

**The study examined the effectiveness of intense special exercises, combined with intermittent electrical stimulation, in alleviating lower back pain in professors aged 50-60 years at the College of Science, University of Baghdad**

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## **ABSTRACT**

Lower back pain is one of the problems facing all groups of society, especially the elderly, as the causes of pain revolve around many different factors. The research aims to use intense special exercises accompanied by intermittent electrical stimulation to get rid of lower back pain among professors of the College of Science at the University of Baghdad for ages 50–60 and identify its effect. The research assumes that there are statistically significant differences in the degree of pain before and after the therapeutic approaches. The research sample consisted of professors who suffer from constant pain, numbering (6). The researchers used the experimental method to design one experimental group with a pre- and post-test to suit the research problem. They also used the SPSS program to process the research data statistically. The collected results concluded that the intense special exercises and intermittent electrical stimulation at the beginning of the rehabilitation unit contributed to pain relief by reducing the degree of pain within a short period. The researchers recommended using special exercises and stimulation to relieve pain in other similar cases.

**Keywords:** Intense special exercises, intermittent electrical stimulation, the pain, lower back.

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## Introduction

Unexpected lower back discomfort brought on by a spinal or trunk injury might restrict trunk movement. One side may experience the discomfort, which may only last briefly before disappearing as the injury heals. But if you don't address it, the lower back's surrounding muscles might spasm and cause limited movement, making it a chronic condition (Batota, 2006, p. 2)

Individuals of all age groups, from infancy to old age, experience lower back pain, a contemporary condition that causes discomfort due to pain, restricted movement, and the inability to perform everyday tasks without difficulty. Seven cervical vertebrae, twelve thoracic vertebrae that connect with the ribs, five lumbar vertebrae that form the lower back, five fused sacral vertebrae, and finally four fused coccygeal vertebrae, also known as the coccyx, make up the spine (Kanaz, 2009, p. 49). Lower back discomfort is caused by disc problems, muscular weakness in the lower back, and vertebral fractures or abnormalities (Abdulzahra, 2000, p. 23). The objective of this study is to employ rigorous specialized workouts combined with intermittent electrical stimulation to reduce lower back pain in professors aged 50-60 years at the College of Science, University of Baghdad, and to determine the impact of this approach. The study postulates that there exist statistically significant disparities in pain levels prior to and following the treatment interventions. Hussein (2016), who sought to determine the effects of nutritional supplements in conjunction with therapeutic activities for the treatment of lower back pain, conducted the study that examined relevant prior research. It concluded that therapeutic activities paired with dietary supplements contributed to the development of various trunk flexion angles, and that these exercises, along with dietary supplements, lowered pain levels and enhanced back muscle strength. We also discussed the study by Al-Khazraji, Al-Ani, and Abbas (2017). The study aimed to design therapeutic exercises to increase trunk flexibility for individuals with physical disabilities (unilateral below-knee amputation) and investigate the impact of these therapeutic exercises on reducing lower back pain in the research sample. It concluded that the therapeutic exercises applied to the research sample had a positive effect on improving trunk and spinal flexibility, and that enhancing trunk and spinal flexibility significantly contributed to reducing pain levels in the research sample of individuals with physical disabilities (unilateral below-knee amputation), as noted in the study by Abu Al-Eyoun and Majli, 2016. The objective was to develop a recovery program for individuals with lumbar disc herniation, incorporating therapeutic exercises, therapeutic massage, thermal treatment techniques, and traction therapy. The study also aimed to determine how the proposed program would affect various study variables such as the degree of disc herniation, the strength of the back and leg muscles, back flexibility, pain levels, limb numbness, movement satisfaction, and the disability index due to lower back pain. I have determined that the suggested treatment program involves the use of therapeutic massage, thermal modalities, traction therapy, and controlled therapeutic exercises to partially rearrange the slipped disc to its original position, enhance the strength of the back and leg muscles, improve back flexibility, decrease pain sensation, alleviate numbness in the limbs, and restore the patient's functional capacity to meet daily life demands. Abdul Amir and Ibrahim (2023) conducted a study with the goal of determining the values of spinal flexibility levels and assessing the importance of the disparities between pre-test and post-test outcomes among squash players who are younger than 20 years old. I observed significant differences between the pre-tests and post-tests, favoring the post-tests for the research group because of the preventive exercises that were

provided for this purpose. The objective of Abdul Razak's (2016) study was to provide therapeutic activities combined with medical equipment for individuals suffering from lumbar disc herniation. (Kadhim, 2024a) It determined that rehabilitation exercises and equipment have an effective role in the therapy process, avoiding muscular atrophy in the affected areas. Additionally, the progressive increase in difficulty and regular diversity of workouts gave a psychological boost for the patient. The medical equipment significantly mitigated back discomfort and facilitated weight loss, thereby enhancing the patient's psychological comfort during the weight loss process and enabling them to perceive the resulting changes. Recognizing that the psychological and mood conditions can be rather difficult during the initial stages of treatment, it is crucial to adopt a combination of psychological and therapeutic approaches. The value of the current study is in constructing an intensive rehabilitation program with intermittent electrical stimulation to help teachers lessen back pain sensations. (Kazim et al., 2019)

### The method and tools

The research topic requires the employment of the experimental method with a one-group design incorporating pre-test and post-test, as it is suitable for this issue. As for the sample, it consists of academics from the College of Science at the University of Baghdad who have been suffering from chronic pain from October 1, 2023, to December 31, 2023, and their number is... (The researchers used the pain assessment test (Al-Najjar, 2001, page 48)

The investigators administered a pre-test to the sample at various intervals, and thereafter conducted a post-test three weeks later. During the interim between the tests, intensive specific exercises accompanied by intermittent electrical stimulation were employed at the beginning of the rehabilitation unit to assist alleviate lower back pain over the course of three units per week, with 10 minutes of intermittent electrical stimulation. The module comprised a series of 4 to 7 exercises, with the major segment lasting on average between 20 and 30 minutes.

The researchers employed the Statistical Package for the Social Sciences (SPSS) to do statistical analysis on the available data

- 1-The arithmetic mean
- 2-The concept of standard deviation
- 3-T-test for independent samples

### Results

(Table 1)

This visual representation displays the average values and measures of variability for the pain assessment test outcomes in both the pre-test and post-test.

Post-test		The pre-test		Unit of measurement	The variables
Standard deviation	The arithmetic mean	Standard deviation	The arithmetic mean.		
0.816	1.33	0.753	6.17	Degree	Measuring the level of pain.

(Table 2)

It indicates the difference in means, standard deviation, computed t-value, error level, and significance of differences for the pain measurement test.

The indication	The level of error sig.	The calculated value of (t)	Standard deviation	The arithmetic mean.	Unit of measurement	The variables
Spirituality	0.000	12.042	0.983	4.833	Degree	Measuring the level of pain.

\*Degrees of freedom (6-1=5).  
Significance at the 0.05 level is shown when the error level is equal to or less than 0.05.

## Discussion

Complete physical rehabilitation has a favorable impact on strengthening afflicted muscles, boosting blood circulation, reducing discomfort, and improving muscle tone (Bakri and Al-Ghamri, 2011, p. 50). The contribution of rehabilitation with assistive methods leads to the activation of blood circulation in the injured muscles and works on repairing the damaged muscle fibers, preventing muscle atrophy due to injury (Ismail and Jawad, 2023, p. 560). An analysis of Tables (1, 2) clearly reveals notable disparities, indicating a decline in the average scores between the pre-test and post-test for assessing lower back pain levels. The researchers ascribe this to intensive targeted workouts and their contribution to reducing lower back pain, in addition to the use of intermittent electrical stimulation. The responsibility for applying suitable physical exercises for different types of injuries and their impact on treatment lies with the therapist. They must possess knowledge of training principles related to volume, rest, (Kadhim, 2024b) and intensity and utilize them proficiently (Brody, 2012, p. 220). The sports physician, physical therapist, strength and conditioning coaches, sports psychologist, nutritionist, and the athlete themselves are expected to adopt a consistent bio psychosocial approach to managing sports injuries (Himmat, Sidak, & Mandeep, 2017, p. It seems like your message is incomplete. Could you please provide more background or clarify what you would like to translate? The exercises employed contribute to expanding the range of motion through joint flexibility and muscular elasticity, as demonstrated by Mahmoud and Ismail (2023, p. 1067). Rehabilitation exercises can promote fluid joint mobility, since strengthening the flexibility of the trunk and spine has considerably contributed to reducing pain levels (Al-Khazraji, Al-Ani, and Abbas, 2017, p. 416). Furthermore, this perspective is shared by both Abu Al-Eyoun and Majli (2016, p. 271) as well as Owaid and Hussein (2023, p. 712). The administration and use of regulated therapeutic exercises greatly contribute, notably to the decrease of pain levels. Moreover, the optimal application of innovative

supplementary approaches can assist individuals in improving their health state and managing the demands of their everyday lives. For this reason, a significant number of people regularly visit fitness centers (Khalaf & Abdul-Kadhim, 2022, p. 133). Additionally, exercises play a role in reducing the recurrence of these aches. Abdul-Amir and Ibrahim (2023, p. 534) highlight that range of motion exercises, both without and with resistance, help in preventing spinal injuries. Both Mahdi, Hussein, and Zanaad (2021, p. 123) highlight the educational institution's provision of medical services, counseling, and therapeutic activities.

### The conclusions

The obtained results concluded that intensive targeted workouts accompanied by intermittent electrical stimulation at the beginning of the rehabilitation unit contributed to pain alleviation by reducing the level of discomfort within a short duration. The researchers advocated adopting specific workouts and stimulation to reduce pain in other comparable patients.

The appendices
((The appendix))
A sample of the qualifying units
The week: the second
The rehabilitation unit: the third
The duration of the main component of the unit: 22:50 minutes (10 minutes of intermittent electrical stimulation and 12:50 minutes of intensive specific exercises)

Rest between exercises	The total time for each exercise	Total rest time	Total working time	Rest between groups	Groups	Rest between repetitions	The time of a single repetition	Repetition	The exercises
1D	2:10D	30 Th	1:40D	30Th	2		5Th	10	Bridge exercise with knees bent at a 90-degree angle from a lying position.
1D	1:10D	30 Th	40Th	-	1	10Th	10Th	4	Exercise of pulling the leg in front of the body while bending

									the knee from a seated position.
1D	2:10D	30 Th	1:40D	30Th	2		5Th	10	Body rotation exercise to the right and left with the knees bent at a 90-degree angle from a laying posture.
1D	1:10D	30 Th	40Th	-	1	10Th	10Th	4	A thigh muscle push-up exercise performed with the hands and knee flexed at a 90-degree angle while lying-down.
1D	1:10D	30 Th	40Th	-	1	10Th	10Th	4	Hand resistance workout by placing them on the bent knees at a 90-degree angle from the lying posture.

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