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The effect of special preparation exercises (cardio) on some forms of strength for the arm muscles for bodybuilding players in the Classic Physique class

Ahmed Abdel Redha Abdel – Saheb [1], Ghassan Adeeb Abdel Hassan [2]

1, Ministry of Education Al-Kerakh/3 Edu

2, University of Baghdad, College of Physical Education and sport sciences

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Abstract

Bodybuilding is a sport that relies on exercises with varying intensity and training loads in order to gain strength and large muscle masses. The external appearance has a special evaluation that we seek to reach through physical training that achieves high physical coordination because it is the key to rising to the first ranks in competitions. From this, the concept of modern training has led to the discovery of many new training methods, techniques and exercises, which have been applied to most sports and have obtained results that should be paid attention to. Among these exercises are modern cardio exercises, which work to develop the circulatory functional systems (cardiac and respiratory systems) and raise endurance physical fitness. It also significantly helps to get rid of excess weight by reducing the amount of body fat for bodybuilding athletes in particular and for other sports in general. "This type of exercise can be adopted continuously to be an incentive to raise the athletic level. (Faisal, Bahaa Dhiab, 2019) The most difficult period faced by a bodybuilding athlete is the special preparation period because the athlete is under the influence of relatively high-repetition exercises with

1 Ministry of Education Al-Kerakh/3 Edu, ahmedmasterall@gmail.com

2 University of Baghdad / Faculty of Physical Education and Sport Sciences, ghassan.abd@cope.uobaghdad.edu.iq

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submaximal intensity and is subject to a strict, precise, and specific diet. This is what is applicable in the traditional methods of bodybuilding, and in contrast to these followed methods, other, updated methods have emerged. It is one of the cardio exercises that helps bodybuilders face the difficulty of the special preparation period, as it may have an impact on the level of achieving prominence and muscle definition of the player in a healthy and sound manner while saving time. The research aims to prepare exercises for the special preparation stage of bodybuilding in the cardio style for the players of the Classic Physique category and to identify the effect of the exercises of the special preparation stage for body building in the cardio style on some forms of strength of the arm muscles for the bodybuilding players of the Classic Physique category. The hypothesis of the research was that there is a positive effect. For exercises in the special preparation phase for body building in the cardio style between pre- and post-tests, and for the benefit of post-tests in some forms of strength for the arm muscles for body-building players in the Classic Physique category. The researchers used the experimental method by designing an equal experimental group with two pre- and post-tests. The researchers chose a random sample consisting of (14) bodybuilding players in the Classic Physique category from the participants in the recent Iraqi championship. Their heights ranged between (171 cm - 175 cm) and their weights (77-83) and who They represent (35%) of the research population of (40) players in Baghdad. The homogeneity of the research sample was calculated in terms of age, weight, height, and training age, as shown in Table (3), and the value of the skewness factor (+1) was extracted to indicate the homogeneity of the research sample. The results of the research were positive through the results of post-tests of cardio exercises, and the researchers recommended using cardio exercises for bodybuilding athletes in the Classic Physique category during the special preparation period instead of traditional exercises.

Keywords: special preparation exercises, cardio, body building, Classic Physique class.

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Introduction

Bodybuilding is a sport that requires high efficiency in physical training, resistance to relatively high weights, and a special nutritional program, as well as different training methods and styles, which start with medium intensity and high repetitions and end with high intensity and few repetitions. Depending on the training goal and the preparation period, we find that bodybuilders need different training methods. Therefore, the modern training concept has turned to discovering exercises that have been applied to most sports, including bodybuilding, and have obtained results that should be paid attention to. Among these exercises are cardio exercises, which work to highlight and define the muscles better and show the muscle sections, and give great and rapid results. These methods may be the most appropriate for the (Classic Physique) category, which is one of the important categories in bodybuilding, which is characterized by its reliance on the aesthetics of the body and great coordination, in addition to its avoidance of the use of stimulants, which are prohibited for players when participating in this category.(Easa et al., 2022)

The training work carried out in such events is directed towards developing the relevant physical abilities, which in turn works to show the body composition in the optimal form, especially during the special preparation period, which the player must deal with carefully in terms of the type of training and nutrition. During the special preparation period, it is necessary to use high repetitions with moderate intensity or sub-maximal intensity in such types of training to develop strength characterized by speed and maximum strength endurance, which in turn will give returns at the level of functional systems, most notably the muscular system. The result of using these methods in these preparation periods has been achieved, represented by the body composition in terms of muscle coordination, as well as endurance of the results resulting from the accumulation of lactic acid and the body's responses to the secretion of (crohn's hormone), in addition to the responses of the heart muscle in terms of heart rate and the development and raising of maximum endurance physical fitness, which works significantly to reduce the amount of fat in the body, especially for bodybuilding athletes.(Kazim et al., 2019)

Here lies the importance of research in developing updated exercises represented by cardio exercises and standardizing those exercises in a way that is compatible with the

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special preparation period for bodybuilding athletes in the (Classic Physique) category in the hands of trainers in order to deal with the player in the optimal way during this sensitive period, hoping that it will bring better returns than previous methods.(Kadhim & Mousa, 2024)

Fatima Hassan Abdel Basset's study([1])(2023) The study aimed to identify the effectiveness of cardio exercises on body composition and some physiological variables among female students at Sohar University in the Sultanate of Oman. The researcher used the experimental method for one group on a sample of (40) female students from the dormitories at Sohar University. The researcher confirmed the existence of statistically significant differences between the pre- and post-measurements of the experimental group in the level of some body composition variables, body weight without fat, fat mass, body mass index in favor of the post-measurement, and the existence of statistically significant differences between the pre- and post-measurements in some physical variables (abdominal muscle strength, trunk flexibility, vertical jump, agility, grip strength).

Study by Yardon Hussein Ali([2]) (2022) The study aimed to identify the effect of cardio exercises (HIIT) accompanied by music on the physical fitness of the cardiovascular system, the respiratory system, growth hormone and some body components for female trainees aged 30-35 years. The researcher used the experimental method by designing two equivalent experimental groups with pre- and post-measurement. She confirmed that cardio exercises (HIIT) are effective in developing cardiorespiratory fitness. (Salman et al., 2022)

Study by Ala Rahim Hassan([3])(2021) The study aimed to identify the effect of cardio and intermittent exercises on some biochemical variables, weight and percentage of fat for female trainees of fitness centers in Karbala, aged (25-35) years. The researcher used the experimental method with pre- and post-test for the two groups. The researcher confirmed that cardio exercises have a significant effect on biochemical variables, weight and percentage of fat for female trainees, and that intermittent exercises have a greater effect than cardio exercises on biochemical variables, weight and percentage of fat for female trainees in the female fitness center.

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A study by Iman Faeq Saleh and others ([4]) (2020) The study aimed to identify the importance of cardio exercises, especially for increasing strength and physical fitness among players, and to inform coaches of the importance of these exercises. The researcher used the experimental method with one group, with pre-test and post-test. The researcher confirmed that the proposed cardio exercises had a positive impact on developing the speed-specific strength of the arm and leg muscles. (Munaf et al., 2021)

Study by Doha Abdul Jabbar Muhammad([5]) (2021) The aim of the study was to identify the use of elastic bands before performing the rear deadlift and bench press. The study hypothesis was that there were statistically significant differences between strength before and after using the elastic bands. The sample consisted of 10 first-year students. The researchers used the single-group experimental method and statistical bag to extract the results. They concluded that the weight lifted increased when wearing the elastic bands in the bench press, and increased when wearing a back belt and elastic bands in the rear deadlift. The researchers recommend the necessity of emphasizing the use of elastic bands during training, especially when taking additional weights, and the necessity of conducting such a study on an advanced sample.

Research objectives:

1-Preparing special preparation exercises for bodybuilding using cardio for Classic Physique category players.

2-To identify the effect of cardio-based bodybuilding preparatory exercises on some forms of arm strength for bodybuilders in the Classic Physique category.

Research hypotheses:

There is a positive effect of cardio training exercises in the pre- and post-tests on some forms of arm muscle strength for bodybuilders in the Classic Physique category.

Method Tools

The researchers used the experimental method with an equivalent experimental group design with pre-test and post-test, as shown in Table (1), as this design is considered to have tight control and is suitable for the research procedures“ ,since the experimental method depends on introducing a deliberate variable that is controlled for the specific conditions of an incident and observing the resulting changes in the incident itself and

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interpreting them([6])".Therefore, the researchers chose a random sample consisting of (14) bodybuilding players in the classic physique category who participated in the last Iraqi championship, and their heights ranged between (171 cm - 175 cm) and their weights (77-83), and who represent (35%) of the research community of (40) players in Baghdad, and this is what is shown in Table.(2)

Table (1) shows the experimental design of the research group.

The group	Pre-test	Pilot Program	Post-test
experimental group First	*Maximum arm strength test *Speed specific strength test for arms *Arm endurance test	Cardio exercises + Training program	*Maximum arm strength test *Speed specific strength test for arms *Arm endurance test

Table (2) shows the sample details.

T	the society	number	percentage
1	Research Community/Baghdad	40players	%100
2	Research sample	14players	%35
3	Survey sample	2players	%5

The homogeneity of the research sample was calculated in terms of age, weight, height, and training age, as shown in Table (3), and the value of the skewness coefficient (+1) was extracted to indicate the homogeneity of the research sample.

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Table (3) shows the homogeneity of the sample.

Variables	arithmetic mean	The mediator	standard deviation	Coefficient of skewness
the age	21.4167	21.0000	2.06522	0.604
the weight	80.4167	80.5000	1.83196	0.137
height	173.1667	173.0000	1.46680	0.399
Training age	53.6667	54.0000	4.07505	0.490

The means of collecting information, devices and tools used were as follows:

The researchers used the following methods of collecting information: observation, experimentation, measurement and testing, personal interviews, and Arabic and foreign references and sources.

The devices used in the research were a Chinese-made Lenovo laptop, a medical scale (Chinese-made electronic), and the tools used in the research were iron bars and iron discs of different weights (2.5 kg - 25 kg), iron dumbbells of different weights (2.5 kg - 25 kg), benches of different heights, adhesive tapes, and iron holders.

Cardio exercises (high-intensity interval training)

It is a high-intensity exercise that relies entirely on intense physical effort for short periods, followed by short rest periods between exercises during the training session. It is currently considered a very important exercise because it attracts many individuals who have a desire for a healthy body and high physical fitness([7]) .Parker defined it as aerobic physical exercises that help the body obtain a large amount of oxygen during physical activity, which works to burn blood glucose with the help of oxygen, which is met by stimulating energy through aerobic metabolism([8]) .Nahla Al-Did Darwish defines it as high-intensity exercises interspersed with short rest periods, and based on a combination of aerobic and anaerobic work.([9]) .

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Cardio is the most popular cardiovascular exercise in training sessions and is believed to be one of the most effective ways to improve cardiovascular fitness. Cardio is known to be very effective, particularly for developing cardiorespiratory fitness, economy of movement, and performance of specific endurance training. It also works to increase heart stroke volume, improve fatigue resistance, develop neuromuscular coordination, reduce blood lactate levels, and increase the recruitment of slow-twitch muscle fibers.([10]).

It was named (cardio) in reference to the medical anatomical description of the heart muscle, as the intensity in these exercises targets the heart muscle more directly than the rest of the body's organs and systems, as cardio exercises are done at two levels of intensity.

Low level: heart rate reaches 150 bpm

High level: heart rate reaches 180 bpm or more

Researchers believe that cardio exercises are a method that directly affects the heart and blood vessels for short periods of great and high effort followed by periods of rest. The athlete can perform these exercises with any method that suits the heart condition and is beneficial to him, such as bodyweight exercises and others. The application of high-intensity exercises (cardio) is necessary for anyone working to apply this method to achieve high physical fitness. While the technique of cardio exercises has proven to be of great benefit to advanced athletes, it has also contributed to improving and developing skill performance. The use of cardio exercises helps athletes in the pre-competition stages to get rid of unwanted excess fat and fluids and highlight the body's muscles in a manner consistent with the requirements of physical perfection.

Cardio exercise classification

Cardio exercises are a training method that falls within the aerobic training methods. Aerobic training means physical effort in which the athlete's need to breathe outside air increases during performance. In simpler terms, it is any athletic performance in which the duration of the work is more than 3 minutes.

Therefore, cardio exercises are classified as one of the many aerobic training methods, which are:

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-1 Continuous exercise method
-2 Fartlek method
-3 altitude training method
-4 Aerobic style
-5 Tae Bo style
-6 Cardio style

It's important to note that cardio training is a form of aerobic exercise, but it differs from other aerobic exercise methods in terms of their primary goal, as they serve different purposes. Therefore, cardio training is considered a high-intensity exercise (HIIT), meaning that the intensity is high despite being classified as a low-intensity aerobic training method. This is its most prominent feature among other aerobic training methods.

The main experiment of the cardio research sample

· The number of training units per week is between (4-5) units.
· Every two consecutive days, exercise and the third day, rest.
· The duration of the training program is 45 days, which is the special preparation period.
· Number of training units: 24 training units.
· Each training unit consists of at least five exercises.
· Exercise intensity is approximately submaximal.%(95-90)
· The duration of each exercise (station) is not less than (30-45) seconds.
· The rest period between one exercise (station) and the next is (10-15) seconds.
· The set of exercises (stations) is repeated for (4-5) sets.
· Rest after each set, i.e. series of exercises (stations), for (3-4) minutes.
· The exercise (station) should be performed at maximum speed.
· Each exercise targets specific muscle groups in rotation.
· The exercises are done with body weight or some suitable equipment and tools that serve the purpose, and they can be either jumping, alternating vertical or horizontal steps, or staying in a certain position.
· The duration of a cardio training session should not exceed 45 minutes.

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· It is used more by bodybuilders during the special preparation period.

· The exercise should be independent of the basic exercises, before or after it, by at least 6 hours.

After completing the main experiment, the researchers conducted the post-tests. The researchers took care to ensure that the procedures were as similar to the conditions of the pre-tests as possible in terms of timing and exercise performance. The researchers used the statistical package for the social sciences (SPSS) as follows:

v Arithmetic mean.

v The mediator.

v Standard deviation.

v T-test for matched samples.

v Coefficient of skewness

Results

Table(4) It shows the arithmetic mean, standard deviation, calculated t-value, error level, significance, differences between arithmetic means, and deviation of differences in the pre- and post-tests, the speed-characterized strength of the arms, the strength endurance measurement of the arms, and the maximum strength of the arms for the research sample.

T	Variables	Unit of measurement	tribal		The distant		So	A F	calculated t value	Error level	Significance level
			Q	A	Q	A					
1	Speed-specific strength of	Number of repetitions	6.5000	1.04881	8.3333	.81650	-1.83-333	.47726	-3.841-	.012	spiritual

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	arms										
2	Arm strength endurance test	Number of repetitions	9.0000	.89443	10.1667	.75277	-1.16-667	.16667	-7.000-	.001	spiritual
3	Maximum arm strength	kg	115.6667	13.88044	128.3333	8.75595	12.66667	2.33333	-5.429-	.003	spiritual

*Significant at an error level of ≤ (0.05) with a degree of freedom of(5)

Discussion

By displaying the results of Table (4), we note that the superiority of the results of the research group in (the strength characterized by speed for the arms, the strength endurance for the arms, and the maximum strength for the arms). The researchers believe that the reason for the superiority of the research group is due to the nature of the exercises (cardio that were applied to the research sample for the first time, which are known for their high intensity, as well as the exercises that were prepared and applied during the training units, which are the exercise of opening and closing the legs and arms by jumping, the running movement with raising the knees high and to the left and right ,The forward leaning exercise, then the player stands up, the forward leaning exercise, then running, then standing up, the squat exercise, then standing up for running. The players performed the exercises regularly, with high training intensity and repetitions for 45 seconds of work and 30 seconds of rest. Ghassan Adeeb Abdul Hassan confirms that the high-speed frequency of the nerve fluid makes the muscle work with a very high contraction, which leaves adaptations that are reflected in the form of maximum contractions resulting from

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accustoming to maximum work and the amount of height of the curve that represents the peak of the muscle contraction([11]).

Cardio exercises are considered to be of great benefit in bodybuilding, as they are exercises used for the first time after the basic training units, and there was no existing method or method followed by players in using cardio exercises, which gave a great benefit in the physical adaptations that occur as a result of its use, and this is what (Adel Abdel Basir) confirms by saying that“ each group of exercises, by any means, must be prepared in a way that gives an effective impact in developing all the capabilities specific to the type of activity ([12])”.From all of this, researchers believe that regular training of players on cardio exercises, as they are modern exercises, gives positive returns in terms of getting rid of unwanted excess and fluids and showing the body in the optimal form to complete the best physical image. The results came out positive in the post-tests of the arm muscles as a result of the muscles adapting to these exercises and not wasting and scattering the muscle contraction by involving muscle parts that are not needed during performance, which is reflected positively on the strength of the contraction, which gives positive results.

Conclusions

Based on the results of the statistical analysis that the researcher reached within the limits of the research community, it was possible to reach the following conclusions:

1-Cardio exercises had a positive impact on Classic Physique bodybuilders during their preparation period, giving the players better muscle definition and definition, revealing their muscle sections, and yielding significant and rapid results.

2-Cardio exercises are effective in developing cardiorespiratory fitness because they directly work the cardiovascular, respiratory, and muscular systems.

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