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The effect of rehabilitation exercises according to some aids to treat lumbar concavity for weightlifters

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ABSTRACT

The athlete is exposed during training, especially the musculoskeletal system, to different loads that shed effort on the body, and may sometimes be the cause of sports injury, and the muscle groups working mainly in the performance of exercises and skills bear a higher percentage of injuries, especially in sports activities that require the use of a high level of strength to overcome great resistance, as is the case with players (weightlifting), as most practitioners of this effectiveness complain of deformity in the lower back (lumbar concavity) as a result of the pressure caused by the use of High weights, especially during the performance of basic exercises, the researcher decided to address this problem and prepare a therapeutic approach that includes rehabilitation means (infrared rays, short waves, therapeutic exercises, electric massage) to rehabilitate athletes (weightlifting) with chronic lower back deformity (lumbar concavity), which may contribute to identifying this pain, allowing practitioners of the effectiveness under research to participate effectively in the performance of their training and thus develop the skill level and achievement in this event and here lies the importance of research and the researcher used the methodology Experimental for its suitability to the research problem Accordingly, the researcher's choice of the research community came in the intended way, as it was determined by the players of the clubs of Najaf Governorate, weightlifting , and the researcher reached the most important conclusions of the approach prepared by the means used, a positive impact in reducing chronic deformities for members of the experimental research sample group (weightlifting) and the most important recommendations were to emphasize the general and private physical preparation and attention to training the muscles that form the muscle belt supporting the muscles of the lower back, represented by (the front and side abdominal muscles and the muscles of Lateral and posterior trunk) for its importance in the prevention of back injuries

1- Definition of research:

1-1 Research Introduction and Importance :

The progress witnessed by the world in recent years in the fields of various sciences has consolidated the relationship between physical education and its achievements in many natural sciences, including physiological, medical and biological, which led to the development of training and contributed to the legalization of pregnancy and its suitability for the ability of the athlete because of the positive effects it reflects in physical functions, the link between sports sciences and various sciences and theories has achieved modern knowledge and information in different ways to improve physical performance to achieve the best levels.

The athlete is exposed during training, especially the musculoskeletal system, to different loads that shed effort on the body, and may sometimes be the cause of sports injury, and the muscle groups working mainly in the performance of exercises and skills bear a higher percentage of injuries, especially in sports activities that require the use of a high level of strength to overcome great resistance, as is the case when players (weightlifting) as most practitioners of this effectiveness complain of deformity of the lower back (lumbar concavity) as a result of the pressure caused by the use of High weights, especially during the performance of basic exercises, and these deformities usually result from acute or chronic injuries that affect the structures of the spine or some of them (cartilage, vertebrae, ligaments, muscles and nerves).

Therefore, lumbar concavity is one of the most prominent complications of spinal injuries, which requires treatment because it intensifies in periods of effort and decreases in rest periods, which may affect the performance of the athlete and may sometimes force him to retire and leave the activity.

In order to avoid these complications and their negative effects on the physical and skill side, and in order to return the injured to his natural state and to ensure the possibility of continuing in training, the researcher decided to address this problem and prepare a therapeutic approach that includes rehabilitation means (infrared, short waves, therapeutic exercises, electric massage) to rehabilitate athletes (weightlifting) injured (lumbar concavity), which may contribute to identifying these abnormalities, allowing practitioners of the effectiveness under research to participate effectively in the performance of their training and thus the development of the level Skills and achievement in this event and here lies the importance of research.

1-2 Research problem:

The players' use of high weights in these exercises sometimes "exceeds their physical abilities motivated by competition and the lack of correct mechanics of exercises during performance, and poor attention to general warm-up (especially in the training halls of the event) among most practitioners led to the prevalence of lumbar concavity injuries in a large percentage of players, as this injury occupies the highest percentage among other injuries. And for the lack of treatment of these deformities and scientifically has turned into chronic deformities suffered by many practitioners of the effectiveness under research and because of the lack of focus on the muscles facing the muscles of the lower back, which is the abdominal muscles of this we see most of the weightlifters are obese from the front of the trunk, which causes an additional increase for this deformity and this in itself represents a real problem sought by the researcher to treat it through the development of a treatment program prepared from several means to rehabilitate these injuries and reduce chronic pain in Lower back, focusing in high weights on exercises that target the chest muscles, the strength of the lower back only, and the muscles of the legs, causing an imbalance in the apparent shape of the body, which causes a defect in the mechanics and appearance of non-target muscles, such as the back and abdominal muscles of the current study.

1-3 Research Objectives:

1- Preparing rehabilitation exercises according to some therapeutic means including (infrared rays, short waves, therapeutic exercises, electric massage) for weightlifting players with lower back deformity (lumbar concavity).
2- Identify the effect of the prepared exercises in improving the lumbar concavity angle for junior weightlifters.

1-4 Research Hypotheses:

1- Rehabilitation exercises according to some auxiliary means have a positive impact on the treatment of lumbar concavity.
2- There are significant differences between the pre- and post-tests in the study variables for the treatment of lumbar concavity for junior weightlifters and in favor of the post-test.

1-5 Research Areas:

1- **Human field** : - Players of the clubs of Najaf province for the effectiveness of (weightlifting) with lumbar concavity.
2- **Time Domain** : - For the period from 1/11/2023 - 1/3/2024.

3- **Spatial field** : - Olympic swimming pool - Al-Razi treatment center - Gym Coral Fitness Hall

2- Research methodology and field procedures:

2-1 Research Methodology:

The researcher used the experimental method to suit the research problem .

2-2 Population and sample research: -

The process of selecting the sample is closely related to the nature of the community from which the sample is taken, and accordingly, the researcher chose the community of his research in the intended way, as the players of the clubs of Najaf province were determined by weightlifting, as (3) players with lumbar concavity were selected in a deliberate way.

2-3 Tools, devices and means used in research: -

- Registration form for the results of measurements and tests used in the research.
- Clinical examination by an orthopedic arthropist.
- X-ray of the lumbar region (lumbosacral joint).
- Short wave device
- Infra Read
- Treatment bed .
- Weights of different weights and (mutilation).

2-4 Search Procedures:

For the purpose of carrying out the field research experiment, the researcher took the following procedures:

1- Conducting a comprehensive survey of the number of players participating in the governorate championships for the effectiveness of weightlifting.
2- Inventory of the number of injured.
3- Placing advertisements in the halls for the practice of the event (under research) in the province of Najaf, a month before the start of the experiment, as it was announced that a free rehabilitation course for the treatment of lower back deformities was imminent.
4- Conducting general examinations for the injured (ESR blood test , X-ray) as the purpose of which was to know if there are tissue changes.
5- Preparing a questionnaire to survey the opinions of experts to determine the most important tests appropriate to the subject of research.
6- Determining the variables The variables were identified by presenting them to experts and weightlifting specialists.

7- Clinical examination The clinical examination was carried out by performing some movements for the weightlifting game from the lying position in order to determine the degree of deformity.
8- The researcher conducted a test to measure the degree of deformity at the end of each week and over the six weeks approved in the experiment to find out the rate of deformities at the end of each week.
9- The researcher prepared a questionnaire form to measure the degree of deformity has included four special tests often associated with the deformity of the lower back suffered by the members of the research sample as the patient is asked about the time of the appearance of the deformity, has been presented to experts and specialists and was aimed at ensuring the decrease of deformity to the level that allows the performance of therapeutic exercises, especially in the first stage of treatment, has ranged degrees (zero – 5) degrees.

2.4.1Tests used for research: -

The researcher prepared a form that includes several special tests often associated with the deformity of the lower back suffered by the members of the research sample has been presented to experts and specialists who in turn have identified the most important tests appropriate for research.

1- Measuring weight by a medical scale calibrated in units (kg) measures to the nearest 0.5 kg.
2- **Koth** he-etal, 1982, 32.

Purpose of the test : - Measure the elasticity or amount of stretching that occurs in the lumbar region.

Test description : - Determine a point at the spinal protrusion of the fourth lumbar vertebra below which a distance of (5 cm) and another mark above it by (10 cm) and asks the laboratory to bend his body forward to the maximum possible position of standing with a note not to bend the knees and the new distance between the two points is measured and the reading is recorded.

3- **Test of bending the trunk forward from standing (Hassanein, 346): -**

Purpose of the test : - Measuring the flexibility of the spine on the horizontal axis.

Tools used : - Seat without back height (50 cm), inflexible ruler divided from (zero to 100 cm) installed vertically on the seat so that the number 50 parallel to the surface of the seat and the number 100 parallel to the lower edge of the seat, a wooden indicator moves on the surface of the ruler (the wooden indicator has been replaced by a magnet moving on the metal ruler).

Performance specifications : - The laboratory stands above the seat and the feet are bandaged with the installation of the toes on the edge of the seat and keep the knees outstretched and the laboratory bends his torso forward and down, pushing

the pointer with her fingertips to the farthest possible distance to be fixed at the last distance up to her for two seconds.

Registration: - Registration of the laboratory the distance achieved in the two attempts and calculated for him the greater distance (cm)

4- **Sitting test from lying** down (Allawi and Nasreddin, 1982, 139):

Purpose of the test : - Measurement of stretching the strength of the abdominal muscles.

Performance description: - When the start signal is given, the laboratory continues to perform as many times as possible without stopping, noting that it stops immediately when pain is felt.

Registration :- The degree of the laboratory is the correct number of repetitions.

5- **Head and shoulder elevation test of prone (Al-Najjar, 2001, 47):**

Purpose of the test : - Measurement of strength stretching of the extensor muscles of the back.

Performance description: - From the prone position, arms and hands behind the hips, neck and head in a flat position, lifting the shoulders from the ground as many times as possible and even fatigue.

Registration : - The degree of the laboratory is the correct number of repetitions without stopping.

6- **Test of the maximum strength of the extensor muscles of the back** (Hamid, 2000, 56):

Performance Description : - The laboratory stands on the base of the dynamometer and the legs are extended and bends forward to the level at which he feels the onset of pain as a result of bending The belt added to the device is placed on the back of the laboratory at the level of the lower corner of the scapula bone The device is withdrawn and the result is recorded with (kg) with the observation that the arms remain free (to the side of the body).

Note //

The tests are performed within the painless range, when pain is felt, the laboratory must stop completing the test.

7- **Test the maximum strength of the extensor muscles of the arms (Bing Press).**

Performance description : - Lying on the terrace and legs to the outside and feet on the ground, carrying the weight rod on the chest and fixing it with the hands and then lifting the weight by extending the arms high and only once and recording his weight raised in (kg).

8- **Test of stretching the leg from sitting**:-

Purpose of the test : - Measurement of the maximum forces of the anterior thigh muscles.

Performance description: - From the position of sitting on the training device (milli-g), the legs bent from the knee joint at an angle of 900, the player lifts the weight by extending the legs straight until the angle reaches 180 and with maximum force and for one time and records his weight raised in (kg).

2.5 Exploratory Experiment:

For the purpose of marking the requirements of accurate, correct and difficulty-free scientific work, the researcher conducted a preliminary experimental study on a sample of three people with chronic low back pain on Wednesday, 13/12/2023 at the Physical Therapy Center of Al-Sadr Teaching Hospital, and through conducting the exploratory experiment, the following was seized:

1- Suitability of the tests to the level of capabilities of the research sample.
2- Suitability of the qualifying curriculum to the level of capabilities of the research sample to know the real duration of the rehabilitation unit.
3- The presence of two infrared (IR) devices and two electric massagers.
4- Ensure the adequacy of the assistant work team.

2-6 Scientific foundations of tests: -

For the purpose of identifying the scientific foundations of honesty, stability and objectivity of objective tests and their validity and suitability for the members of the research sample. As the researcher was not satisfied with the objectivity of these tests, despite the fact that they are contained in more than one scientific source, reliable based on the fact that they may not be commensurate with the levels of the members of the research sample, and therefore the researcher has found the coefficients of stability and honesty as follows: -

1- **Honesty** : - The sincerity of the test is the extent to which the test measures the skill expected to be measured and that the evaluation of an expert or several experts for certain tests supports the sincerity of the test and since the tests are fixed, we can say that they are honest .

In addition, the researcher used the method of experimental honesty and table (3) shows the scientific foundations in the foundations of tests.

2- **Stability**: - Therefore, the researcher used the method of re-testing by applying the same test to the same individuals twice and under the same conditions and finding the correlation coefficient after two weeks Table (1).

Table (1)

Shows the scientific bases of the tests used in the research

Honesty	constancy	Its purpose is to measure	Test Name	t

0.954	0.912	Measurement of elasticity or the amount of stretching that occurs in the lumbar region	Shopper Test	1
0.937	0.897	Measuring the flexibility of the spine on the horizontal axis	Test of bending the torso forward from standing	2
0.901	0.991	Measurement of abdominal muscle strength stretching	Sitting test from lying down	3
0.91	0.62	Measurement of strength stretching of the extensor muscles of the back	Head and shoulder lift test from prone	4
0.831	0.812	Measurement of the maximum extensor forces of the extensor muscles of the arms	Test of the maximum extensor muscles of the arms (Bing Press)	5
0.821	0.883	Measurement of the maximum forces of the anterior quadriceps	Test of stretching the leg from sitting	6

2.7 Main experience:

2.7.1 Pre-test:

The pre-test was conducted on the research sample on 12/20/2023, and the tests and measurements used in the research included:

2.7.2 The therapeutic approach used: -

What distinguishes the approach used by the researcher is that it contains more than one therapeutic method (complex therapeutic approach) as he used physiotherapy devices (infrared radiation (I). R) and the short wave device (S. W) and electric massage and therapeutic exercises, supplement (8) and in line with the treatment of chronic deformities of the lower back and did not come this diversity in therapeutic means randomly, but came based on several reasons through the researcher's access to several Arab and foreign sources as well as the researcher's personal experience through his participation in several courses for rehabilitation education, which was organized by the Federation of Sports Medicine in the province in cooperation with the Department of Health of Babylon, so the researcher saw the use of these means according to a precise scientific sequence within the approach Prepared for the treatment of chronic deformities of the lower back, has been presented this approach to experts who confirmed the validity and appropriateness of the vocabulary of this approach, and the purpose of the use of

physiotherapy devices is to reduce the degree of pain and inflammation to the degree where the injured can perform therapeutic exercises and without pain that the use of rehabilitation exercises should not be accompanied by a feeling of pain, "The goal of these exercises is to strengthen the muscles working on the back and develop the flexibility of the spine, has been Taking into account the following conditions when applying the curriculum:

1- The curriculum is implemented in three stages.
2- Each stage consisted of (3-12) exercises.
3- The curriculum is applied in three rehabilitation units per week.
4- The application shall be individual and not collective, taking into account individual differences.
5- The curriculum is implemented in cooperation with the specialist doctor to consult him in the event of any complications that prevent the application of the curriculum.
6- The period of application of the curriculum lasted six weeks. As the total duration of the therapeutic approach (585) minutes has seen a gradual increase in the time from the first week to the sixth (60-120) minutes due to the gradation in therapeutic exercises from simple to difficult by increasing the time or repetition or resistance and table (2) illustrates that.

Table (2)

Shows the distribution of units and times of the qualifying means used in the research experiment

Percentage %	Total weekly time	Qualifying Unit Time	Number of Units	Treatment time (min)	Details	Week
9.7 %	60 min	20 min	3	10 min 10 min	IR SW	First
14,6%	90 min	30	3	10 min 10 min 10 min	IR SW Therapeutic exercises	Second
19.5%	120 min	40	3	10 min 10 min 15	IR SW Therapeutic exercises	Third

14.6%	90 min	30	3	20 min 10 min	Therapeutic exercises Electric massage	Fourth
17%	105 min	35	3	25 min 10 min	Therapeutic exercises Massage	V
5.19%	120 min	40	3	30 min 10 min	Therapeutic exercises Massage	Sixth
	585D Total Time		18 Total Units			

2.7.3 Alternative approach:

The researcher has developed a physical approach to the healthy muscle parts in order to maintain the level of strength in order to ensure the speed of the athlete's return to play the game after reducing his chronic pain It is worth noting that one of the peculiarities of the exercise of the effectiveness of (weightlifting) is that some muscles can be trained in isolation from the rest of the muscle groups and without being the percentage of contribution of other groups (this is when it is intended to maintain the strength of those muscles) so it is noticeable when most of the practitioners of these activities are injured in a muscular part They do not stay away at all from practicing these activities, but the injured person remains practicing some topical exercises and training some healthy muscle groups and far from the place of injury, for example, when the lower back is injured, the player moves away from the exercises that involve the muscles of the lower back and is limited to exercises that are performed from a position of lying down, sitting, reclining or leaning because they affect the lower back, such as ping press exercises (lifting the weight from lying down), so in order to adjust the variables by ensuring that Random practice of the members of the research sample The researcher has developed a unified training curriculum for weightlifting under research to ensure that the injured do not practice physical exercises for the healthy parts randomly, which may negatively affect the results of the research, so these exercises were performed in the afternoon of the day after the day of the therapeutic approach (a day for the therapeutic approach and the other for the training curriculum) of the maximum forces On the other hand, the researcher adds that practicing exercises

randomly without knowledge or knowledge about their results will further aggravate this Deformation instead of correcting it.

2.7.4 Post-test:

After completing the implementation of the program that was prepared by the researcher, the post-test was conducted on 5/2/2024 and in the same sequence of tests and conditions in the pre-test.

2-8 Statistical methods and means used in research: -

In order to determine the most appropriate statistical methods in data processing, the researcher used the ready-made statistical package (SPSS) version (10.0).

3- Presentation and discussion of the results: -

3-1 Presentation of results:

Indicate or indicate the significance of the differences and in favor of the set corresponding to the vertex of the vector ⟵ ⟶

3.1.1Presentation and analysis of the results of the pre- and post-tests of the experimental group: -

Table (3)

Statistical summary of the results of the rubber test of the lower back muscles (chopper) for the experimental group and for the pre- and post-tests

Top Read	Minima Read	95% confidence interval for mean		Standard error	Standard deviation	Arithmetic mean	The Collectio	audition
		Upper limit	Bottom line					
1.5	1.0	1.640	0.960	0.122	0.274	1.300	Weight lifting	Tribal
4.5	4.0	4.540	3.860	0.122	0.274	4.200	Weight lifting	Post

Table (4)

Statistical summary of the results of the anterior lower trunk bending test to measure the flexibility of the anterior trunk of the experimental group and for the pre- and post-tests

Top Read	Minima Read	65% confidence interval for the arithmetic average		Standard error	Standard deviation	Arithmetic mean	The Collection	audition
		Bottom line	Upper limit					
35	19	32.47	18.13	3.12	6.98	26.80	1	Tribal (cm)
60	58	60.24	58.16	0.37	0.84	59.20	1	After me (cm)

Table (5)

Statistical summary of the results of the back muscle strength stretching test for the experimental group and for the pre- and post-tests

Top Read	Minima Read	95% confidence interval for mean		Standard error	Standard deviation	Arithmetic mean	The Collection	audition
		Upper limit	Bottom line					
4	2	3.84	1.76	0.37	0.84	2.80	1	Tribal (repetition)
16	13	15.82	12.98	0.51	1.14	14.40	1	Dimensional (repeat)

Table (6)

Statistical summary of the results of the posterior trunk elasticity test for experimental groups and for pre- and post-tests

Top Read	Minima Read	95% confidence interval for mean		Standard error	Standard deviation	Arithmetic mean	The	audition
		Upper limit	Bottom line					

24	18	23.23	17.88	0.98	2.19	20.60	1	Tribal (cm)
63	58	62.19	57.40	0.86	1.92	59.80	1	Dimensional (cm)

Table (7)
Statistical summary of the results of the abdominal muscle strength stretching test for the experimental group and for the pre- and post-tests

Top Read	Minima Read	95% confidence interval for mean		Standard error	Standard deviation	Arithmetic mean	The	audition
		Upper limit	Bottom line					
8	4	7.96	4.04	0.71	1.58	6.00	1	Tribal (repetition)
32	27	31.66	27.14	0.81	1.82	29.40	1	Dimensional (repeat)

Table (8)
Statistical summary of the results of the maximum strength of the back muscles for the experimental and control groups and for the pre- and post-tests

Top Read	The slightest reading	95% confidence interval for mean		Standard error	Standard deviation	Arithmetic mean	The Collection	audition
		Upper limit	Bottom line					
60	40	60.11	37.89	4.00	8.94	49.00	1	Tribal (kg)
85	65	88.39	67.61	3.74	8.37	78.00	1	Dimensional(kg)

3-2 Discuss the results of physical characteristics and the degree of pain: -
The tables on the impact of the rehabilitation methods used in the rehabilitation curriculum on physical characteristics (the flexibility of the trunk front, back and

side, the strength of the lower back and the stretching of muscle strength material and the second of the trunk and the degree of deformity that statistically significant differences between the pre- and post-tests of these variables and the researcher believes that the reasons for the development in the post-tests came as a result of the reasons

The positive effect of infrared radiation (I . R) as it helped to relax the muscles and stimulate blood circulation and thus contribute to the reduction of deformity lower back and this contributed positively to the possibility of applying the vocabulary of the curriculum and this is consistent with what came out (Osama Riad, 1998,163), and the positive effect of short waves (S. W), which worked to help relax muscles, reduce stiffness and reduce deformities in the lower back. Which is consistent with what he sees (Fouad Al-Samarrai and Hashem Ibrahim, 1988, 224), the effect of vibratory massage The electric massage device contributed to the relief of chronic deformities of the lower back, improve the range of motion and strength of the muscles of the lower back, and give a sense of relaxation and comfort, and this is consistent with his opinion (Hassanein and Ragheb, 1995, 55), Decrease in the rate of deformities The deformity causes obstruction of the functional work of the muscles and affects the limitation of movement and causes inflammation that hinders the functioning of the functional muscles as well as affect the ability of the joints to move and there is a relationship Common between deformity and motor identification in the region, so it is natural to improve the range of motion and maximum strength and stretching strength as a result of the decrease in deformity and this is consistent with what sees each of (1988, Mellion Peterson) positive effects of therapeutic exercises, which included the therapeutic approach used as it contained stretching exercises and development of the flexibility of the force fixed and mobile and mixed) of the muscles of the lower back (muscular belt of the abdomen and trunk), which had a role in reducing the degree of muscles and improve motor ranges and reduce stiffness and motor identification And the development of strength and prolongation and this is consistent with what he sees (account,), the joint effect of the rehabilitation means used and consisting of physiotherapy devices and therapeutic exercises, which were selected and given according to sound scientific foundations, which had preference in the treatment of chronic deformities of the lower back as this treatment (rehabilitation exercises + physical therapy) of the best forms of treatment and the most successful in the treatment of injuries and prefer in many cases to abuse medicines and drugs or surgery. This is also consistent with Ray (Awad, 1988, 51), in addition to the effects of the rehabilitation methods used, the commitment of the sample members to apply the alternative approach, in which the researcher took into account giving exercises that do not directly affect the lower back, which allowed the members of the experimental sample to benefit from positive rest and reduce tension, tension and pressure on the lower back, which reflected positively on the health status of the research sample.

Table (9)
Significance levels for correlated comparisons in the periods (pre, middle, and post) for an experimental weightlifting sample

The middle × the dimension	Tribal ×	Tribal × Central	audition	t
← 0.000	← 0.001	← 0.012	Bend the trunk in front of the bottom	1
← 0.000	← 0.000	← 0.001	Stretched back strength	2
← 0.001	← 0.000	← 0.000	Shopper Test	3
← 0.000	← 0.000	← 0.000	Stretching the strength of the abdominal muscles	4
← 0.007	← 0.009	← 0.033	Maximum strength of the back muscles	5
-	0.374	-	Lifting the weight of lying down (Bing Press)	6

Supported significance level 0.05
The direction of the indicator ( ) indicates the ← occurrence of the effect in the post-measurement compared to what is achieved by the pre-test and in significant terms.

Through the results of Table (9), which includes the results of examining the levels of significance in the test (T) for close couples for the periods (pre-, middle, post) for the sample of the experimental weightlifting group and for all tests, it is clear that the state of the moral difference between the pairs of all the periods referred to and for all tests except for the first pair (tribal × middle) in the back hip flexibility test (left and right), and in the second pair (pre-×post) in the tests (Bing Press) and finally the test of the maximum forces of the muscles of the legs (stretch the leg) From sitting left only) to the comparison pair (median ×dimensional) depending on the level of significance adopted 5%.
The researcher attributes the risk factor (referred to) to the fact that weightlifting exercises are characterized by their skill performance using the highest levels of strength and speed, as they perform the skills of nitre and kidnapping explosively, whether in the operations of pulling or landing under the weight or during the process of lifting the top because the player strives to overcome the largest possible weight and lift it because the winning criterion is the total weight raised, and this adds double pressure on the muscles of the lower back compared to building bodies, which perform their exercises slowly And with weights much less than the weights used in the other two events because the player here strives to build harmonic muscle masses and works to carve them with continuous repetition, so they are safer and the incidence of injuries is lower than the rest of the two events.

4- Conclusions and recommendations:

4.1 Conclusions

1- The methodology prepared by the means used has a positive impact in reducing chronic deformities of the members of the experimental research sample group (weightlifting).
2- The positive or moral response (reduction of malformations) to the therapeutic approach began quickly in the first two weeks, then slowed down in the middle weeks and then returned to rise in the last week.
3- The feasibility of using physical treatments at the beginning of the therapeutic approach was proven in reducing the deformity in a way that allowed the injured to follow the therapeutic approach.
4- The application of the prepared approach to the development of the strength of the abdominal muscles and the material of the trunk as well as the maximum strength of the extensor muscles of the back, as well as the development of the range of motion of the muscles of the lower back.
5- The alternative training curriculum has an impact on supporting the therapeutic approach followed, as it has proven the validity of using a special training curriculum in the event of sports injuries and not to stop training at all.

4.2 Recommendations:

1- Benefiting from the approach prepared by the researcher in the rehabilitation centers for the treatment of people with chronic lower back deformity for weightlifters under research.
2- The need to use physical treatments at the beginning of therapeutic approaches due to their effective role in reducing pain to the level where therapeutic exercises are allowed to be performed without obstruction while increasing the period of the curriculum prepared to reduce deformity to the lowest level.
3- Emphasis on continuing training during chronic lower back deformity in order to reduce the negative effects of interruption and the consequent physical and functional imbalances.
4- Taking into account the physical ability of the players and gradation by increasing the weights raised, not using high weights throughout the year, rationing loads and benefiting from positive rest to avoid injuries of overuse.
5- Emphasis on general and private physical preparation and attention to training the muscles that form the muscle belt supporting the muscles of the lower back, represented by (front and side abdominal muscles and trunk side and back muscles) for their importance in preventing back injuries.
6- Conducting similar research for people with chronic deformity of other muscle groups and different samples.

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