P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

DOI: https://doi.org/10.54702/ms.v22i3.1157

The effect of rehabilitative exercises preceded by an electrical stimulation device for working muscles in relieving lower back pain for women aged (25-35) years

Inaam Jaafer Sadiq [1], Bushra Kadhim Abdulridha [2]

1&2 Physical Education and Sport Sciences college for women, University of Baghdad

Received: 07/04/2023, Accepted: 25/05/2023, Published: 30/09/2023

Abstract

The importance of the research lies in: The effect of rehabilitative exercises accompanying the electrical stimulation device for working muscles in relieving lower back pain for women aged (25-35) years and identifying the extent of the effect of these exercises in relieving lower back pain. The research problem lies as a result of technological progress, as the individual's movement became less and less, which made him\her more vulnerable to injuries, which led to an increase in the number of women with lower back pain, and the negative effects of those pains on their practical and psychological lives, which prompted the two researchers to study this problem by strengthening the working muscles that have a role in relieving lower back pain, and the two researchers chose the experimental approach with the pre and post-test for its suitability to the nature of the research. with lower back pain, and the ages of the research sample ranged between (25-35) years, and it collected the sample individuals who had the injury within a period of time from one month to six months from the date of the injury to them), and the degree of injury was determined, which is from the average condition, where the two researchers excluded (5) other female patients who were not within the appropriate conditions for the research and who felt an improvement in their health and the disappearance of pain, so they stopped performing the sessions. Thus, the sample constitutes (58,333%) of the total number of injured women in the time period for their collection, who are proven to be reviewed in (Al-Rafidain College Medical Center for Medical Rehabilitation and Physiotherapy). The exercises had a role in increasing blood flow in addition to heating the area, which made it easier for the injured person to perform the exercises freely, which improved muscle performance to a greater extent. and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The researchers recommended practicing sports and modifying daily behavior by paying attention to correct posture while performing daily tasks.

Keywords | **rehabilitative exercises , lower back pain**

Introduction

Motor therapy with rehabilitative exercises, in combination with therapeutic techniques, is considered one of the most effective means of physical therapy if it is used in an organized and accurate manner, based on measuring the electrical muscle activity of the muscles working in motor performance, given that motor therapy depends on the histocompatibility of most body systems and depends on movement concepts in the preparation of curricula or rehabilitative therapeutic programs to restore and renew motor functions and reach a pre-injury state or reduce the feeling of pain. For this reason, the importance of using modern methods and techniques that serve sports rehabilitation appeared widely among all groups of society, including electrical stimulation in addition to the specialized therapist.

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

Scientific facts indicate that no matter how accurate and effective the sports rehabilitation technology and techniques are, they still need a specialist familiar with the nature of human body movement and what is related to physical rehabilitation or physiotherapy from anatomy to identify the anatomical sites of origin and compact muscles and with physiology to understand the functional and chemical mechanism of tissue healing and regeneration. Rehabilitation as well as the biochemical processes that occur in the cells that help improve or restore their recovery based on the results of applied research based on the same principles of modification adopted to increase the positive effect of rehabilitation treatment and shorten the time in more than one way to invest time and effort and reduce the impact to achieve the maximum level of rehabilitation practice for the injured and returning them to their normal lives. Through this, the two researchers seek to discover the easiest way to treat and rehabilitate one of the most common injuries that women are exposed to, which is lower back pain of medium degree.

The research problem lies in the fact that the nature of human work in most of the daily work that it performs, including office work, including carrying items and requirements of daily life, sitting in office jobs, watching TV, frequent use of game consoles and other pressures of life and wrong standing results in pressure on a group of muscles in the body, including the muscles responsible for linking the harmonic movements of the muscles of the upper part of the body with the torso and with the lower extremities. Thus, strengthening the muscles requires adopting the principle of exchange in the work of muscle groups and diversification of movements so that rehabilitation of their strength targets most of the muscles of the body. One muscle group is not strengthened at the expense of another group and often resorts to the therapists refer to this method of rehabilitation by adopting the principle of isolating muscle groups to target the affected part, which increases the possibility of feeling lower back pain, which is a common injury, especially for women aged 25-35 years, and women in particular who work in offices or in all housework, as the structure differs The woman's physique is about that of the man in the ability to bear the effort and perform some daily work. Through this, the two researchers decided to diagnose this condition by inferring the electrical activity device (EMG) to determine the highest muscle activity of the working muscles of the selected sample that suffers from lower back pain, and thus work on preparing exercises to strengthen the muscles in which the muscle activity appears less and that diagnosis and targeting of the condition helps in Reducing the burden on treatment centers, recovery and reducing the degree of pain in the lower back after presenting it to a group of experts and specialists in the field of sports physiology and anatomy for the purpose of selecting the most effective muscles in improving lower back pain (Appendix No. 1), as eight influential muscles were chosen because the device has Eight channels measure muscle activity at the same time. The most important muscles were selected, which obtained 85% of the agreement of experts and specialists, which is an acceptable percentage. The two researchers have the right to choose the percentage that they deem appropriate when choosing the variables.

The study aimed to prepare rehabilitative exercises associated with electrical stimulation and to find out the extent of the effect of these rehabilitative exercises in relieving lower back pain for women with ages 25-35 years.

The two researchers hypothesized that the use of rehabilitative exercises associated with electrical stimulation has a positive effect in relieving lower back pain for women aged 25-35 years.

As for the areas of research: the human field is a sample of women with lower back pain who attend the physiotherapy center located in Al-

P-ISSN: 1992-0091
E-ISSN: 2708-3454
Modern Sport
Vol.22 No.3 ,2023
Published 30/09/2023 Open Access

Rafidain College / Physical Therapy Department.
Time range: 19/2/2022 to 1/2/2023
Spatial field: Al-Rafidain University College / Department of Physiotherapy.

Method and procedures:

The two researchers collected the sample of the injured women who attended (Rehabilitation and Physiotherapy Center / Al-Rafidain University College), and the number of women with lower back pain during that period was (12). The two researchers used the experimental method with a pre and post-test for its suitability to the nature of the research. The research community was determined by the intentional method, consisting of (12) women with low back pain, and the sample consisting of (7) women with low back pain was selected. The ages of the research sample ranged between (25-35) years. The two researchers collected the sample members who had the injury within a period of time from one month to six months from the date of the injury, and the degree of injury was determined, which is from the average condition, as the two researchers excluded (5) injured women who were not within the appropriate conditions for the research and who felt an improvement in the health condition and the disappearance of pain, so they stopped performing the sessions, and thus The sample constitutes (58,333%) of the total number of female patients in the time period of their collection, who are confirmed to have attended (Al-Rafidain College, Medical Center for Medical Rehabilitation and Physiotherapy). Table (1) shows the homogeneity of the sample.

Table (1)
Shows the homogeneity of the research sample

Variables	Measurement unit	Arthmatical mean	standard deviation	mediator	torsion modulus± 3
Age	Year	30.531	2.733	30	0.601
BMI	.Kg	65.654	2.653	65	0.894
High	.Cm	163.643	4.231	163	0.419
degree of injury	medium				

As for the means of collecting information, it included observation, tests, and measurements of Arabic and foreign sources and references).
The tools used in the research are (4) rubber mats measuring (110 x 190) cm. Rubber ropes of different lengths ranging from (1-3) Power Resistance type (Chinese-made), sandbags weighing (1-2-3) kg, Kettle bell weighing (1-2 kg), a linen tape measure to measure the length, looped rubber ropes (1) German-made medical bed, (1) Sony video camera with a frequency of (24 images), (1) Dell laptop, (1) electronic medical scale, and (EMG) electrical stimulation device. Canadian-made type (MYOTRACE400) surface electrodes, double electrodes, non-medical alcohol (75%) for cleaning, medical cotton, and medical adhesive tapes, phosphorous markers with a leather case with a rubber strap to fix the device (EMG) around the laboratory's waist.

Tests used in the research:

First: Testing the Visual Symmetry Scale for Pain (2).
The purpose of the test: to determine the pain index
Description of the performance from the supine position of the injured person on the medical bed and lifting. Table (2-3) below shows the muscles that make up the anterior spiral line and their location and origin from the legs to the top. The patient is asked about the degree of pain from

P-ISSN: 1992-0091
E-ISSN: 2708-3454
Modern Sport
Vol.22 No.3 ,2023
Published 30/09/2023
Open Access

(10 degrees as a maximum) and a degree (0 as a minimum) The degree of pain is determined after completing the doctor's examination of the injured person and asking him questions to answer them. The degree of pain is determined according to a form prepared for this purpose.

Unit of measurement: The degree of pain estimated by the injured person. Nothing Weak Ordinary Intensive Figure 1: Pain identification index

Secondly, testing the flexibility of the trunk muscles from the forward bending position (5).
The purpose of the test: to measure the elongation of the posterior back muscles.
Tools: an iron rule with a height of fifty centimeters, a solid ruler with a scale of (zero one hundred) centimeters and fixed vertically on a base so that the number (fifty) is parallel to the surface of this ruler and the number (one hundred) is parallel to the bottom edge of the base, a paper registration form.

Procedures and conditions:
The injured person stands on the base of the iron with his feet joined and fixes the fingers on the edge of the seat with his knees straight, then the injured person bends the torso forward and downward to push the pointer with the tip of his fingers to the furthest distance, provided that it is fixed at the last distance it reaches for two seconds, taking into account that the torso is bent slowly and the knees are not bent.
Registration: The distance is measured from the wall up to the chin. Each tester has two attempts to calculate the best one.
measure: centimeters.

Third: Testing the flexibility of the trunk muscles from the position of bending the trunk backwards (4).
Test name: torso flexion backwards from standing.
The aim of the test is to measure the flexibility of the posterior trunk muscles.
Tools Leather Belt Tape Measure Paper registration form.
Procedures and conditions: From a standing position in front of a wall with the pelvis fixed by a belt, the tester bends the torso back as far as possible, taking into account not moving the feet and steadfastness for two seconds at the last distance the tester reaches.
Recording the distance from the wall to the chin is measured. Each tester has two attempts to calculate the best.
Unit of measurement: The centimeter.
Fourth: Test measuring the electrical activity of the muscles (1).
The aim of the test is to determine the highest electrical index (apex) for the following muscles (splenic cephalic cervical - oblique quadriceps - dorsal bone - lumbar (iliac) - long sleeper - femoral bilateral heads - tibialis - lateral posterior coccygeal).
Description of the test: The muscles to be measured for electrical activity and the points to be placed on the electrode were determined through the computer and matched to the body

P-ISSN: 1992-0091
E-ISSN: 2708-3454
Modern Sport
Vol.22 No.3 ,2023
Published 30/09/2023
Open Access

of the sample after rubbing the area with medical alcohol to ensure removal of skin secretions from its surface to reduce skin resistance to electrical signals and to obtain a good (EMG) signal. Then the clamp is fixed on the muscles concerned, taking into account the fixation of the double clamp on the top of the middle of the muscle parallel to the direction of the muscle fibers, knowing that the diameter of the clamp is (1 cm), and the distance between the centers of the two clamps above the muscle is (2) cm, and the connection cables are fixed on the clamp and fixed by adhesive tape (medical plaster). To determine the movement of the wires, a third single pickup is installed to get rid of the distorted signals coming to the device, and it is called the ground pickup. The cables are connected to a device for receiving and transmitting the signal, and the device for receiving the signal is connected and tied with a belt around the waist of the injured person to ensure that she is not obstructed, as this device works to receive electrical muscle by the wires connecting it. And between the receivers, this device will exclude frequencies below (20 Hz), and this device will send an (EMG) signal in the form of a (Bluetooth) signal to the receiver (type Pc Interface Model044) that is connected to a personal computer (Laptop), and it is connected to a video camera to link the (EMG) signal.

As the informant can move freely and move away more than (20 meters) while maintaining the strength and quality of the received signal with the same sufficiency, and the program (Moy ResearchXP1.06.67) was used, which is loaded on the computer, and its duty is to record the data received to the computer and display the raw EMG signal and store it so that it can be processed graphically And statistically later, and above it the name of the muscle, and it can perform several treatments for this signal later (and through the Software Program it analyzes the stored data, processes various types of analyzes and issues useful reports on the activity of the muscle), and this program also has a map of the muscles of the body. The highest electrical index (apex) was determined for the following muscles: cervical-anchoral-splenic, quadriceps oblique, dorsal, iliac-lumbar long sleeper, tibial-tibial, and gluteus-posterior-lateral.

The two researchers conducted a first exploratory experiment of tests, tools and devices on Tuesday corresponding to (2/8/2022) on (2) women with low back pain who are members of the research community to confirm the validity of the tools used under study and to address the errors and negatives that appear during the work of the experiment The main and confirmation of the validity of the electrical stimulation device to measure muscle electricity by means of the (EMG) device. As for the second exploratory experiment related to the proposed rehabilitative exercises: The two researchers conducted the exploratory experiment on the same sample that was conducted on the previous experiment on (10/2/2022) corresponding to Thursday, and the purpose is to identify On the time taken for the rehabilitation unit, the time of each exercise, and the obstacles encountered in conducting the rehabilitation unit, the suitability of the exercises used in the unit and the ability of the injured to perform the appropriate exercises for her. Then the two researchers conducted the pre-tests: on (2/12/2022) at the center of the treatment department Natural - Al-Rafidain University College, as the two researchers, with the help of the assistant work team (Appendix No. 2), measured the muscular activity of the cervical-cephalic-splenic working muscles, quadriceps oblique, dorsal bone, iliac-lumbar, long sleeper, tibial-tibial, twin-posterior-lateral, and the rest of the tests, after selecting a sample The research The two researchers prepared rehabilitative exercises for the rehabilitation of lower back pain, relying on sources, references, research, and previous Arab and foreign studies, as well as the opinions of experts and specialists in the interviews conducted with them, Appendix No. (2). The two researchers were present with the

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

specialized therapist in the center to supervise the implementation of rehabilitative exercises associated with electrical stimulation supported by rehabilitative and therapeutic means that were agreed upon and applied to the injured, as the rehabilitative exercises took a period that extended from Monday (2/19/2022) until Tuesday (12/2022). (3/2022) The qualifying exercises for the experimental group included (10) rehabilitation units, at the rate of (3) units per week, with a total of (5) rehabilitation exercises per day, which were applied through the use of rehabilitative means and without, and the number of exercises reached (30) exercises and the duration of each rehabilitation unit In total, it ranges between (30-40 minutes) for the qualifying units, where the researchers gradually increased the repetitions (2-10) times, and the time of stability in each exercise ranged (10-20 seconds), as the researchers took into account that gradient in the time of stability, and it was applied Electrical stimulation before starting the implementation of the rehabilitative exercises, where the time of the stimulus session was (10 to 15 minutes), in addition to that, the two researchers provided all the instructions and tips related to the injury and how to practice the correct and sound habits.

Post exams: Post exams were conducted on 3/19/2022 in the same center.

The tests:

Table (2)
Shows the arithmetic mean and standard deviations of the electrical activity variable (peak). Trunk flexion test for the pre and post front

Museles	Pre test		Post test		AD	STD M	standard error	T	Sig.	Significance
	A	STD	A	STD						
Cervical_cephalic_splenic	22.67	1.63	35.33	4.23	7.4	0.69	0.28	26.05	0.002	Sign
Quadruple _ perverted	49.17	5.15	54.67	6.53	6.9	1.27	0.52	13.26	0.001	Sign
dorsal_osseous	37	3.35	48.67	4.93	11.33	1.21	0.49	22.92	0.004	Sign
iliac-lumbar	20.83	1.6	36	4.29	12.18	0.4	0.16	74.22	0.000	Sign
The long sleeper	41.67	3.78	71.67	9.07	12.38	1.48	0.6	20.44	0.000	Sign
Bi-cephalic-femoral	60.33	3.27	79.33	11.45	20.13	1.68	0.68	29.33	0.009	Sign
tibial_tibial	20.33	1.75	39.33	5.39	14.73	2.1	0.85	17.15	0.001	Sign
dorsal-lateral twinning	38.17	3.43	60.67	5.39	6.83	0.98	0.401	17.024	0.000	Sign

Table (3)
Shows the differences between the pre and post-tests in the index of peak electrical activity of muscles Under study during the test of the trunk bending back pre and post

Muscle	Pre test		Post test		AD	STD M	Standered error	T	Sig.	Significance
	A	STD	A	STD						
Cervical_cephalic_splenic	37.17	3.54	49.5	8.55	7.00	1.26	0.52	13.56	0.000	Sign
Quadruple _ perverted	61.5	4.37	82.5	10.27	9.83	2.14	0.87	11.27	0.000	Sign
dorsal_osseous	6.5	1.05	29	10.02	11.17	3.13	1.28	8.75	0.000	Sign
iliac-lumbar	12.5	1.87	36.83	9.75	9.67	4.27	1.74	5.54	0.003	Sign
The long sleeper	46.33	2.94	51.83	16.29	13.17	4.83	1.97	6.67	0.001	Sign

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

Bi-cephalic-femoral	65.33	3.27	69	11.22	31.50	9.01	3.68	8.57	0.000	Sign
tibial_tibial	21.5	2.35	54.5	11.06	3.67	5.65	2.30	1.59	0.172	Unsign
Twinism_posterior_distal	32	2	45	3.35	27.67	6.02	2.46	11.25	0.000	Sign

Table (4)
Shows the statistical description and the pre and post-test examination values in the pain index

Tests	Asthmatic mean	Standered deviation	Standered error	AD	STDM	T value	Sig.	Significance
Pre	**26.6**	**2.3**	**0.95**	**7.66**	**3.88**	**5.54**	**0.003**	**Sign**
Post	**19**	**1.67**	**0.68**					

Through the previous results that were presented and analyzed for the pre and post-tests in Table (2,3,4), the results of the statistical treatments of the raw values obtained from the electrical activity test of the muscles under study by the technique of recording the signal from the surface of the skin showed us statistically significant differences with significant significance within An error level of (0.05), where the values of all muscles were significant at this level, with the differences in the values of the significance level for each muscle group.

The two researchers found that these significant results of the different muscle groups distributed along the body are objective indications for interpreting the results of functional adaptations related to the type of motor duty, taking into account the difference in the values of the differences between the pre and post. When we observed Table No. (2), it became clear to us that the exercises under application had a significant impact on improving muscle work and developing their strength significantly, which was reflected in the output of the peak electrical activity index. In the muscles working to resist bending the torso forward as a result of a clear rebound to maintain the range of motion of the joint and not to cause significant damage, and this indicates the balance of the body's center of gravity during movement. The area of the balance area, the study of (Zubaida and Intisar) indicated that a state of equilibrium is achieved when the ray of the body's center of gravity falls in the center of the equilibrium area (14) Also, the use of rehabilitative exercises with and without the auxiliary tools had a significant impact on developing the physical capabilities of the research sample, which in turn led to an improvement in their level of performance, and the study confirmed (Jumana and Zainab), as the use of rubber ropes lead to mobilize a large number of muscle fibers and recruit a greater number of motor units. (10).

The two researchers find that the difference in the motor duty of each muscle requires us to give judgments in a manner commensurate with its functional and motor role. Rehabilitation exercises are placed on the basis of a specific duty imposed on us by the type and severity of the injury, as we find through our review of the above tables that the most effective muscles in terms of changing the value of the highest peak of electrical activity were for the three target muscles of the trunk as well as the twin leg muscle. The length of the body was benefiting from the outcome of the rehabilitative exercises, especially the muscles associated with the type of motor duty, and the sequence of the presence of muscles can explain We have an objective method for distributing exercises in proportion to the type of duty assigned to them.

It should be noted that dealing thoughtfully with the located muscle groups and giving them great

P-ISSN: 1992-0091
E-ISSN: 2708-3454
Modern Sport
Vol.22 No.3 ,2023
Published 30/09/2023
Open Access

importance and continuous follow-up through the formation and diversification of exercises in addition to targeting exercises for these muscle groups made it easy to go in the direction of returning the muscles to the nature of their functional work properly. The weakness of a person's motor capabilities, including flexibility, leads to injury, (7), that the areas of pain represented by the suffering of the muscles are treated differently from nerve or bone pain; The fact that muscle tissue can respond and rehabilitate more effectively. (Tawfiq and Hussam) indicated that pain is a protective system that moves naturally and involuntarily in our bodies in order to warn us of the existence of a defect in the biological system of cells, tissues, or the surrounding environment. In reducing it or prompting us to avoid the causes of this pain, (3) since the use of therapeutic exercises in clinical practice for patients with low back pain LBP can restore basic stabilization exercises the important function of the central trunk muscles and increase effectiveness and practicality in sensory integration of spinal stability in individuals with LBP. Some studies have indicated a comparison of the effects of two different exercise regimens, basic stabilization exercises (CSE) and strengthening exercises (STE), on proprioception, balance, muscle thickness and pain-related outcomes for patients with non-specific low back pain. And fixation has a clear effect in addition to the mobile resistance exercises. Globally, low back pain (LBP) is one of the largest causes of disability in people with LBP.

Dysfunction in muscles such as the gluteus medius has been shown to overload the spine and decrease its stability. Differences in the function of the gluteus medius have been identified in those with LBP compared to those without, although these cases have only been identified in individual studies. The primary objective remains to determine whether adults with a history of low back pain show differences in measures of gluteal medius function when compared to adults without low back pain. The study showed that there are specific muscle groups that may be referred to as the cause of lower back pain more than others. Low back pain indicates lower strength and more trigger points compared to the gluteus medius muscle for those who do not have symptoms of low back pain. This was confirmed by the study (Aya and Abeer). Activity level, fatigue, activation time, time to activation peak, cross-sectional area and muscle thickness showed unclear results. (6).

The two researchers believe that practicing physical exercises on a regular basis leads to a reduction in the incidence of lower back pain for women, and vice versa, the injury occurs due to the low level of physical fitness and the lack of daily exercises, and this is consistent with (Rania and Mona), as they indicate,, that the practice of physical exercises for different ages is a goal Public health and gaining physical fitness should be based on scientific foundations and not arbitrarily and randomly, and cause a decrease in the level of physical fitness among many and for different groups of society, and this in turn leads to exacerbation of physical problems and thus the occurrence of injury,, (11) and one of the most likely injuries to occur is lower back pain Because of the weakness of the muscles associated with the spine and their inability to endure, muscle flexibility also has an effective role in avoiding injury. The study (Israa and Mona) indicated that the failure to practice flexibility and strength exercises for the injured may expose them to the risk of severe injury with the difficulty of performing daily life activities and may cause disability for the injured, (9)

Hence, the two researchers proceed to adopt their own concept, which is related to the type of their study, that the muscles can have varying proportions in the formation of the type of pain that causes lower back pain, and therefore the final outcome is complementary in the growth and emergence of lower back pain in the sample, and that the process of rehabilitating the muscle

P-ISSN: 1992-0091
E-ISSN: 2708-3454
Modern Sport
Vol.22 No.3 ,2023
Published 30/09/2023 Open Access

groups independently and during A comprehensive training unit that can give an opportunity for muscular coordination in the internal work to reach a mechanical overlap in the origin of the functional and motor performance of the muscles in their total form and make the patient feel a state of remarkable improvement in the health aspect. The study (Reham and Abeer) indicated that it is necessary to know the reaction of the body to the injury and what are the signs and symptoms associated with it (12). Within 8-10 weeks, as the exercises reduced postural pain, curvature of the spine, postural effect, and increased basic stamina in the research sample of women. The study (Ruaa and Abeer) confirmed that the aim of the exercises is not to get used to the pain, but rather to avoid it and the feeling of the sufferer with it, and this is what helps in merging the objectives of the content of the rehabilitative exercises prepared, (13), that the exercises can be effective in treating postural pain and imbalance Spine problems related to underlying weakness and balance disorders. The two researchers find that stopping at the physiological or functional causes of pain so that we can later develop appropriate solutions for this pathological condition or impeding movement. Despite numerous examinations in a series of studies, no specific explanations for low back pain in patients have been found. No spasticity of the muscles of the spinal cord was found in particular, or signs of dystonia, other neurological involvement (central or peripheral), intrapelvic diseases or orthopedic problems (trauma, disc protrusion). The origin of the pain from the psoas muscle was only a clinical observation in the first two cases. Accordingly, it can be asserted that lower back pain cannot be determined by a muscle group alone, so we find that the legitimacy of our study is logical in the inclusion of a number of muscle groups for rehabilitative exercises, which goes in the direction of developing effective solutions to treat the pain suffered by the sample members.

The modern devices used by the two researchers in measuring and diagnosing pain effectively contributed to reducing the effort to rehabilitate the injury and the feeling of recovery within a somewhat record period. The use of exercises with auxiliary tools had a role in developing physical abilities, which in turn led to improving the movement of the athlete, and (Iman and Mona) indicated,, that exercises that target the basic and auxiliary working muscles create a physiological adaptation in the muscles of the body according to the use of the maximum range of the mechanism Movement based on applying the principles of sports training in acquiring motor abilities in a distinctive way (8) and thus adapting the muscles to work in a wider and better range, which relieves pain and gradually leads to its disappearance.

Conclusions:

By presenting, analyzing and discussing the results of the pre and post-tests, the two researchers concluded: The adoption of an accurate diagnosis of the sample from specialists contributed significantly to giving accurate results in the application of exercises and showing good results, in addition to the use of (electrical stimulation) as an aid before performing the exercises had a role In increasing blood flow in addition to heating the area, which made it easier for the injured person to perform exercises freely, which improves muscle performance to a greater degree.

According to the conclusions reached by the two researchers, they recommended:

The two researchers recommend applying these exercises in governmental and private treatment centers and under the supervision of specialists.

Author's declaration:

Conflicts of interest: None

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

Ethical-Clearance: this manuscript approved by local ethical committee of physical education and sport sciences college for women on (April /2023)

Author's contributions:

All contributions of this study were done by the researchers (I.J. and B.K.) who get the main idea and work on writing and concluding also with number of experts, Safaa Abdul-wahab in Statistics, Huda Shihab in revision, Nour Riadh in translating, Mazin Hadi in proofreading

Facilitate the task: this study was supported by Al-Rafidain University College/ Baghdad - Iraq

References:

1. Sadiq, Inam Jafar. (2014). The rheological index and electrical activity of some working muscles and their relationship to biomechanical variables, (a published master's thesis). Baghdad University: College of Physical Education, p12.
2. Al-Najjar, Anaam Majeed (1996) A proposed program for the rehabilitation of acute injuries of the spine. (published thesis). Baghdad University, College of Physical Education, p33.
3. Tawfiq, Hossam Ahmed. (2002). Physiotherapy to solve health problems. Amman (1st c.),p61.
4. Ali, Shaima Reda. (2014), The effect of a rehabilitative curriculum using technical yoga exercises and the magnetic field in relieving lower back pain, flexibility and strength of the muscles of the spine, (published thesis), College of Physical Education for Girls, p90.
5. Al-Hakeem, Ali Salloum Jawad (2004). Tests, measurement and statistics in the sports field. Baghdad: (Al-Taif Press), p77.
6. Aya Nassir, & Abeer Dakhil. (2022). The Effect of a Physical Program On Some Physiological Variables to Reduce The Polycystic Ovaries In Women Aged (20-25) Years. Modern Sport, 21(2), 0101. https://doi.org/10.54702/msj.2022.21.2.0101
7. Romy Lauche 1, Holger Cramer, Jost Langhorst, Andreas Michalsen, Gustav J Dobos ,(2014) .Reliability and validity of the pain on movement questionnaire (POM) in chronic neck pain, Pain Med, Nov;15(11):1850-6. DOI: 10.1111/pme.12534
8. Iman Kadhum Al-temimi, & Muna Talib Al-badry. (2023). The effect of muscle stretching exercises on some physiological variables of swimming practices at the age of (35-40) years. Modern Sport, 22(1), 0001. https://doi.org/10.54702/ms.2023.22.1.0001
9. Israa Kadhum Al-ghazali, & Muna Talib Al-badry. (2021). The relationship of flexibility and grip strength among women with osteoporosis, ages (40-50) years. Modern Sport, 20(2), 0121. https://doi.org/10.54702/msj.2021.20.2.0121
10. Jumana Ghazi Salman & Zainab Ali Abdul-ameer. (2021). the effect of physical exertion exercises by using tools to develop some physical capabilities and achievement for young women javelin players. Modern Sport, 20(1), 0124. https://doi.org/10.54702/msj.2021.20.1.0124
11. Rania Muaid Ibraheem, & Muna Talib Al-badry. (2022). Effect of Aero planks Exercises (With The Opposite Effort Between Movement and Stability) On The Components Indicators for Female Student Aged (18-22) Years. Modern Sport, 21(4), 0029. https://doi.org/10.54702/ms.2022.21.4.0029
12. Riham Abdul-Rassoul, & Abeer Dakhil. (2021). Effect of rehabilitation exercises in improving the motor range of people with partial rupture of the anterior cruciate ligament of the knee joint by ages (30-35) men. Modern Sport, 20(4), 0032. https://doi.org/10.54702/msj.2021.20.4.0032
13. Ruaa Akram Al-Hijazi, & Abeer Dakhil. (2021). The effect of rehabilitative exercises associated with the technique of Chiropractic in relieving the pain of muscle stretching in the lower back of people with a herniated disc. Modern Sport, 20(2), 0023. https://doi.org/10.54702/msj.2021.20.2.0023
14. Zubaida Salah Hadi, & Intisar Kadhum Abdul-kareem. (2022). The relationship of stability and balance to the accuracy of the skill

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

of shooting from high jumping with handball. Modern Sport, 21(4), 0089. https://doi.org/10.54702/ms.2022.21.4.0089

Appendix (1)

The names of the experts who reviewed the prepared rehabilitation curriculum, its exercises, and the most important muscles working on the lower back

.Seq	Expert's name	Specialization	Workplace
1	Dr.. Saad Hussein Abbas	Specialist Doctor	Sports Medicine / Ministry of Youth and Sports
2	Dr.. Hussein Ali Abdullah	physical therapy	Al-Rafidain University College - Department of Physiotherapy
3	Dr.. Amira Abdel-Rahim El-Saadawi	Joints and medical	Al-Wasiti Teaching Hospital
4	Prof. Dr. Suad Abdel Hussein	Rehabilitation of sports injuries - arena and field	University of Baghdad / College of Physical Education and Sports Sciences for Girls
5	Prof. Farqad Atta Raouf	Rehabilitation of sports injuries	Head of the Department of Physiotherapy - Al-Rafidain University College
6	Dr.. Kazem Muhammad Majbil	joints and rehabilitation	Children's Protection Hospital Medicine City /
7	Dr.. Nizar Abdul Latif	joints and rehabilitation	Medicine City / Children's Protection Hospital
8	Prof. Dr. Basil Abdel Sattar Ahmed	Rehabilitation of sports injuries	Diyala University / College of Physical Education and Sports Sciences
9	Prof. Dr. Nada Abdel Salam	Rehabilitation of sports injuries	University of Baghdad / College of Physical Education and Sports Sciences for Girls
10	Prof. Hoda Badawi Shabib	Rehabilitation of sports injuries- volleyball	University of Baghdad / College of Physical Education and Sports Sciences for Girls
11	Prof. Dr. Wissam Shalal Muhammad	Rehabilitation of sports injuries	University of Babylon / College of Physical Education and Sports Sciences
12	Dr. Shaima Reda Ali	Rehabilitation of sports injuries	Al-Mustansiriya University / College of .Physical Education and Basic Sports Sciences
13	Prof. Dr. Nabil Khalil Ibrahim	Rehabilitation of sports injuries- arena and filed	Al-Mustansiriya University / College of .Physical Education and Basic Sports Sciences

Appendix (2)

Names of the auxiliary working team for the pilot experiments and the main experiment (pre and post)

.Seq	Name	Specialization	Workplace

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

1	Prof. Dr. Osama Ahmed Hussein	Physiology	University of Baghdad / College of Physical Education and Sports Sciences
2	Prof. Dr. Safa Abdel Wahab Ismail	Biomechanics - weights	Diyala University / College of Physical Education and Sports Sciences
3	Prof. Dr. Tariq Ali Youssef	Psychology - volleyball	University of Baghdad / College of Physical Education and Sports Sciences
4	Dr.. Hussein Ali Abdullah	physical therapy	Al-Rafidain University College - Department of Physiotherapy
5	Prof. Farqad Atta Raouf	Rehabilitation of sports injuries	Head of the Department of Physiotherapy - Al-Rafidain University College
6	Shahad Adel	Fitness trainer	Gulnar Fitness Center
7	Israa Farhan Dhaidan	Physiotherapist	Physiotherapy International Medical Center / Department of Joints and Physiotherapy

Appendix (3)
shows a sample of a qualifying unit

.Seq	Exercises	Exercises	Repetition	exercise time	number of sets	Rest time		
						Between repetition	Between sets	Between exercises
1	Electrical stimulation for lower back pain	----------	1	5m	1	-	-	-
2	The exercise of turning a sandbag from right to left and vice versa, from the front support position with the foot open	The injured person rests on the limbs of the hands and the insteps of the feet, with the front support position, the feet slightly apart, and a sand bag is placed under his chest.	20	20sec.	2	15sec.	60sec.	30sec.
3	An elastic band pull-up and leg rotation exercise from a supine position	The injured person lies on his back holding a rubber band with his right hand and works to pull it and fix it near the collarbone of the left shoulder. As for the left arm, it extends parallel to the shoulder for the purpose of balance. He puts the tape on the outstretched instep of the left foot, then works to twist the leg along its length and twist the torso slightly towards the right until the injured foot touches the ground. from the right side and then return to its normal position (repeat the exercise to the right side)	20	15sec.	2	-		30sec.
4	Front support exercise on the upper arm with a rubber rope pulled to the side	The injured person rests on his feet and on his arms, and a rubber rope is placed under the upper arm, and he holds the other hand.	20	15sec.	2	15sec.		30sec.

P-ISSN: 1992-0091
E-ISSN: 2708-3454

Modern Sport
Vol.22 No.3 ,2023

Published 30/09/2023 Open Access

5	Exercise from a standing position, carrying a bag on the upper arms, pulling an elastic rope to the back connected between the feet	The injured person stands carrying a sand bag over his humerus, holding it with both hands, and at his feet, tying a rubber rope or a rubber band. The injured person works to move one of the feet backwards in conjunction with the body tilting to the side, and then return it again to its first position (the exercise is repeated for both feet).	20	15sec.	2	15sec.		30sec.
6	Lying on the back with lifting a sandbag with both arms outstretched and hanging the legs in the air bent	The patient lies on his back with a sandbag raised with his hands, then he works to pull his legs and suspend them in the air while bending them from the knee, then he extends one of his legs and rotates the bag (turning the steering wheel) above his chest. Exercise for both legs	20	20sec.	2	15sec.		-

The goal of the exercises: Reducing lower back pain. Rehabilitation unit time: 40:05

تأثير تمرينات تأهيلية مسبوقة بجهاز التحفيز الكهربائي للعضلات العاملة في تخفيف الالام أسفل الظهر للنساء بعمر (25-35) سنة

انعام جعفر صادق [1]، بشرى كاظم عبد الرضا [2]

2&1 جامعة بغداد/ كلية التربية البدنية و علوم الرياضة للبنات

مستخلص البحث

تكمن أهمية ألبحث : تأثير تمرينات تأهيلية مصاحبة لجهاز التحفيز الكهربائي للعضلات العاملة في تخفيف الالآم أسفل الظهر للنساء بعمر (25-35) سنة والتعرف على مدى تأثير تلك التمرينات في تخفيف الألأم أسفل الظهر. وتكمن مشكلة البحث نتيجة للتقدم التكنولوجي حيث أصبحت حركة الفرد تقل شيئا فشيئا مما جعله أكثر عرضة للإصابات مما أدى الى ارتفاع نسبة عدد المصابات بالالآم أسفل الظهر وما لتلك الالام من تأثيراتها السلبية على حياتهم العملية والنفسية مما دفعت الباحثتان الى الدراسة هذا المشكلة من خلال تقوية المجاميع العضلية العاملة التي لها الدور في تخفيف الالام أسفل الظهر واختارت الباحثتان المنهج التجريبي ذو الاختبار القبلي والبعدي لملائمته لطبيعة ألبحث وتم تحديد مجتمع البحث بالطريقة العمدية إذ تكونت العينة (12) من المصابات بالألم اسفل ألظهر ووقع الاختيار على العينة المتكونة من (7) مصابات الالم اسفل الظهر وتراوحت أعمار عينة البحث ما بين (25-35) سنة وقامت بجمع أفراد العينة الذين حصلت لديهم الإصابة ضمن مدة زمنية من شهر الى ستة اشهر من تأريخ حدوث الإصابة لهم)، وتم تحديد درجة الإصابة وهي من الحالة ألمتوسطة حيث قامت الباحثتان باستبعاد (5) مصابات أخريات ممن لم يكن ضمن الشروط المناسبة للبحث واللاتي شعرن بتحسن الحالة الصحية وزوال الألم فتوقفن عن أداء الجلسات وبذلك تشكل العينة نسبة (58,333%) من مجموع المصابات في المدة الزمنية لجمعهم والذين تثبت مراجعتهم في (كلية الرافدين المركز الطبي للتأهيل الطبي والعلاج الطبيعي)،وتحققت الباحثتان من النتائج بنظام (SPSS) لتكون الاستنتاجات ان استخدام (التحفيز الكهربائي) كعامل مساعد قبل أداء التمرينات كان له الدور في زيادة التدفق الدموي بالإضافة لتسخين المنطقة مما سهل على المصابة أداء التمرينات بحرية مما يحسن من أداء العضلات بدرجة أكبر. وهذا ما يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق (الصحة الجيدة). وأوصت الباحثتان ممارسة الرياضة وتعديل السلوك اليومي من خلال الاهتمام بالأوضاع القوامية الصحيحة اثناء أداء المهام اليومية.

الكلمات المفتاحية | **التمرينات التأهيلية ، الآلام أسفل الظهر**