy of some volleyball skills

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DOI:

[https://doi.org/10.37359/JOPE.V37\(1\)2025.2073](https://doi.org/10.37359/JOPE.V37(1)2025.2073)

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**Article history:** Received 9/ March/2024 Accepted 8/ April /2024 Available online 28/ March /2025

### Abstract

This study aims to prepare practical volleyball lessons with a complex thinking strategy, and to identify the impact of volleyball strategy on the accuracy of the three volleyball skills (transmission from the bottom, the front preparation from the head, and receiving the two hands from below) for students, and I adopted the experimental research curriculum with the experimental design that The experimental and controlled groups with the control of the tribal and remote tests, for its suitability for the current research and its independent variable (the strategy of complex thinking) that applies to the students of the experimental group, while the students of the control group are applying the educational method used as it is in the physical education lesson, and the limits of the research community represented in the students of the second stage From the Faculty of Physical Education and Sports Science/Karbala University continuing to continue the morning study for the academic year (2023/2024), The total number of (92) students, who are inherently distributed in equal preparation to the four academic people, reached (23) students for each of them, in line with the achievement of the purposes of systematic research procedures. This society, which reached (46) students at (50%) of their origin society, represents the two research groups according to the commitment to the determinants of the aforementioned experimental design, and after identifying the tests, practical lessons in volleyball were prepared in this strategy and applied them by experimenting with the reality of two lessons per week for a period of (6) weeks Success, to be (4) practical lessons for each skill, and with a total of (12) educational units, and after the end of the experiment, the results of tribal and post tests were addressed with a system (SPSS), and The conclusions and recommendations were that it is possible to apply the vocabulary of the complex thinking strategy in practical physical education lessons for the second stage in the Faculty of Physical Education and Sports Science, and its application helps in improving the level of the accuracy of the three volleyball skills (transmission from the bottom, the front preparation from the head, and receiving hands From the bottom) among the second stage

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students in the Faculty of Physical Education and Sports Science, and they are aware of the improvements of its accuracy among students who learn without them in the practical lessons of volleyball, and it is necessary to generalize the results of this research when seeking to improve the accuracy of the three volleyball skills (transmission from the bottom, and the front preparation From above the head, and receiving hands from the bottom) among students of the second stage in the College of Physical Education and Sports Science, and it is necessary to focus on practical applications for strategies to stimulate students thinking more than explanation and guidance in the practical lessons of volleyball to increase students 'empowerment of practice and application based on the discovery Knowledge of the skill accuracy by the bridle thinking in it.

**Keywords:** complex thinking strategy, skill accuracy, volleyball skills.

### Introduction:

Teaching volleyball skills is a purposeful process to develop and improve students' experiences and continuously change their motor behavior manifested in performing the skills of this game. Continuing this process requires continuing to search for new or more appropriate teaching strategies. Therefore, students of the College of Physical Education and Sports Sciences have ideas and information about how to perform volleyball skills in their memory. However, this information and ideas still need to be purposefully filtered to serve the mental and skill factors in the lesson. This calls for attention to communicating with them using strategies that differ from what is followed. Hence, it is worth noting that this digression is consistent with modern trends in giving an important role to thinking processes and their ramifications that occur in the cognitive structure aimed at changing skillful motor behavior in order to enable learners to achieve the required improvements. It is also necessary not to neglect the role of knowledge in activating skillful motor learning in the physical education lesson environment.

Studies have confirmed that "the brain works on the principle of 'use it or lose it', and hence it was necessary to develop divergent thinking which in turn helps maintain brain activity." (Nadia, 2012, p. 213)

Divergent thinking is a type of thinking that emerged as a result of numerous studies and research based on Guilford's theory of factor analysis of creativity, Jean Piaget's theory of cognitive development, contemporary theories of intelligence, including Gardner's theory, and theories and research based on the two halves of the brain. (Ali, 2012, pp. 1-104)

Divergent thinking is also defined as "the learner's ability to produce different responses or offer more than one solution to a problem at hand by branching out their thinking in multiple, different directions—that is, creating the greatest possible connection between ideas and information related to the topic, and focusing on the differences and rarity of the solutions and responses presented." (Jihad, 2018, p. 575)

But Divergent thinking strategy It is defined as "a set of steps, procedures, and processes followed by the teacher that allow learners' thinking to branch out by creating new connections between the neurons that make up the brain's structure. It contributes to opening new paths for flexible thinking, multiple visions, and the emergence of divergent, divergent responses." (Zainab, 2016, p. 89)

The divergent thinking strategy is classified as containing seven strategies as follows: (Hayat, 2016, p. 64)

**Hypothetical thinking:**It relies on directing a set of hypothetical questions to learners to encourage them to think.

**Reverse thinking:**It provides more opportunities for learners to deepen their understanding of events and situations and to think beyond them, thus moving from thinking about acquired knowledge to thinking beyond this knowledge.

**Application of different symbolic systems:**It relies on the use of different symbolic systems in learning situations, to absorb the elements of the educational situation.

**Similarity:**It is the one that supports opportunities to search for relationships between things and link ideas.

**Point of view analysis:**It helps the learner to think about his opinions and encourages him to express his viewpoints, ideas, principles, values, beliefs and opinions in various situations.

**The sequel:**It is a process of completing things that prompts the learner to think in multiple directions to try to find relationships between the existing elements.

**Network analysis:**It expresses the interconnectedness of some situations, phenomena and things around us in complex, intertwined and interwoven relationships and ways.

**The role of the teacher in the divergent thinking strategy:**(Adnan, 2018, p. 249)

Encourage the learner to brainstorm different ideas without interrupting or restricting any of them. Continuously reinforce ideas and follow up with successive questions to help the learner generate different ideas and search for good answers to these questions.

The teacher moves on to the other axes of the same strategy by posing successive and probing questions without being restricted to a specific number in a single educational unit, depending on the nature of the lesson topic, the time allotted for it, the effectiveness of the learners, and the requirements of the educational situation.

Guiding learners to monitor their ideas and train them to organize and arrange them according to specific themes, and creating a suitable atmosphere for understanding and learning knowledge through interaction between teacher and learner, and between learners themselves, which contributes to the development of more concepts and skills, and the development of divergent thinking.

Developing a spirit of cooperation among learners inside and outside the lesson through group discussion, allowing learners to ask questions, and raising their level of motivation.

Taking into account the learners' tendencies, orientations, and values, and providing an atmosphere of freedom for them within the classroom so that each learner can express his or her opinion while respecting the opinions of others.

Provide learners with appropriate feedback on their opinions about their colleagues' performance on assigned tasks, clarify and explain what they need, speak clearly, and provide them with feedback on their performance.

The teacher must ensure that the learners understand the nature of the activities and tasks they are required to perform, and instill in them a spirit of determination and resolve so that they can acquire the ability to think about and make decisions regarding problems in various educational situations.

**The role of the learner in the divergent thinking strategy:**(Wajdan, 2017, p. 27)

Responding to questions the teacher asks them to determine the desired performance and the consequences.

RRetaining knowledge through discussion and exchange of acquired ideas, and the possibility of applying them in new educational situations, especially those with a changing environment.

RRecognizing the connections and relationships between knowledge and the details of skill performance and expressing them in their own style.

RCollaboration, collaboration, knowledge seeking, and forming mental models of what has been learned.

RExpressing views, ideas, principles, and values through the topics covered in the skills vocabulary.

RFind similarities and differences between items in the topics presented in the skills learning lessons.

Through the researchers' visits to practical lessons for teaching volleyball skills to second-year students in the College of Physical Education and Sports Sciences at the University of Karbala, and discussions with the subject's teachers, they noticed that students need to increase their ability to raise their capabilities in how to activate and comprehend the knowledge presented to them, and then break out of the repetitive monotony of the same performance. This pace worked to limit their thinking to the limits of what was presented to them and reduced the possibility of overcoming the weaknesses that appeared clearly in their weak learning of the accuracy of some volleyball skills. From this observation, which is considered one of the tools of scientific research, the researchers sought to delve into research into teaching strategies through which it is possible to activate the role of activating and generating ideas in the cognitive structure of students, which would correct the paths of motor programs for each skill according to the determinants of the correct model in a sound manner free of common errors, that is, searching and influencing the same cognitive structure and previous experience to store information and branch out in thinking about the details of the accuracy of the three volleyball skills. (The underhand serve, the overhead forward set-up, and the underhand reception) are taught to students themselves based on the knowledge they are provided with, and then they work to improve this accuracy by adopting this new knowledge and changing the educational environment. This is an attempt by researchers to contribute to supporting scientific efforts that aim to improve the reality of teaching the accuracy of volleyball skills.

Through the academic researchers' approach to physical education teaching methods, and their direct knowledge of the methods used in teaching volleyball skills to students in the College of Physical Education and Sports Sciences, they noticed a clear weakness in the level of accuracy of the three skills in volleyball. (The underhand serve, the overhead forward pass, and the underhand reception) Considering that the specificity of physical education students requires them to learn to teach in the future, they must have a skill accuracy that suits their specificity, which calls for an attempt to experiment with the divergent thinking strategy, as an attempt to contribute to supporting physical education teaching methods in a way that helps students overcome this weakness, taking into account their specificity and level. The research aims to prepare practical volleyball lessons using the divergent thinking strategy, and to identify the effect of the volleyball strategy on the accuracy of the three skills in volleyball (The underhand serve, the overhead forward set-up, and the underhand reception) among students, and the researchers assumed that there are statistically significant differences between the results of the accuracy tests of the three skills in volleyball. (Sending from below, forward preparation from above the head, and

receiving with the hands from below) before and after for the experimental and control research groups, and there are statistically significant differences between the results of the accuracy tests of the three skills in volleyball. (Sending from below, forward preparation from above the head, and receiving with the hands from below) The dimensional difference between the experimental and control research groups.

**Method and tools:**

The experimental research method was adopted with an experimental design with two experimental and control groups with tight control of the pre- and post-tests, to suit the current research and its independent variable (the divergent thinking strategy) that is applied to the students of the experimental group. As for the students of the control group, they apply the educational method followed as it is in the physical education lesson. The boundaries of the research community were represented by the second-stage students of the College of Physical Education and Sports Sciences/University of Karbala who continue to continue morning studies for the academic year (2023/2024), with a total number of (92) students, and they are distributed by nature in equal numbers into four study sections, as they amounted to (23) students for each section, in accordance with achieving the purposes of the methodological research procedures. The main research sample (application) was chosen randomly by simple lottery from two sections of this community, which amounted to (46) students at a rate of (50%) of their original community, to represent the two research groups in accordance with the commitment to the specifications of the aforementioned experimental design. Section (B) was chosen randomly, with a number of students (23) students were selected to represent the experimental group. Section (A) with (23) students was also selected randomly to represent the control group. Also, (10) students were selected randomly from Section (C) at a rate of (10.87%) of their original community, considering that the data of the individuals in this sample were not subjected to any statistical processing, as shown in Table (1):

**Table (1) shows the description of the research community, its sample, and its groups in terms of number and percentage.**

College	Department name	Number of second-stage students	Number of students in the exploratory sample group	Number of excluded students (The Remaining)	Number of students in the main sample	
					Experimental group	Control group
Physical Education and Sports Sciences, University of Karbala	(A)	23	—	—	—	23
	(B)	23	—	—	23	—
	(C)	23	10	13		
	(D)	23	—	23		
<b>the total</b>		92	10	36	46	
<b>percentage</b>		100%	10.87 %	39.13%	50 %	

The homogeneity of the research sample was also verified in some of the incoming variables that might cause extremism in the results of the dependent variable tests in the research experiment later, in order to maintain the internal integrity of the experimental design of the research, as shown by the results contained in Table (2):

**Table (2) shows the results of the homogeneity of the students of the main research application sample in some extraneous variables.**

Variables and their units of measurement	Number	Arithmetic mean	standard deviation	Coefficient of skewness	Coefficient of variation
Chronological age (in months)	46	243.11	2.406	0.247	% 0.99
Body length (cm)	46	169.93	2.112	-0.606	% 1.248
Body length with arm extended upward (cm)	46	185.46	3.662	-0.434	% 1.975
Weight - Mass (kg)	46	71.7	2.053	-0.149	% 2.863

The normal distribution coefficient of skewness is defined between (+1) The coefficient of variation is less than (39%).

To measure the accuracy of each of the three researched skills, I relied on the tests shown in Appendix (1).

**Preparatory steps for preparing lessons using the divergent thinking strategy:**

The researchers examined the types of educational methods and exercises used in the College of Physical Education and Sports Sciences/University of Karbala.

The researchers reviewed numerous specialized scientific sources and studies on physical education teaching methods available in local libraries and the international information network. They also consulted with the two supervisors to determine the objective of each exercise for each of the three skills and narrow it down precisely, with the aim of preparing educational exercises to suit the students' individual needs and to be consistent with the vocabulary of the divergent thinking strategy.

These lessons were prepared by the researchers by employing the vocabulary of the divergent thinking strategy in the educational and applied aspects of the main section of the practical lesson for the volleyball subject.

**Defining general objectives:**

Defining the objectives of practical volleyball lessons is one of the most important and first methodological steps, which obliged researchers to establish the general objective of applying practical practice in the content of each educational exercise with the help of providing knowledge about the accuracy of skill performance and directing tasks with a divergent thinking strategy, and what the lesson includes of sub-objectives that suit the age, level and gender of students of the College of Physical Education and Sports Sciences for Girls, as these objectives were determined and limited to the following:

It aims to improve the accuracy level of (the skill of serving from below, the skill of receiving the serve with the hands from below, and the skill of setting up from above the head) in volleyball.

**Planning to prepare practical lesson exercises:**

The general objective of each exercise was determined using a divergent thinking strategy and narrowed down precisely, in accordance with the literature on specialized teaching methods in volleyball.

The integration of the objectives and applications of educational exercises with the divergent thinking strategy was employed in the lesson content in a consistent manner that takes into account the diversity of educational situations according to the stages of the strategy.

We adhere to the principle of taking into account the individual differences of each student and their potential and capabilities in practical performance.

The principle of progression from easy to difficult was adhered to when preparing the divergent thinking strategy exercises.

#### **Criteria for selecting practical lesson exercises:**

It was emphasized that the divergent thinking strategy exercises achieve the general and sub-objectives of the lesson.

It was emphasized that the contents of the divergent thinking strategy exercises should be easy to apply and free of complexity.

It was emphasized that the content of the divergent thinking strategy exercises should be flexible in implementation, making it easy to apply in the practical volleyball lesson.

#### **Content of practical lessons using the divergent thinking strategy:**

The basic principles of the divergent thinking strategy were employed in each of the educational exercises in the practical lessons as follows: (Fathi, 2009, pp. 26-27)  
Do not rush to judgment about performance until you have generated a large number of ideas.

#### **Find a wealth of performance ideas.**

Accept all ideas (from the teacher, peers, the classroom environment as a whole).

Thinking to the fullest extent with vitality and seriousness in searching for ideas related to performance, and avoiding idle thinking.

Taking a little time out allows the mind to generate original ideas that will help produce the desired performance.

Trying to integrate ideas with mental alertness until they are complete by linking various ideas here and there.

All of the information contained in this preparation and the strategy were incorporated into the curriculum for practical lessons in volleyball, as shown in (Appendix 2).

#### **Pilot experiment:**

It was conducted on (10) students from the second stage of the College of Physical Education and Sports Sciences/University of Karbala from outside the main research sample in the internal hall of this college, at exactly nine o'clock on Sunday, corresponding to the date (10/29/2023). Its purpose was to identify the potential obstacles that might appear in applying the experiment with the divergent thinking strategy and training the assistant work team to apply it, taking into account setting the timings for each section of the lesson. The researcher did not encounter any obstacles worth mentioning from this exploratory experiment.

**The lesson included the following timetable:**

**Total lesson time:** (90) minutes divided into the preparatory section (20) minutes, the main section (60) minutes, the educational side (20) minutes, the practical side (40) minutes, and the final section of the lesson (10) minutes.

**Educational aspect:** Which lasts (20) minutes, the strategy (team-double-single) will be applied according to the previously mentioned specifications.

**The practical side:** Which lasted (40) minutes and included practical educational exercises on the accuracy of the three skills in volleyball. (Sending from below, forward preparation from above the head, and receiving with the hands from below) as practical lessons were applied at a rate of two lessons per week for a period of (6) consecutive weeks, so that there would be (4) practical lessons for each skill, and a total of (12) educational units, in order to reach mastery of the accuracy of the three skills in volleyball. (Send from below, front set up overhead, and receive with hands from below) for students.

After completing this experiment, the post-tests were applied, and the results of the study were processed using the SPSS system, version (V).28), to calculate the percentage, mean, standard deviation, unrelated samples t-test, and related samples t-test.

**Results:**

**Table (3) shows the results of the pre-accuracy tests between the two research groups.**

Independent Variable Tests		The group	Arithmetic mean	Standard deviation	t-value	(p)	(df)	Significance of difference
Volleyball skills accuracy	Send from below	Empiricism	14.96	2.962	823	84	45	5
		The officer	15.3	2.225				
	Front overhead setup	Empiricism	31.96	6.256	125	95	66	9
		The officer	33.48	5.648				
	Reception with hands from below	Empiricism	25.17	5.024	57	54	03	8
		The officer	24.61	4.48				

Not significant if  $t < (Sig)(0.05)$  at a significance level of (0.05) and a degree of freedom  $(n1 + n)2-2 = 44$

**Table (4) shows the results of the three skills accuracy tests before and after the experimental and control groups.**

Test Type of measurement		Group	Comparison	Arithmetic mean	Standard deviation	Mean difference	Variance of differences	Standard error	Probability	Significance of difference
Volleyball Skills Performance Accuracy (Score)	Dribble from below	Experimental (23)	Previous	4.96	2.962	10.69	3.253	1.678	0.766	Dal
			Next	5.65	3.027					
		Control (23)	Previous	5.3	2.225	6.27	2.973	1.62	1.1	Dal
			Next	6.57	2.643					
	Front overhead setup	Experimental (23)	Previous	4.96	5.256	32.43	6.465	3.48	0.59	Dal
			Next	4.39	3.448					
		Control (23)	Previous	3.48	5.648	21.35	8.272	2.725	3.77	Dal
			Next	4.83	4.793					
	Reception with hands from below	Experimental (23)	Previous	5.17	5.024	33.7	6.123	2.77	3.91	Dal
			Next	3.87	2.581					
		Control (23)	Previous	4.61	4.48	22.91	6.701	3.97	3.99	Dal
			Next	7.52	3.629					

**The statistical difference is significant if (Sig)  $\geq$  (0.05) at a significance level of (0.05) and a degree of freedom of (n) - (1) for each group.**

**Table (5) shows the results of the three dimensional skills accuracy tests between the experimental and control groups.**

Test		Experimental group	Number	Arithmetic mean	Standard deviation	Control group	Number	Arithmetic mean	Standard deviation	Significance of difference
Volleyball Skills Accuracy Grade	Sending from below	Experimental	23	25.65	1.027	Control	23	21.57	2.643	Dal
		Control	23	21.57	2.643	Experimental	23	25.65	1.027	Dal
	Front overhead setup	Experimental	23	54.39	3.448	Control	23	54.83	4.793	Dal
		Control	23	54.83	4.793	Experimental	23	54.39	3.448	Dal
	Reception with hands from below	Experimental	23	58.87	2.581	Control	23	47.52	3.629	Dal
		Control	23	47.52	3.629	Experimental	23	58.87	2.581	Dal

**The statistical difference is significant if (Sig) ≥ (0.05) at a significance level of (0.05) and the degree of freedom is (n1 + n2-2) = (44).**

#### **Discussion:**

It is clear from the results in Table (4) for the pre- and post-comparison that all students in the experimental and control research groups improved their accuracy in the three volleyball skills. (Sending from below, forward preparation from above the head, and receiving with the hands from below) in the results of the post-tests were better than their results in the pre-tests, as is evident from the results of Table (5) that the students of the experimental group outperformed their peers in the control group in the accuracy of these three skills under study, and the researchers attribute the appearance of these improvements between the results of the pre- and post-tests for the students of the experimental group and their superiority in the results of the post-tests to all of the following:

#### **Accuracy of the skill of sending from below:**

The researchers attribute the emergence of these results to the fact that the divergent thinking strategy helped students flow with different ideas about the skill performance and accuracy of this skill without interrupting any of them. This teaching strategy helped in continuously reinforcing these ideas and reducing the chances of failure in the accuracy of the repeated performance of these skills by posing several questions to help them generate these different ideas about the skill accuracy requirements by focusing on the position of the body and the movement of its parts to achieve the movements necessary for the skill of sending in detail. The teacher would move to other axes of the same strategy by posing successive questions in a single lesson according to the nature of the accuracy requirements of the skill of sending from below, and the effectiveness of the students in responding to these questions that the teacher discusses with them to reach the skill accuracy required for the skill of sending from below and the consequences resulting from it in the accuracy of this performance when monitoring spatial accuracy. This is supported by directing students towards monitoring their ideas and training in arranging and organizing them in an educational environment that allows students to understand and learn knowledge through interaction between the teacher and the student in this teaching strategy, and between students with each other, (Wahed Issa et al., 2024) which contributes to deriving more

concepts and developing divergent thinking, which helped. In generating ideas of importance in recalling information that integrates with the knowledge that students receive about the skill precision required in each educational situation represented by practicing and applying the educational exercises included in the strategy of divergent thinking in the lesson, which was based on cooperation between students and activating their role in learning by exchanging knowledge on how to perform skill precision at the same time according to the specific nature of their tasks, which also helped in improving the acquisition of that mutual knowledge and employing it when applying educational exercises. (Mahmood & Kadhim, 2023)

“One of the positive aspects of the divergent thinking strategy is that it develops the student’s sense of responsibility for his learning, as he arrives at knowledge on his own, which increases his confidence in his skillful behavioral performance abilities.” (Hanson, 2006, p. 121)

"What supports the wide range of teaching strategies is the unification of cognitive and associative learning theories, both of which are required in education without stressing or tiring the learners' minds. Reducing the process of explanation and presentation is necessary to allow the opportunity for exploration by the learners themselves, which supports their role and increases their activity in this learning." (Joyce, Weil & Calhoun, 2002, p: 16)

"The characteristics of an active learning environment are that it makes the learner an element capable of taking initiative, interacting with peers, and expressing what he or she has with a large margin of freedom, in addition to its role in shifting the focus of the educational process from the teacher to the learner. The characteristics of an active learning environment can be identified as being rich in diverse sources of information, including opportunities for asking questions and seeking clarification, and a spirit of cooperation and positive participation in work prevailing in it." (Mohsen, 2016, p. 244)

#### **Accuracy of the overhead front set-up skill:**

The researchers attribute the emergence of these results to the fact that the divergent thinking strategy helped provide students with appropriate feedback on their opinions regarding their peers' skill accuracy in this skill, and provided them with clarification and explanation of what their peers in the experimental group needed. This strategy helped increase the space for students to talk in the lesson in clear terms, and provided them with feedback on their performance, so that they could understand the nature of the activities or the type of tasks they were required to perform, instilling in them a spirit of determination and resolve so that they could acquire the ability to think about how to apply different educational exercises and the ability to make decisions about them to produce the skill of frontal preparation from above the head with the required accuracy. This helps in retaining cognitive information according to what this strategy provides through discussion and exchange of ideas obtained between students, and the possibility of applying it in other educational exercises, especially those with a changing environment, and realizing the connections and relationships between knowledge of the details of skill performance and expressing them in their own style, cooperation and synergy, searching for knowledge, and forming mental models of what was learned, to produce the skill of frontal preparation from above the head with skill accuracy. (Kadhim, 2024) Required, if the role of practice and application of this skill and the positive impact of the role of the divergent thinking strategy and the tasks and roles of this strategy in facilitating the occurrence of these behavioral

changes represented by the improvement of skill performance and its accuracy, in addition to the clear impact of good planning of educational units by applying three units to improve skill performance and then applying the fourth unit to improve spatial accuracy, considering that the latter is linked to improving performance or, more precisely, linked to correct performance that is free of errors or accompanying movements. (Nashwan & Alzoubi, 2022) Thus, the vocabulary of the divergent thinking strategy and defining educational roles during teaching had a positive impact in pruning the common errors of this skill in volleyball, which supported practice and application, as the required improvements in the skill cannot be achieved without its practical application, and the role of knowledge is only an important support for drawing the motor program in the cognitive structure. (Kadhim & Majid, 2023)

"Studies have shown that divergent thinking leads to the activation of new connections between neurons, allowing us to think more easily along new paths that we hadn't previously had, in a way that helps open up new possibilities for the mind, contributing to more mental activity, and leading the mind to work with better potential, more broadly, and with greater efficiency than before." (Carmen & Other, 2017, p. 42)

Likewise, the adage "what you do speaks louder than what you say" is closely linked to modeling behavior. In physical education, one of the quickest and most efficient ways to teach physical activity (sports) is through effective and influential models that highlight transitional points in performance. (Mahmoud, 2006, p. 33)

"Situations that do not put pressure on the nervous system help produce stable, desired responses that are easier to remember than stressful situations that the individual deliberately seeks to forget, including their details. Thus, it is necessary to avoid the coercive nature of human behavior when establishing desired responses to be recalled in new situations." (Marcora, 2018, p: 106)

#### **Accuracy of receiving skill with hands from below:**

The researchers attribute the emergence of these results to the fact that the divergent thinking strategy helped develop a spirit of cooperation among students in the practical lesson to apply the vocabulary of this strategy through group discussion between students and allowing the exchange of questions about the accuracy of the skill of receiving with the hands from below and their answers among them, and raising their level of motivation, taking into account their tendencies and directions, and providing an atmosphere of freedom for them, where each student can express his opinion while respecting the opinions of others, to express points of view and ideas to support the information of the motor program for the skill, which is addressed in the details of the accuracy of the skill of receiving with the hands from below, and to support the search for similarities and differences between the knowledge of performance presented in the lessons of this skill in volleyball, as the divergent thinking strategy helped improve the processes of cognitive structure by investing the answer information resulting from the students' questions among themselves about the accuracy of the skill of receiving with the hands from below and its accuracy on the one hand, which helped in improving the processes of motor control to perform spatial accuracy on the other hand, so that these results give an indication that this strategy aimed to teach the mind and body simultaneously in a cooperative educational atmosphere diverse with educational exercises dominated by Encouraging and encouraging students to engage in practical exercises and application during the volleyball lesson, using easily accessible

visual aids in the various practical lessons, helped them outperform the control group in the post-test results.

“Skills can be developed by moving from the learning stage to the training and practical application stage of the skill, i.e., by employing the learned skill in real-life play situations.” (Abdullah and Rahab, 2011, p. 11)

“The learner must also be careful to make intelligent use of available technologies to improve motor skill learning, as these technologies can provide additional resources for learning and improve performance.” (Ruya, 2010, p. 2)

As for the improvement in the accuracy results of the three skills in volleyball (The underhand serve, the overhead forward set-up, and the underhand reception) in the post-test results were better than the pre-test results for the control group students. The researcher attributes this to the positive impact of the educational method used in the lesson, and the students’ continuous, uninterrupted attendance and continued practical performance of these three skills. However, their level of accuracy did not reach the level reached by their peers in the experimental group because they did not apply the divergent thinking strategy in the practical lesson of volleyball. (Farhan et al., 2016)

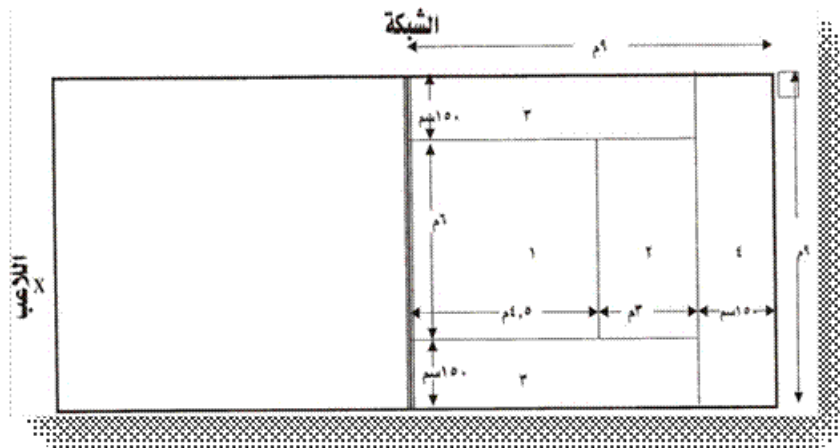
The teacher also "continuously supervises and monitors the learner, so that he can monitor the development of performance and improve important motor skills." (Wulf & Shea, 2002, p: 191)

#### **Conclusions and recommendations:**

1. It is possible to apply the vocabulary of the divergent thinking strategy in practical physical education lessons for volleyball for the second stage in the College of Physical Education and Sports Sciences.
2. Applying the divergent thinking strategy helps improve the accuracy level of the three skills in volleyball. (The underhand serve, the overhead forward set-up, and the underhand reception) are taught to second-year students in the Faculty of Physical Education and Sports Sciences, and their accuracy is improved by students who learn without them in practical volleyball lessons.
3. It is necessary to generalize the results of this research when seeking to improve the accuracy of the three skills in volleyball. (Sending from below, forward preparation from above the head, and receiving with the hands from below) by second-year students in the College of Physical Education and Sports Sciences.
4. It is necessary to focus on the practical applications of strategies for activating students' thinking more than explanation and guidance in practical volleyball lessons, in order to increase students' ability to practice and apply based on the discovery of knowledge with skill precision through divergent thinking.
5. It is necessary to focus on developing the capabilities of volleyball teachers and increasing their knowledge of the divergent thinking strategy in accordance with the foundations and principles of physical education teaching methods.

Appendix (1) explains the three skill tests.

First: Testing the accuracy of the sending skill to a field divided into (4) zones.:



ii Maximum degree: (40) degrees, Unit of measurement:(degree)

Figure (1) shows a diagram for testing the accuracy of the transmission skill.

Second: Testing the accuracy of the front settings from above the head:

- Maximum degree(100) degrees.
- Unit of measurement:(degree)

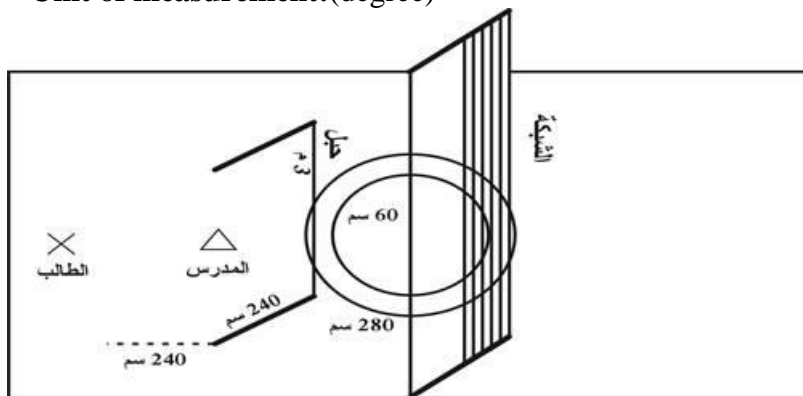


Figure (2) shows a diagram of the test of the accuracy of the skill of counting from above with the fingers.

Third: Testing the accuracy of transmission reception:

- v Maximum degree:(90) degrees.
- v Unit of measurement:(degree)

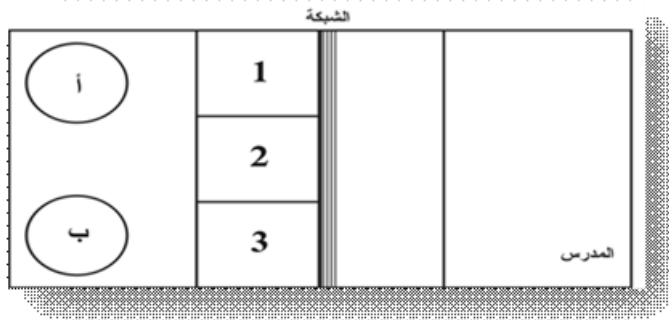


Figure (3) shows the diagram of the hand reception skill accuracy test from below.

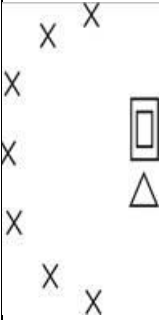
Appendix (2) shows a model for a lesson on improving the accuracy of skill performance in volleyball.

Week/Second Stadium/Closed Hall in College/Number of Students (23)

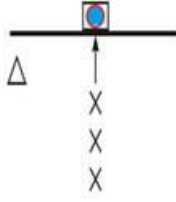
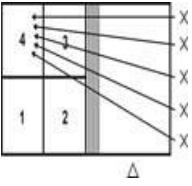
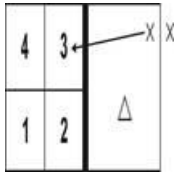
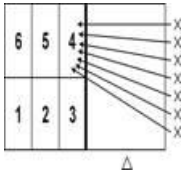
Educational Unit/Fourth Educational objective: Students learn to perform the skill of the downward facing serve.

Time/90 minutes

Tools/ Legal volleyballs, overhead projector.

Lesson sections	Time	Events and skills	Output of motor formations	Notes
Preparatory section the introduction General warm-up Special warm-up	10 d 2 d 4 d 4 d	It is left to the teacher.	determined by the teacher	The researcher does not interfere with the details.
Main Section 75 d	educational aspect 10 d	The students sit in a semicircle in front of the teacher, who then displays its sections to them using an overhead projector, explaining the details of proper performance. Then, the teacher performs a model of this		The explanation should not be long and should include details of the skill and clearly present its model. The teacher works to activate the students' thinking when accurately

			<p>skill with a ball several times. The teacher directs them to monitor their ideas and train them to arrange and organize them according to specific axes, and the atmosphere is suitable for understanding and learning knowledge through interaction. He also directs them to take a short time out so that the mind produces original ideas when performing the skill in the practical aspect later, by integrating the ideas to complete them by linking them to the details of performance.</p>		<p>performing the skill later.          The teacher invests in this aspect to activate students' thinking to support perceived cognitive competence when applying the skill's accuracy later.</p>
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	<p>the practical side</p>	<p>65 d</p>	<p>The students stand in a straight line in groups, one after the other, on the service line to perform an accurate serve from the bottom to cross the net to one of the four areas on the opposite court. Each group is asked to evaluate the accuracy of the performance and each group is given (1) minute before the first application only. They repeat their application of the skill (25) times in turn for each student. The duration of the exercise is (15) minutes. The students stand in a straight line in groups, one after the other, facing a wall (6) meters away, to perform the</p>	   	<p>R The teacher emphasizes the exchange of knowledge among students to realize every subtlety of skill performance.      R Providing an atmosphere of freedom so that each student can express his opinion while respecting the opinions of his colleagues.      R The teacher monitors the groups equally and diagnoses common mistakes.      R The teacher corrects and provides feedback on the accuracy of each group's performance and helps stimulate questions and conversations among them.      R The teacher allows students to ask questions</p>
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			<p>accuracy of the skill of sending from below towards a target drawn in a circle inside a (1 x 1) meter square. Each group is asked to evaluate the accuracy of the performance and each group is given (1) minute before the first application only, and they perform (25) times in turn for each student, the duration of the exercise is (15) minutes. The students stand in a straight line in groups, one after the other, on the service line to perform the accurate serve from the bottom to cross the net to one of the four areas on the opposite court. Each group is asked to evaluate the</p>		<p>and share their ideas.</p>
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			<p>accuracy of the performance and each group is given (1) minute before the first application only. They perform (25) times in turn for each student. The duration of the exercise is (15) minutes.</p> <p>- The same previous exercise, but by dividing the opposite field into (6) zones and performing accurately for the specified zone (30) times. The duration of the exercise is (20) minutes.</p>		
<b>Final section</b>	<b>5 d</b>	<b>It is left to the teacher.</b>	<b>determined by the teacher</b>	<b>The researcher does not interfere in the details.</b>	

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Volume (37) - Issue (1) - 2025



# **Journal of Physical Education**

**Quarterly Reviewed Scientific Journal  
For Sport Sciences Issued by  
College of Physical Education and Sport Sciences  
University of Baghdad**

<http://jcope.uobaghdad.edu.iq>  
DOI: [https://doi.org/10.37359/JOPE.V37\(1\) 2025](https://doi.org/10.37359/JOPE.V37(1) 2025)

P-ISSN: 2073-6452  
E-ISSN: 2707-5729