International Journal of Sports Science and Arts

Helwan University
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The effect of using some rehabilitation exercises to restore the functional ability of some athletes with ankle sprains

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Summary :

The researcher used the experimental method with an experimental design of two groups, one experimental and the other control, The sample was chosen in a deliberate manner from the first-class players in the sprained vollyball of the second-class ankle joint for the training year (2022/2023) The number (20) was infected from (18-28) years. The survey and scientific transactions were applied to (4) infected from the same research community and outside the core sample. The sample was divided into two equal groups, one pilot. A motor qualification programme was introduced to restore the functional capacity of some athletes with sprained ankle joint and the other control, each applicable to the traditional method and their strength (8) , The results of the research were that there were statistically significant differences between the averages of the pre- and post-measurements for the players of the experimental group in the level of the range of motion under research and in favor of the post-measurement. The most important recommendations are the application of the rehabilitation program using the level of the range of motion of female vollyball players with an external ankle joint sprain.

Key words:
Rehabilitation exercises, Functional capabilities , ankle sprain

تأثير استخدام بعض التمرينات التأهيلية لإستعادة القدرة الوظيفية لبعض الرياضين المصابين بإلتواء مفصل الكاحل

المستخلص :

يهدف البحث الي معرفة تأثير استخدام بعض التمرينات التأهيلية لإستعادة القدرة الوظيفية لبعض الرياضين المصابين بإلتواء مفصل الكاحل "

استخدمت الباحثة المنهج التجريبي بتصميم تجريبي مجموعتين إحداهما تجريبية والأخرى ضابطة باتباع القياس القبلي والبعدي لكلاٍ من المجموعتين ، تم اختيار العينة بالطريقة العمدية من لاعبات كرة الطائرة المصابات بالالتواء مفصل الكاحل من الدرجة الثانية للعام التدريبي (٢٠٢٢/٢٠٢٣) وعددهم (٢٠) مصابة من (18–28) سنة، وتم تطبيق الدراسة الاستطلاعية وإيجاد المعاملات العلمية على (٤) مصابات من نفس مجتمع البحث وخارج العينة الأساسية، وتم تقسيم العينة إلى مجموعتين متكافئتين أحداهما تجريبية تم تطبيق برنامج تأهيلي حركي لإستعادة القدرة الوظيفية لبعض الرياضيين المصابين بالالتواء مفصل الكاحل والأخرى ضابطة يطبق عليها الأسلوب التقليدي وقوام كل منهما (٨) وكانت نتائج البحث وجود فروق دالة احصائيا بين متوسطي القياسين القبلي والبعدي للاعبات المجموعة التجريبية في مستوي المدي الحركي قيد البحث ولصالح القياس البعدي ، اهم التوصيات تطبيق البرنامج التاهيلي باستخدام مستوى المدي الحركي لدي لاعبات كرة الطائرة المصابات بالتواء مفصل الكاحل الخارجي.

الكلمات المفتاحية :

التمرينات التأهيلية ،القدرات الوظيفية ، التواء مفصل الكاحل .

The effect of using some rehabilitation exercises to restore the functional ability of some athletes with ankle sprains

Introduction and Rresearch Problem:

Rehabilitative exercise is one of the safest activities and is far from the individual for what other games may cause. It also does not need special possibilities or tools and a special place to perform it. Besides, it can be practiced by everyone, it fits into the different ages from childhood to old age.

Physical exercises have many types, including easy and difficult, including individual and composite, including simple, complex, static and motor. This multiplicity of species is due to the need to fit an individual's physical exercise, body composition and performance in order to achieve the objective of their exercise. (55 : 13)

Recent interest in sports practice, athletes and the associated development of sports training and performance methods has increased both physically and physiologically and in motion science, which has helped to increase the efficiency of sports achievement in international forums. (14:50). Injuries are considered to be one of the most important problems for players during sports activities. The likelihood of injury during training or matches is common, especially activities characterized by a lot of effort and contact with competitors. Sports injuries are one of the obstacles that players face during the implementation of sports programmes and their effect is to stay away from stadiums, decrease the level of the player, lose the high functional capacity needed for them and exposure to a poor psychological condition Qualifying for Athletes. (6:17)

Through the work of the Maadi Sports Club for the sporting season (2022/2023) with the women's first division team, I noticed the high incidence of ankle joint injury and continuously, possibly due to excess enthusiasm by female players or the intensity of the competition and trying to win the advanced positions at different sports levels, making female players more susceptible to injury. This has led the researcher to use some qualifying exercises to restore the functional capacity of some athletes with ankle sprain.

Scientific significance of research:

1. To the extent that the researcher is aware of the use of rehabilitation exercises that contribute to the handling of secondary ankle sprains, the researcher found the need to take care of rehabilitation exercises. This study is an important study in the field of sports injuries and thus contributes to the development of a series of scientific research aimed at caring for and upgrading the qualification of athletes.
2. Trying to open new scientific fields in the field of sports and sports health sciences in the study of the qualifying program on twisting the ankle joint of the second degree and how to treat it in order to improve the performance level of athletes.

3. This research is the beginning of further scientific and applied research in the field of rehabilitation programs in the field of sports injuries.

The applied importance of research:

Possibility of establishing a qualification programme (for the18- 2٣ age group) to restore the functional capacity of some athletes with a second-class ankle joint sprain.

1. The possibility of implementing the qualification programme to use it to improve and restore functional capacity.
2. Achieving codified applications that determine the extent to which the use of qualifying programs in the field of sports, especially in the twisting of the second-tier ankle joint of athletes.

Research objective:

The research aims to identify the impact of the qualifying exercise program to restore the functional capacity of some athletes with ankle sprain by:

1. Improvement in the degree of pain of the twisted ankle joint .
2. Develop some physical abilities on the ankle joint (muscle strength of the joint, motor balance of the joint, muscle ability) Some athletes with sprained ankle joint.
3. Improve the motor range of the ankle joint in the position (computational-numerator) of some athletes with sprained ankle joint.

Research hypotheses:

1.There are statistically significant differences between the post measurements of the experimental group and the control group in the variables in question (the strength of the two men's muscles - the degree of balance of the foot - the motor range - the muscle capacity - the degree of pain) for the benefit of the experimental group.

2.There are statistically significant differences between the averages of pre and post measurements of the experimental group in the variables in question (muscle strength of the two men, degree of balance of the foot, motor range, muscle ability, degree of pain) in favour of post measurement.

3.There are statistically significant differences between the pre and post measurements averages of the control group in the variables in question (muscle strength of the two men, degree of balance of the foot, motor range, muscle ability, degree of pain) in favour of post measurement.

Research terms

Rehabilitation exercises

Rehabilitation exercises are a means of activating the motor system of the infected person and maintaining the physiological efficiency and irreversibility of the organs at the level reached. They vary according to the condition and degree of injury and are applied with the beginning of the restoration of motor capability and the end of the acute period of injury.

(5 : 149)

Sprained ankle

It is the injury that occurs when the ankle is wrapped in a violent manner and here it can bend or tear the ligaments that help to bind the ankle bones together and the ankle ligaments help to stabilize the ankle function and prevent excessive movement. The ankle sprain causes the ligaments to depart from the usual range of movement and the most vulnerable areas of injury to the outer side of the whole (4:2)

Research Plan and Procedures

Research method

The researcher used the experimental methodology by designing the pre and post measurement of two experimental and control group to fit it to achieve the research's objective and suited it to the nature of its procedures.

Population and research sample

The research community was selected from the 20 female players with a twisted ankle joint. They are a 18- 2٣ year old Vollyball player from the first-class at the Maadi Sports Club for the sporting season (2022/2023).

The research sample

The sample was chosen in a deliberate manner from the first-class players in the sprained Vollyball of the second-class ankle joint for the training year (2022/2023) The number (20) was infected from (18-2٣) years. The survey and scientific transactions were applied to (4) infected from the same research community and outside the core sample. The sample was divided into two equal groups, one pilot. A motor qualification programme was introduced to restore the functional capacity of some athletes with sprained ankle joint and the other control , each applicable to the traditional method and their strength (8).

Group I: experimental group and its strength (8) is infected and uses the police rehabilitation program together and

Ggroup II: the group is an control, and its strength (8) is infected and uses only the traditional rehabilitation program.

Table (1)
Homogeneity of the research sample,
n=20

M	Variations		measruing unit	SMA	standard deviation	Mediator	Torsion coefficient
1	Height		cm	١٦٨.٥٢	٣.٠٥	١٦٧.٠٠	١.٤٩٥
2	Weight		kg	٧٣.٥٢	٤.٦٨	٧٢.٠٠	٠.٩٧٤
3	Age		year	١٨.٦٥	١.١١	١٨.٠٠	٠.٣٤٢
4	Training age		year	٦.٢٥	١.٥٠	٦.٢٠	٠.٠٩٩
5	Leg muscle power	Flexion	KG	36.52	2.21	36.00	0.705
		Extension	KG	٣٣.٢٥	٣.٢٥	٣٣.٠٠	٠.٢٣٠
6	Motor range	Flexion	Cm	١٣.٥٢	١.١٢	١٣.٠٠	١.٣٩٢
		Extension	Cm	١٦.٥٨	١.٩٨	١٦.٠٠	٠.٨٧٨
7	Balance		Sec	٥.٦٤	١.٢٥	٥.٥٠	٠.٣٣٦
8	Muscular ability		Cm	٢٤.٢٦	١.٦٤	٢٤.٠٠	٠.٤٧٥
9	Pain level		degree	٨.٣٢	٠.٥٥	٨.٢٠	٠.٦٥٤

It is clear from Table (1) that the values of the skewness coefficients for the growth rates, functional variables, and pain level of the patients under study for the research sample are limited to (±3), which indicates a moderate distribution of the patients in those variables.

Table (2)
The statistical significance of the differences between the control and experimental groups in each of the growth rates, physical variables, and level of pain under investigation

(n1=n2=16)

Variations		measruing unit	Experimental groupH (n=8)		control group (n=8)		Calculated T value	Statistical significance
			M	A	M	A		
Leg muscle power	Flexion	KG	36.51	0.35	36.19	0.61	0.98	Nil
	Extension	KG	33.28	0.15	33.24	0.28	1.11	Nil
Motor range	Flexion	Cm	13.54	0.52	13.62	0.33	0.62	Nil
	Extension	Cm	16.52	0.34	17.32	0.14	0.16	Nil
Balance		Sec	5.54	0.18	5.54	0.62	0.67	Nil
Muscular ability		Cm	24.32	0.62	24.36	0.17	1.32	Nil
Pain level		degree	8.35	0.33	8.24	0.62	1.58	Nil

* The tabular (t) value at the significance level (0.05) = 1.697

Survey study

The exploratory study was conducted on a sample and was returned by a number of (4) contacts from the research community and outside the original sample in the period from 1/18/2023 to 1/27/2023 AD.

With the aim of

• Identifying the obstacles to the program's measurement and application processes and avoiding their occurrence to ensure the ease of implementing measurement and application procedures.
• Identify the appropriateness of data collection tools and program content.
• Determine the ease and difficulty of each exercise.
• The extent of the sample's understanding of the exercises provided.
• Design a form to record measurements of study variables.
• Identify the extent of the response of the sample members used in the research to the program.
• Knowing the session time and the sequence of exercises.

Determine the duration of program implementation:

The exploratory experiment resulted in some amendments and directives being made to the program until it was put into its final form.

Results of the survey

• The validity of the place where the program will take place has been confirmed.

• The validity of the tools and devices used for measurement was verified.

Scientific parameters for the tests used in the research

The researcher conducted scientific transactions for the functional variables (under research) used by measuring the validity and reliability of the tests to ensure the suitability of these tests for this study.

Data collection methods and tools

Research data collection tools:

1. Form for examining and evaluating the injured person's condition by the researcher.
2. The Personal Data Registration Form for each member of the sample by the researcher.
3. Form for Registration of Sample Scores Research in Functional Variables by the researcher.
4. Training modules of the program by the researcher.

Tools and devices used in research:

Restameter is to measure height in centimetres - a rationed medical balance for measuring weight in kilograms - balance beam (for measuring motor balance) - multi-weight weights - ground ladder for training - medical balls - stepping box - rubber ribbons - stopwatch - scale (VAS) for measuring the degree of pain - jump hurrdles – ice (for reducing pain and swelling).

Validity:

The researcher conducted the validity coefficient using discriminant validity by conducting measurements on a distinct sample in the period from 12/24/2022 until 12/27/2022 AD on a sample of infected women. Representative of the original community and outside the basic research sample, their number reached (4) infected people through Finding the significance of the differences between the upper quartile and the lower quartile using the t-test to show the validity coefficient for the functional variables under study. This is shown in Table (3).

Table (3)
Inter-validity coefficient between the upper quartile and the lower quartile spring are in the exams PhysicalThe level of pain is under investigation.

n= 8

Variations		measruing unit	Upper quartile		Lower quartile		T value	Significance level
			M1	A1	M 2	A 2		
Leg muscle power	Flexion	KG	38.52	0.28	33.62	0.98	5.65	Nil
	Extension	KG	34.52	0.64	30.28	0.41	4.28	Nil
Motor range	Flexion	cm	14.65	0.87	11.68	0.63	3.69	Nil
	Extension	cm	17.65	0.69	13.25	0.87	4.54	Nil
Balance		Sec	6.10	0.85	4.84	0.15	4.98	Nil
Muscular ability		cm	25.54	0.64	3.95	0.54	3.87	Nil
Pain level		degree	7.21	0.78	8.54	0.66	3.67	Nil

*valueT The tabular level is at 05 = 1.860

It is clear from table (3) there are statistically significant differences between the upper spring and the lower springIn some physical testsAnd skillUnder investigation and in favor Top spring Which indicates the validity of the testsAnd its ability to measure the variables under research.

Stability:

The researcher used the retest application method after (5) days of conducting the test to calculate the stability of the tests by calculating the correlation coefficient between the two applications in the time period from 1/2/2023 AD until 1/5/2023 AD on the same sample, the correlation coefficient between application and re-application to show the stability coefficient for the functional variables under research, and this is shown in Table (4) .

Table (4)
The significance of the differences between the first quartile and the second quartile at some levelthe exams Physical and the level of pain is under investigation.
n1=n2 =2

Physical Tests		Measruing unit	First quartile		Second quartile		T value	Significance level
			M1	A1	M 2	A 2		
Leg muscle power	Flexion	KG	35.98	0.28	36.11	0.68	0.958	Nil
	Extension	KG	34.25	0.61	35.65	0.85	0.984	Nil
Motor range	Flexion	cm	12.98	0.15	12.55	0.33	0.965	Nil
	Extension	cm	15.65	0.74	16.21	0.45	0.945	Nil
Balance		Sec	5.22	0.63	5.18	0.69	0.854	Nil
Muscular ability		cm	4.32	0.22	4.30	0.35	0.994	Nil
Pain level		degree	8.11	0.57	7.62	0.52	0.965	Nil

* The tabular t value is at significance level of .05 = 0.632

Table (4) shows a statistically significant correlation between the first and second applications in all physical tests and the level of pain where the calculated value (t) ranged from 0.854: 0.984) indicating the stability of the tests.

Steps to conduct the research:

The researcher reviewed some specialized scientific references and studies in the field of health sciences that addressed the design of motor rehabilitation programs to restore the functional capacity of some athletes with second-degree ankle joint sprains on the ankle joint in order to reduce inflammation and chronic swelling resulting from sprains in the ankle locomotive and then developed a series of rehabilitation exercises that improve some functional variables while defining the objective of the program.

- Identify the sample and record data.
- Sample identification and data recording.
- Ensure the viability of the place and tools used.
- Ensure the validity of measurement tools.

• Identification of the rehabilitation exercise programme and its presentation to the experts and its finalization.
• Pre-measurements work.
• Implementation of the programme.
• Making post measurements of the identified variables.
• Work and discussion of statistical processing of results.

Research measurements:

Measurements have been carried out for all members of the sample as follows:

• Pre-measurements:

The researcher conducted the pre-measurements in question from 1/2/2023 to 5/2/2023.

• Application of the program:

The researcher conducted the program in question from 8/2/2023 to 8/3/2023.

• Post-measurements:

The researcher conducted the post measurements from 10/3/2023 to 12/4/2023.

Presenting results:

Measurements and subsequent statistical therapeutic results have resulted in the researcher drawing results that will be presented during this section.

Table (5)

The significance of the differences between the pre and post measurements at the level of some physical variables and the level of pain in the experimental group.

n=8

Physical Tests		Meas. unit	Pre measurement		Post measurement		the two averages Differ.	Sign. level	T value	Improve. rate
			M1	A1	M 2	A 2				
Leg muscle power	Flexion	KG	٣٦.٥١	٠.٣٥	٤١.٦٥	٠.٧٤	٥.١٤	Sign.	٥.٣٤	12.34%
	Extension	KG	٣٣.٢٨	٠.١٥	٣٩.٢١	٠.٦٥	٥.٩٣	Sign	٥.٦٢	15.12%
Motor range	Flexion	cm	١٣.٥٤	٠.٥٢	١٨.٣٢	٠.٢٨	٤.٧٨	Sign	٥.٩٢	26.09%
	Extension	cm	١٦.٥٢	٠.٣٤	٢١.٥٢	٠.٦٥	٥.٠٠	Sign	٥.١٨	23.23%
Balance		Sec	٥.٥٤	٠.١٨	١٠.٦٥	٠.٥٥	٥.١١	Sign	٥.٦٢	47.98%

Muscular ability	cm	٢٤.٣٣	٠.٦٢	٢٩.٣٢	٠.١٩	٤.٩٩	Sign	٥.٩٢	17.01%
Pain level	degree	٨.٣٥	٠.٣٣	٣.٦٥	٠.٦٤	٤.٧٠	Sign	٥.١٨	56.28%

* The tabular (t) value is at the significance level (0.05)=2.131

Table 5 shows statistically significant differences between pre and post measurement averages in the level of some physical variables and the level of pain of the experimental research group, where the calculated value (v) is greater than its tabular value at the level of indication (0.05).

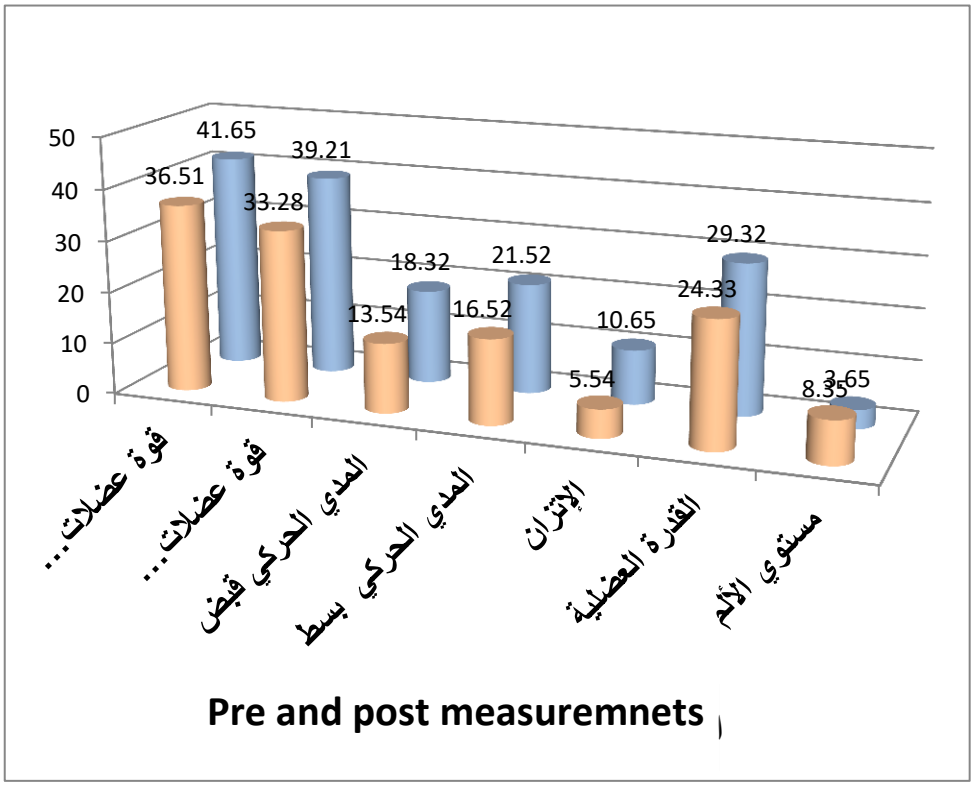

Figure (1)
The significance of the differences between the two at the level of some physical variables and the level of pain in the experimental group

Table (6)
Indication of differences between pre and post measurements at the level of some physical variables and level of pain for the control group .

n=8

Physical Tests		Meas. unit	Pre measurement		Post measurement		the two averages Differ.	Sign. level	T value	Improve. rate
			M1	A1	M 2	A 2				
Leg muscle power	Flexion	KG	٣٦.١٩	٠.٦١	٣٨.٥١	٠.٩٨	٢.٣٢	Sign.	٣.٢٥	%٦.٢٢
	Extension	KG	٣٣.٢٤	٠.٢٨	٣٦.٢١	٠.٥٤	٢.٩٧	Sign	٣.٦٨	%٨.٢٠
Motor range	Flexion	cm	١٣.٦٢	٠.٣٣	١٦.٦٥	٠.٦٩	٣.٣٠	Sign	٣.٥٢	%١٨.١٩
	Extension	cm	١٧.٣٢	٠.١٤	١٩.٥٢	٠.٦٤	٢.٢٠	Sign	٣.٩٨	%١١.٢٧
Balance		Sec	٥.٥٤	٠.٦٢	٦.٣٨	٠.٨٥	٠.٨٤	Sign	٣.٤٥	%١٣.١٦
Muscular ability		cm	٢٤.٣٦	٠.١٧	٢٦.٨٧	٠.٣٢	٢.٥١	Sign	٣.٨٥	%٩.٣٤
Pain level		degree	٨.٢٤	٠.٦٢	٦.٢١	٠.٨٥	٢٠.٣	Sign	٣.٦٤	%٢٤.٦٣

* The tabular (t) value is at the significance level (0.05)=2.131

Table 6 shows statistically significant differences between pre and post measurement averages in the level of some physical variables and the level of pain of the control research group, where the calculated value (v) is greater than its tabular value at the level of indication (0.05).

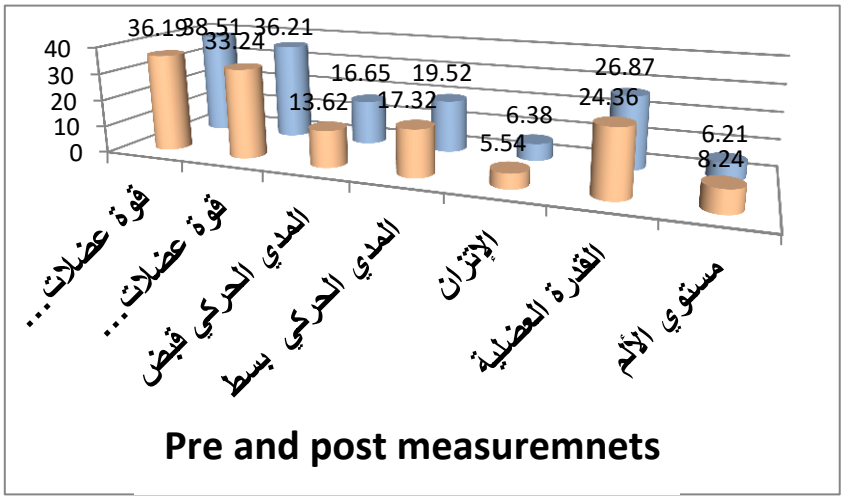

Figure (2)
The significance of the differences between the two standardsnPre and post at the level of some physical variables and the level of pain in the control group .

Table (7)
Indication of differences between the two post measurements of experimental and control groups at some level of some physical variables and the level of pain under investigation

1 = n2 = 8

Physical Tests		Meas. unit	Experimental Group		control Group		the two averages Differ.	Sign level	T value	Improverate
			M1	A1	M 2	A 2				
Leg muscle power	Flexion	KG	٣٦.١٩	٠.٦١	٣٨.٥١	٠.٩٨	٢.٣٢	Sign.	٣.٢٥	%٦.٢٢
	Extension	KG	٣٣.٢٤	٠.٢٨	٣٦.٢١	٠.٥٤	٢.٩٧	Sign	٣.٦٨	%٨.٢٠
Motor range	Flexion	cm	١٣.٦٢	٠.٣٣	١٦.٦٥	٠.٦٩	٣.٣٠	Sign	٣.٥٢	%١٨.١٩
	Extension	cm	١٧.٣٢	٠.١٤	١٩.٥٢	٠.٦٤	٢.٢٠	Sign	٣.٩٨	%١١.٢٧
Balance		Sec	٥.٥٤	٠.٦٢	٦.٣٨	٠.٨٥	٠.٨٤	Sign	٣.٤٥	%١٣.١٦
Muscular ability		cm	٢٤.٣٦	٠.١٧	٢٦.٨٧	٠.٣٢	٢.٥١	Sign	٣.٨٥	%٩.٣٤
Pain level		degree	٨.٢٤	٠.٦٢	٦.٢١	٠.٨٥	٢٠.٣	Sign	٣.٦٤	%٢٤.٦٣

* The tabular (t) value at the significance level (0.05) = 1.697

Table 7 shows statistically significant differences between sufferers' post measurement averages in the experimental and control research groups at the level of some physical variables and the level of pain and for the benefit of the experimental group where the calculated value (v) was greater than its tabular value at the level of indication (0.05).

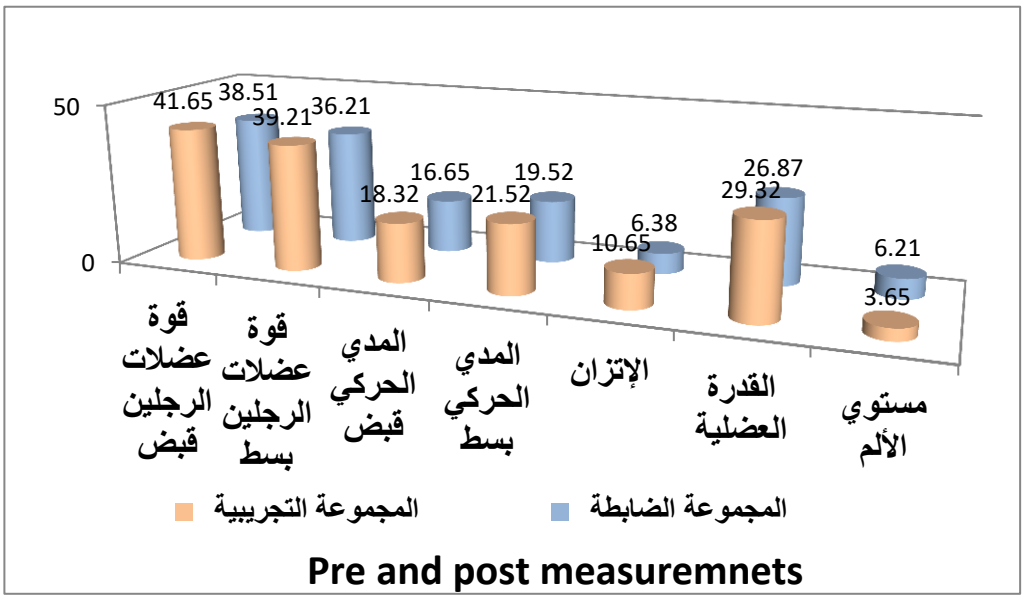

Figure (3)
Indication of differences between the two post measurements of experimental group infections and the control level at some physical variables and the level of pain in question.

Discuionss and interpretation of the results

- **Discussion of the results of the first hypothesis :**

There are statistically significant differences between the averages of pre and post measurements of the experimental group and the control group in qualifying exercises on some athletes with sprained ankle joint in question for the benefit of the experimental group.

Based on the statistical analyses used by the researcher and in the light of the research objectives and within the limits of the measurements used, the following results were achieved .

Table (5) and figure (1) show statistically significant differences between pre and post measurement averages in the level of some physical variables and the level of pain of the experimental research group, where the calculated value (v) is greater than its tabular value at the level of indication (0.05).

Muscle strength test: We find that the capture in pre measurement was the arithmetic mean (36.51) standard deviation (0.35) while in post

measurement the arithmetic average was (41.65) and standard deviation (0.7), the difference between the two averages was arithmetic mean (5.14) and improvement rate (12.34%) The value (v) was equal to (5.34) and the level of indication (d) while the numerator in pre measurement was the arithmetic average (33.28) standard deviation (0.15) whereas in the post measurement was the arithmetic average (39.21) standard deviation (0.65), the difference between the two averages was calculated (5.93) and the improvement ratio (15.12%) and the value (v) was equal to (5.62) and the level of indication.

Motor range test: We find that the capture in pre measurement was the arithmetic mean (13.54) standard deviation (0.52) while in the post measurement was the arithmetic average (18.32) and standard deviation (0.28), the difference between the two averages was arithmetic mean (4.78) and improvement rate (26.09%) The value (v) was equal to (5.92) and the level of indication (d) while the numerator in pre measurement was the arithmetic average (16.52) standard deviation (0.34) while in the post measurement was the arithmetic average (21.52) The standard deviation (0.65) was the difference between the two averages of calculation (5.00) and the improvement ratio (23.23%) and the value (v) was equal to (5.18) and the level of indication.

Pain level test: In pre-measurement, the arithmetic average (8.35) and standard deviation (0.33), while in post measurement the arithmetic average (3.65) and standard deviation (0.64), the difference between the two averages was arithmetic average (4.70) and improvement ratio (56.28%) and the value (t) was equal to (5.98) and the level of connotation.

Abdul Rahman Zahir (2011) stated that the importance of sports rehabilitation lies in the fact that he works to restore the motor range of the joint, restore the normal muscle and functional strength of the joint, get rid of pain, increase the speed of discharge of blood clusters, as well as increase the recovery of injured muscles and joints of their functions as soon as possible. Zaki Hassan (2011 AD) stated that the use of exercises and rehabilitation therapy works to increase the range of motion of the joints, remove cramps, ease of movement of joints, and remove Pain. It works to relax and activate the muscles connected to it, and it also works to strengthen the muscles AndavoidIts atrophy and flexibility.

Zaki Hassan (2011) explains that the use of exercise and rehabilitation therapy increases the motor range of joints, removes cramps, facilitates the movement of joints, removes pain, works to relax, and activate the muscle, and also strengthens muscles and avoids their atrophy and flexibility.

Wiri Mustafa Jawhar Hayat, Kazim Jaber Amir (2001) The ankle joint is a complex joint. It consists of functional separation between the tibia and shrapnel bone between the tibia and the hermaphrodite bone and between the fragment bone and the hermaphrodite bone.

Samia Khalil Mohammed (2009) indicates that ankle sprain injury is one of the many and common injuries among athletes The twist is a complete stretch or tear of one or more bands that binds the bones of the ankle joint together. This injury occurs abruptly as a result of an internal coup d 'état with a plantar curvature during exercise, sports competition or walking on uneven ground.

Therefore, the first hypothesis states:

There are statistically significant differences between the averages of pre and post measurements of the experimental group and the control group in qualifying exercises on some athletes with sprained ankle joint in question for the benefit of the experimental group.

- **Discussion of the results of the second hypothesis :**

There are statistically significant differences between the averages of pre and post measurements of the experimental group in the variables under consideration (muscle strength of the two men - functional ability - motor range - muscle ability - degree of pain) in favour of post measurement.

Table (6) and figure (2) show statistically significant differences between pre and post measurement averages in the level of some physical variables and the level of pain of the control search group, where the calculated value (t) is greater than its tabular value at the level of indication (0.05).

Muscle strength test: We find that the capture in pre measurement was the arithmetic mean (36.19) standard deviation (0.61) while in the post measurement was the arithmetic average (38.51) and standard deviation

(0.98), the difference between the two averages was arithmetic mean (2.32) and improvement rate (6.22%) The value (v) was equal to (3.25) and the level of indication (d) while the numerator in pre measurement was the arithmetic average (33.24) standard deviation (0.28) whereas in the post measurement was the arithmetic average (36.21) standard deviation (0.54), the difference between the two averages was calculated (2.97) and the improvement ratio (8.20%) and the value (v) was equal to (3.68) and the indicative level.

Motor range test: We find that the capture in pre measurement was the arithmetic mean (13.62) standard deviation (0.33) while in the post measurement was the arithmetic average (16.65) and standard deviation (0.69), the difference between the two averages was arithmetic mean (3.30) and improvement rate (18.19%) The value (v) was equal to (3.52) and the level of indication (d) while the numerator in pre measurement was the arithmetic average (17.32) standard deviation (0.14) while in the post measurement was the arithmetic average (19.52) Standard deviation (0.64) The difference between the two averages was calculated (2.20) and the improvement ratio (11.27) and the value (v) was equal to (3.98) and the level of indication.

Pain level test: In pre measurement, the arithmetic average (8.24) and standard deviation (0.62), while in post measurement the arithmetic average (6.21) and standard deviation (0.85), the difference between the two averages was arithmetic average (20.3) and improvement ratio (24.63%) and the value (v) was equal to (3.64) and the level of indication.

Interest in rehabilitative exercises has increased considerably in recent times, so that some therapeutic schools rely entirely on them to treat playground injuries without interference with any other factors such as drug therapy, injections and thermoplastics, except in cases requiring surgical intervention, as in cases of cartilage rupture. Fractures are of the utmost importance, if not importance, in returning players to stadiums again, and returning non-athletes to daily activities, after surgery as well as in preparation for them.

Samia Khalil (2006) shows rehabilitation exercises are a constructive and tight movement of the body to modify its motion, improve muscle

function and maintain good body construction, as well as increase muscle strength, flexibility, motor range and endurance.

Abdul Rahman Zahir (2011) stresses that the post-injury rehabilitation process aims to return the player to the stadium as soon as possible while trying to retain the physical and skill level of the player he was before the injury, or to minimize the loss of it as much as possible, a process that begins during medical treatment of the injury and extends beyond medical treatment. This improvement is due to the nature of the proposed rehabilitation exercise programme and its composition. This is consistent with the study of Mahmoud Ismail Abdul Hamid al-Hashimi (2009), Mahmoud Ibrahim Abdullah al-Turbani (2009) and Wa 'el Mustafa Abu al-Hassan: (2014)

Therefore, the second hypothesis states:

There are statistically significant differences between the averages of pre and post measurements of the experimental group in the variables in question (muscle strength of the two men - functional ability - motor range - muscle ability - degree of pain) in favor of post measurement.

- **Discussion of the results of the third hypothesis :**

There are statistically significant differences between the post measurements of the experimental group and the control group in the variables under consideration (muscle strength of the two men, degree of balance of the foot, motor range, muscle ability, degree of pain) in favour of the experimental group.

Many of those interested in physiology and medical sciences in their various disciplines have demonstrated the importance of practising metered exercises, their impact on the body's vital organs, which play an important role in the athlete's sporting life and skill performance by maintaining the neuromuscular compatibility of the motor system, the basis for athletic performance.

These results are consistent with Osama Riyad (2002) stating that rehabilitation exercises are the main focus in treating players' injuries because they aim to remove dysfunctions of the affected part by taking care of the manifestations of poor growth in some muscles, ligaments and joints, Attention to the mechanics of body movements and sound textures by

performing exercises to develop and develop muscle strength and articulated elasticity and the degree of neuromuscular compatibility to restore the normal state of the body's balance and fully develop its capabilities to help different organs and organs perform their functions at the highest adequacy.

These results are consistent with Faraj Tawfiq (2005) stating that the exercises used in treatment help to supply oxygen-borne blood to muscles, where blood vessels expand, the amount of muscle-bound blood increases and their nutrition increases, increases muscle temperature, increases muscle rubber, increases joint elasticity and motor range of the joint, and increases the efficiency of nerve signal delivery.

Therefore, the third hypothesis states:

There are statistically significant differences between the post measurements of the experimental group and the control group in the variables in question (the strength of the two men's muscles - the degree of balance of the foot - the motor range - the muscle capacity - the degree of pain) for the benefit of the experimental group.

Conclusions and recommendations

A. Conclusions:

Based on the objective of the research, within the framework of the scientific curriculum used, within the limits of the research sample and through the presentation and discussion of the findings, the researcher found the following: -

1. The existence of statistically significant moral differences at (0.05) level between the pre and post-experimental research sample measurements to which the program was applied in restoring the functional capability of athletes with ankle sprain. (under consideration).
2. The existence of statistically significant moral differences between the average scores of pre and post measurements in favour of the experimental research sample in some physical variables (under consideration).
3. The proposed rehabilitation programme has improved and upgraded to restore the functional capacity of some athletes with ankle joint sprains. The programme has also resulted in improved ratios between research measurements in physical variables (muscle strength, motor range, equilibrium, muscle capacity, pain level) in favour of post measurement under invistegation.

4. The rehabilitation program showed high efficiency in the qualification of female players from injury and the return of natural functions of the ankle joint.
5. The proposed program has a positive impact on sufferers and is effective in the speed of treatment, the return of the functional capacity of the ankle joint and the normal exercise of life is one of the most positive effects of research, based on the researcher's observation and the reports of female players.

B. Recommendations:

1. To be guided by the rehabilitation exercise programme when qualifying for secondary ankle sprain injury.
2. Guiding the qualifying exercise program in the treatment of ankle sprain injury for athletes and non-athletes.
Attention to the rehabilitation exercise programme as an integrative process of physical rehabilitation programmes for sports injuries.
4- Directing more attention in the preparation of scientific research and studies and designing therapeutic programs using the rehabilitation exercise program in the field of sports injuries in general and use for all individuals and the elderly.
5. Start the rehabilitation process at an early stage so that the injured part can be returned, and its function and efficiency restored within the shortest possible period of time and complications avoided.
6. Attention to exercises of balance and muscle strength even after returning to sports activity to prevent injuries in general and ankle sprain in particular.
7. The need to pay attention to the work of international conferences and joint seminars among the specialists in sports education, sports medicine, physical medicine, physical therapy and motor physical therapy to clarify the importance of using motor physical therapy and other means in the treatment and rehabilitation of sports injuries.

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