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The impact of special rehabilitation exercises within a water center in some kinetic capabilities for people with anterior cruciate ligament for advanced footballers

MARYAM ABDULJABBAR KHUDHAIR, LEZA RUSTUM YAQOOB

Faculty of Physical Education and Sports Sciences for Girls/Baghdad University

Abstract

The importance of research in the use of rehabilitation exercises in the middle of the water for the treatment of the anterior cruciate ligament in improving some kinetic possibilities such as motor tide, balance and agility resulting from the process of replacing the anterior cruciate ligament and qualifying it using a water medium with devices such as water bike and water running device, and means of assistance such as rubber ropes and other sample footballers of the advanced category and the problem of research lies in the fact that the injury of the cruciate ligament is considered a cruel and common injury in the game of football, which requires a long period of treatment and rehabilitation so that he can The player returning to the stadiums and the first delay of this period is the weakness in the motor capabilities of the injured resulting from this injury, so the two researchers decided to go into this study and develop appropriate scientific solutions for it through the use of water medium and means of assistance and equipment, and the aim of the study to prepare exercises in the water center accompanied by a sense and tools of assistance in the rehabilitation of motor capabilities, as well as the goal of research to know the impact of the use of water medium and equipment and tools assist bodies in the range of mobility, agility, balance and rehabilitation The anterior cruciate ligament, and the research sample included (10) players with anterior cruciate ligament injury and were selected in the intentional manner, and concluded from the research that the use of water media, equipment and auxiliary tools (water treadmill and fixed water bike) has an effective effect in improving the motor capabilities of the sufferers of the anterior cruciateligament.

Keywords: Special qualifying exercises, watery medium, kinetic susceptibles, front cruciate ligament, football.

1- Introduction to search definition

1-1 Introduction and the importance of research and its problem:

The game of football is one of the group games that is characterized by physical friction and high effort and due to the requirements andthe absence of cases of play in one game, so it became one of the games that is characterized by a very high percentage of different sports injuries and the injuries of various kinds that occur in this game is a phenomenon that calls the attention of those responsible for the management of sports activities by providing methods and means that work to treat and rehabilitate them and reduce their occurrence.

Knee joint injuries are very serious and threatening injuries to the player's sports career, especially the injury to the anterior cruciate ligament as it requires a long time for treatment and rehabilitation after surgical interference and this time is negative for the player in time or total dimensions of the game for a long period of time may reach 6 months and since science and technology and keeping up with scientific modernity there are some important means that help to reduce the duration of time and rehabilitation. Risk factors for anterior cruciate ligament injury are divided into two parts:

contact ACL injury .

Second: non-friction factors. Non-contact ACL injury **Ali Suleiman Mansi 2019.**

The weakness of motor capabilities occurring after the surgical intervention of the anterior cruciate ligament is one of the most important stages and objectives of rehabilitation of the cruciate ligament, due to the fact that the strength of the ligament and the stability of the knee joint depends heavily on the strength and size of the femoral muscle where the more the knee joint is surrounded by large and strong muscles the more healing process and speed of rehabilitation of the anterior cruciate ligament**)Hussein,2019, p.(105).**

By informing the researchers that they are interested and experienced in the field of football and from the survey of experts and specialists in the centers of physical therapy and rehabilitation found that there is a problem in the length of rehabilitation of the anterior cruciate ligament in motor capabilities resulting from surgical interference and found that most of the players end the period allocated for the rehabilitation of the anterior cruciate ligament and suffer They complain of atrophy in the muscles surrounding the knee joint, the **objectives**of the research were(preparing exercises using hydrotherapy for the sufferers of the anterior cruciate ligament of footballers aged 20-25 years, andidentifying theimpact of exercises using hydrotherapy in some kinetic susceptibility in people with anterior cruciate ligament of players Football ages (20-25 years) but the imposition of the **research** was (there are no statistically significant differences between the results of pre- and post- tests in some kinetic possibilities in people

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with anterior cruciate ligament for footballers aged 20-25) On the areas of **research,** it was represented by football players aged (20-25) years of the 10 injured anterior cruciate ligament and the experiment was on 11/11/2020 until 11 January 2021, Or in terms of where to conduct water exercises and field experiments, she was at the National Treatment Center (King of the Force for Sports Rehabilitation) - Baghdad - Al-Amin neighborhood.

2- Research methodology and field procedures

2.1 Research approach

The two researchers will use the experimental method of designing the same group and the pre- and post- tests to suit the nature of the problemfor thecourse of its research.

2.2 Community and research sample

The research sample was made up of players with cruciate ligament cuts from the category of football applicants after surgical intervention who review the center king of the force for the treatment and rehabilitation of sports injuries and were deliberately selected due to the difficulty and lack of obtaining a sample similar to the problem of research despite the prevalence of frequent injury but the times are dysfunctional so the researcher proceeded The two samples were deliberately selected and the number of sample members (10) people infected with the same injury) replaced theanterior cruciate ligament using naador (in the center of the force for physiotherapy and rehabilitation and was examined by the clinically specialist doctor)D. Youssef Ibrahim(before starting the main experiment to find out the safety of the anterior cruciate ligament and allow the use of resistance exercises and the application of the vocabulary of the curriculum and to avoid effects that may affect the desired results of the research, the two researchers extracted homogeneity as described in table (1)

Table (1)

Demonstrates the homogeneity of the research sample members in the variation coefficient test for variables

to	Variables	unit scaling	A	STD	coefficient Convolution
1	Weight	ıe murmured	68.6	5.758	0.380+
2	Length	poison	175.5	5.482	1.264-
3	lifetime	year	22.5	1.715	0.330+
4	Training age	year	12.1	1.791	0.104+
5	Degree of injury	All sample members are injured in the final stage of rehabilitation			

2.3 Data collection methods, equipment and tools used

2.3.1 Data collection methods

- Interviews.
- Arab and foreign sources.
- Testing, measurement and experimentation.
- Data collection and unloading form.
- International Information Network(Internet).

2-3-2 devices and tools used in research

- Underwater treadmill (TREDMILL German-made number (1)
- Stationary bike into the German-made water number (2)
- Chinese-made dellelectronic calculatornumber (1)
- Chinese-made kanoncameranumber (2)
- Chinese-made sports timewatch number (3)
- Chinese-made weight and length gauge number (1)
- 150 m leather measuring tape for ocean measurement
- German-made video camera number (1)
- Goniumter to measure the kinetic range of the joint

2.4 Field search procedures:

2.4.1 Identification of tests for research skills

2-4-1-1 Knee Joint Elasticity Measurement (Gajdosik RLn 1987: 1867-1872)

Within the research measures used to measure the motor range in the tide and bend movements (180) degrees of tide and (140) degrees of bending of the knee joint, before and after the treatment program, the degree of natural range is the standard degree to determine the evolution of the range of movement in the joint, and the researcher will use the flexibility measurement tool (genometer), a flexible measurement tool and illustrated form(1).

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Figure1shows
Genetic device and the way it measures the laboratory

2 - 4-1-2 Boso balance test*

Purpose of testing: measuring the balance of people with anterior cruciate ligaments.

Tools: Boso half ball, square level ground 2 m*2 m containing from the top a central circle with diameter () located at the top of the hemisphere from the top, electronic timer.

Specifications: (blue color, size 65cm, height 15 cm, length 65 cm, weight 9 kg, width 65 cm, BOSO brand),dimensions 15*65*65cm.

Performance method: The player stands on the starting line, which is 30 cm from the half of the balance ball, and when you hear the start signal begins to put the injured man on the center of the hemisphere, and then lift the un injured man freely and next to the injured man, lifted semi-straight, and away from the injured man.

Recording method: Calculates the total time from starting to put the injured man on the half of the ball until the player goes down or touches the unfected man to the ground or the hemisphere, as described in the form(2).

Table (2) shows the scientific foundations of the designer test

Figure2
Poso balance test shows

TheTable(2)
Shows the stability and objectivity of the Boso test for tailored balance

N	auditions	Stability factor	themselves	Statistical significance	Objectivity factor	themselves	Statistical significance
1	**Poso balance** test	0.896	0.000	Spiritual slab.	0.924	0.000	Spiritual slab.

* A designed test that has been conducted with the necessary scientific foundations by the researcher

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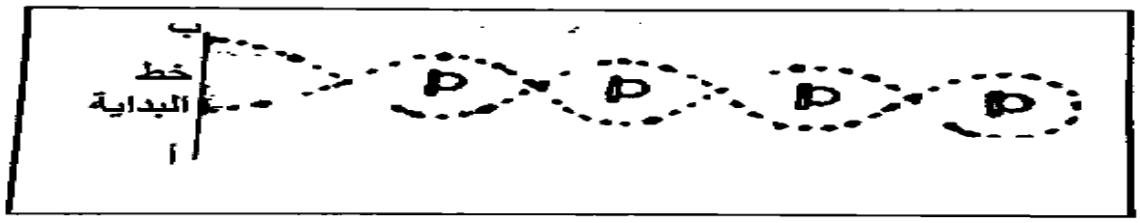
3 4-1-3 Fitness Test (Abu Abdo 2016: 151)

Test name: Al-Zakzak run test with barriers

Purpose of the test: Measure the ability to change direction while running (agility)

Tools: measuring tape, stopwatch, number (4) chair or (4) athletics barriers, running field held on solid ground (10 m) and width (2 m) start line length (180cm) and thickness (5 cm), placed (4) barriers or chair In the face of the starting line to be on one line and so that the distance between each barrier and the other (180 cm) cm and the distance between the start line and the first barrier (360 cm), two points are determined at the ends of the starting line and the end and let these points be (a) and (b) . as described in the form(3).

Performance description: The laboratory player takes the standby position from the high start behind the starting line and at the right end of the line at point A, when the signal begins the tester begins to run between chairs or barriers in the form of(8)and then the test player rotates around thelast barrier, and then continues to run between the barriers In the same way as before, when he reaches the first barrier he starts from it to cut the start and end line at the other end when the score is **calculated:** the score of the tested player calculates the time it takes to perform the test from the moment it gives the start signal to cut the finish line to the nearest point (b).



Figure(3)
Demonstrates the method of fitness testing

2.5 The main experience:

2.5.1 Pre- tests:

Pre- tests of the search sample were conducted on Sunday, 8 November 2020.

2-5-2 Preparation and implementation of special defensive exercises:

According to the results of the pre- tests of the research sample, the two researchers, benefiting from modern scientific sources and the opinions of experts specialized in the field of sports rehabilitation and football, to build a rehabilitation program aimed at improving some kinetic possibilities in the sufferers of the anterior cruciate ligament of football players, and was presented to the experts and have been adopted good observations in the construction of the program and adjusted according to the scientific opinions presented.

The training program was launched on Wednesday (11/11/2020) and ended on Monday (11 January 2021) and to introduce the rehabilitation program has included:

1. The training program was built for (8) weeks and in spots (3) rehabilitation units per week for days (Sunday, Tuesday and Wednesday) to be the total number of training units (24) rehabilitation units.
2. The duration of the rehabilitation unit ranged from (35) minutes to (45) minutes and the principle of gradient in pregnancy.
3. The work-to-rest ratio was used from one exercise to another (1:3).
4. The rehabilitation methods used in the program, a water running device, a stationary bicycle inside the water, rubber strips .

2.5.3 Post- tests

The post- tests of the controlling and experimental groups were conducted on Monday (11 January 2021), and the same tests applied to the research sample in pre- tests were applied in the same sequence of tests.

2.5.4 Statistical methods used:

- arithmetic medium
- Broker
- Standard deviation
- Sprain factor
- Simple Correlation Coefficient (Pearson)
  T-test الم تناظرة لـ لعـ يـ نات

Presentation, analysis and discussion of the results:

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3.1 Presentation, analysis and discussion of the results of pre- and post- tests and measurements of kinetic midwives under consideration.

Table(3)
Shows computational circles, standard deviations, calculated value (T) **and the level of indication of motor midwives under consideration**

Statistical means / Variables		Pre- testing		Post- testing		S-F	P	value T)) not going t	level dication	Indication Statistics*
		A	STD	A	STD					
Kinetics	ding flexibilit	101	11.972	158	8.247	57.050	15.117	11.886	0.000	piritual slab.
	dal flexibility	3	2.5819	0	0	3	2.581	3.674	0.005	piritual slab.
	homeostasis	3.2	0.7888	11.15	1.131	7.950	1.442	17.429	0.000	piritual slab.
	agility	18	2.2607	10.31	0.988	7.690	2.694	9.266	0.000	piritual slab.

*** Moral under the degree of freedom (9) and the level of significance of ≤ (0.05)**

The results of the flexibility test were by placing the folding of the injured man with an average pre-calculation of (101) and a standard deviation of (11,972), while in the post- test was the mathematical medium (158), with a standard deviation (8,247), the calculation teams (57,050) and the standard deviation of differences (15.247) and the calculation teams (57,050) and the standard deviation of differences (15.247) 177) The calculated (T) value (11.886) was at the degree of freedom (9) and at the dalala level (0.05) and when comparing the error level of (0.000) with the indication level of 0.05, it is found to be smaller than them, indicating moral differences between the pre- and post- tests and in favor of post- testing.

The results of the flexibility test with the status of the tide for the infected man reached the pre- arithmetic average (3) and with a standard deviation (2.5819), but in the post- test was the mathematical medium (0), with a standard deviation (0), the calculation teams (3) and the standard deviation of differences (2.581) and the value of (T) Calculated (3.674) at the degree of freedom (9) and at the dalala level (0.05) and when comparing the error level of (0.005) with the indication level of 0.05 shows smaller ones, indicating moral differences between the pre- and post- tests and in favor of the post- test.

As for the balance test, its results were in the pre- test with an average calculation (3.2) and a standard deviation (0.7888), but in the post- test was the computational medium (11.15), standard deviation (1.131), calculation teams (7.950) and standard deviation of differences (1.442) and the value of (T) Calculated (17.429) at the degree of freedom (9) and at the dalala level (0.05), this indicates a moral difference between the pre- and post- tests and when comparing the error level of 0.000 with the indication level of 0.05, it is found to be smaller than that, indicating the appearance of moral differences between the pre- and post- tests and in favor of post- testing.

In the same table, we note that the results of the fitness test were pre- test results as follows with an average calculation (18) and a standard deviation (2.2607), while in the post- test the calculation medium (10.31) and standard deviation (0.988) were the calculation teams (7.690) and the standard deviation of differences (2.988) 694) The calculated value (T) was 9.266 at the degree of freedom (9) and at the dalala level (0.05) and when comparing the error level of 0.000 with the indication level (0.05) it is found to be smaller than it is indicating moral differences between the pre- and post- tests and the benefit of the post- test.

Demonstrates the graphic forms of pre- and post- arithmetic circles for motor midwives tests
Through the previous charts we are shown the high rate of progress in the post- test in the kinetic possibilities of the members of the research sample, and the reason for this rehabilitation program used and which led the purpose for which it was developed, as the water therapeutic exercises aimed at reaching the patient to the normal state of the body or closest to normal physical, mental, psychological and social and to be able to return to training and play after injury through proper rehabilitation and the most important objectives of hydrotherapy is to increase the efficiency of body parts and relieve. Pain whether in joints, ligaments or muscles as well as the development of motor abilities in injured players, we note that there is increased flexibility in the joint as a result of treatment with water basins, which helped in the rehabilitation process, as many researchers confirmed that the development of flexibility to increase or improve the treatment of the affected motor joint (Anderson) that "the benefits of flexibility have a clear effect in increasing joint movement and reducing the incidence of injuries, as the strong muscle that has been prolonged in advance resists tension Muscle is better than a muscle that doesn't look, and also helps compatibility where flexibility allows movement to be easier and freer to perform. (**Anderson 1989: 11)**

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The researcher also attributes the improvement in the balance variable to the improvement of variables of physical qualities and improvement in flexibility as "balance depends heavily on strength, especially strength and flexibility in many balance situations" **(Maher 2018:136)**

It also attributes the differences in the fitness test to the rehabilitation program received by the research sample, which means that exercises using water basins have had a positive impact on the component of agility, so that "agility develops with exercise and we cannot separate the development of other attributes and physical capacities from the development of agility" (Wajih 2001:14), Agility is also associated with other elements of fitness and the improvement of strength and speed observed in table (4) has helped to improve agility as "agility as mobility can not develop directly as in the rest of the physical qualities as its development depends mainly on the development of the capabilities and skills of other kinetic and mental recipes" (human-sciences).

4 Conclusions and recommendations

4 1 Conclusions

1- For water exercises, equipment and tools used and rehabilitation exercises prepared with a positive and clear effect in the development of motor capabilities in question.
2- The rehabilitation program has been instrumental and positive in improving the condition of anterior cruciate ligament patients.
3- The rehabilitation program has helped improve motor capabilities in measurements and tests (measurement of flexibility for men with front and back extend, balance test, fitness test).
4- The importance of rehabilitation exercises within the aquatic environment in the treatment of the injured and the development of their motor susceptibles has been demonstrated.

4. 2 Recommendations

1- Use of the rehabilitation program prepared by the researcher for people with anterior cruciate ligament in treatment centers.
2- Conducting studies on the water environment for the importance of sports injuries.
3- Changing the environment is a psychological factor that contributes to breaking the boredom of the injured.
4- The importance of water exercises and in-water resistances is included in the development and improvement of both the motor capabilities of the sufferers of the anterior cruciate ligament.
5- Conduct similar research on different samples, games and different events.
6- Use hydrotherapy for other injuries at different ages.
7- Use of water treadmill and hard water bike in the treatment of cruciate ligament.

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Supplements

Salts (1)

It looks likehe's hidingonthelake.

to	**auditio n**	Pictures
2	Measuri ng the motor range of the knee joint	 
4	Poso balance test	 
5	Fitness test	

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Annex #2
Images of the devices and tools used