

The Effect Of A Rehabilitation Program For People With Paralysis (Partial) Using The Water Medium And Exercise To Develop The Qualities Of Strength And Endurance Of Leg Muscles For A Group Of Basketball Players On Wheelchairs

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Abstract

The rehabilitation process for the handicapped or those with special needs has become an important aspect of physical education and one of the goals of physical education, where both the medical staff and the sports coach work side by side with the purpose of meeting the requirements of the process of rehabilitation of the handicapped and those with injuries that hinder their physical or movement capabilities, and from these injuries It is partial paralysis due to an injury to the spinal cord and the spine and limits movement to parts of the body (lower extremities), as the injured were exposed to various accidents in the vertebrae of the spine and the spinal cord injury led to this injury, and as a result of the injured losing their normal movement status and the inability to walk Correctly, which forced them to use wheelchairs permanently, and these injured persons are wheelchair basketball practitioners, so the researcher decided to prepare a set of exercises in the form of an integrated rehabilitation program to help the injured to develop their motor performance and also to overcome the movement difficulties they face due to Physical weakness as a result of injury. The researcher used the water medium and physical exercises inside and outside the water in the program Eligible to get the maximum benefit from motor performance and activate the largest possible muscle group while performing more exercises and movements in the aqueous medium.

Keywords: *Rehabilitation program/ palsy/ water medium.*

1. INTRODUCTION

The rehabilitation programs for the handicapped differ greatly from the programs prepared for the healthy injured in terms of the nature of the exercises performed by the injured. Many exercises and movements may be unable to perform them due to the great shortage in his movement performance due to disability and here comes the role of the therapist and the sports coach to find the studied programs designed to rehabilitate the injured To overcome mobility difficulties due to disability, on the one hand, and on the other hand, to rehabilitate the handicapped from the injuries they suffer after disability due to inactivity or due to the incorrect performance of movements that lead to injuries or for the purpose of minimizing the damages resulting from the disability. Therefore, the rehabilitation process is described as a "restoration process." The natural and highly functional form of the affected part of what it was before the occurrence of disability and in the shortest possible time and to describe the

most accurate rehabilitation is to retrain the disabled to the highest functional level of pre-disability in the shortest possible time. ”(Bobeer M. James & Thibodeem A. Gary, 1989, P.167 .), The importance of the research lies in the researcher's attempt to prepare a rehabilitation program using the water medium (swimming pool) using a set of exercises inside the water with or without tools, and benefit from etc. Describing the physicality of water and the ease of performing the movements for the body floating on the water as well as the use of water as resistance to the performance of some movements to develop some physical characteristics, especially the qualities of strength and endurance, thus developing the movement capabilities of the disabled people with partial paralysis of the lower limbs and who use wheelchairs partially as a result of their exposure to spinal and spinal cord injuries Despite their ability to stand and walk short distances, as the researcher noticed through his work that these disabled people have the ability to move their lower limbs and walk, but in a weak way, as well as walking medium and long distances by relying on crutches, and that their inclusion in a rehabilitative program may lead to an improvement in their mobility and the ability to walk In a better way and further distances.

The research problem manifested itself in the absence of appropriate rehabilitation programs using modern methods such as water medium to treat and rehabilitate these injured people, and the lack of movement and walking of the injured and their sitting on a wheelchair led to the aggravation of the mobility situation of the lower extremities due to muscle weakness and atrophy, which prompted the researcher to prepare a rehabilitation program using the swimming pool and performing all Program exercises inside the water.

The research aims to prepare a rehabilitation program for patients with partial paralysis using the water medium and to develop some physical abilities for the lower extremities and thus develop their movement capabilities through the ability to stand for a longer period or walk more distances

Where the researcher assumed that the proposed program had a positive effect on developing some physical abilities of the lower extremities and thus developing their motor abilities through the ability to stand or walk. The research was conducted for the period from 7/2/2020 to 7/10/2020 on the research sample consisting of (6) disabled players with partial paralysis of the lower limbs and who use wheelchairs partly as a result of their exposure to spinal and spinal cord injuries, and in the People's Swimming Hall Olympic.

Research methodology, its field procedures

2. RESEARCH METHODOLOGY

The researcher used the experimental method to design a single group with (pre and post test) for its relevance to the research problem.

The research sample

The research group was represented by a group of handicapped basketball players with partial paralysis of the lower extremities and who suffer difficulties in walking or standing for a long time as a result of exposure to spinal and spinal cord injuries. The number of members of the sample at the start of the program reached (6) players and their ages range from (21-) 28) years, all of them are males, that by using this type of samples, the study population is not homogeneous, so the researcher was keen to homogenize the research sample in some of the variables used that may affect the results of the research, as all members of the sample have the same injury and the same movement status.

Pre-tests

The pre-measurements were made on 7/2/2020 on the research sample consisting of (6) handicapped basketball players with partial lower limb paralysis in the People's Olympic pool

hall, where all data were recorded by the work team from measuring the weight and height of all the sample members.

Rehabilitation Program

For the purpose of identifying the nature of the rehabilitation program, as well as identifying the water environment in which the sample members will conduct their rehabilitating program, and after conducting the pre-measurements, the researcher explained the program's exercises and the nature of the rehabilitative curriculum for the sample members by descending into the water (swimming pool) and performing the exercises experimentally and identifying the tools and how to use them. With the help of a group of swimmers and the auxiliary work team, for a period of two days after that, the rehabilitation program was started on 4/7/2020 for a period of two months at (4) units per week, where a group of exercises was used inside the pool and using a set of auxiliary tools, and these tools work to help individuals. The sample is on buoyancy and protecting them from the risk of drowning in the water, such as rafts, rafts, and ropes, as well as working to increase the resistance in the water for the purpose of developing and increasing physical and movement capabilities such as weights and plastic bags. Rehabilitation, the unit time is (70) minutes, which included warm-up exercises and main section exercises in addition to. To the final section, the program also included adding an atmosphere of play and fun, with the aim of not having a state of boredom or unwillingness to complete the rehabilitation program.

Post tests

Post- tests measurements were made on the research sample after the completion of the rehabilitation program on the day of 10/6/2020 and at the People's Olympic pool hall. All data were recorded for the purpose of statistical treatment.

Presentation, analysis and discussion of the strength test results :

Table (1) shows the arithmetic means, standard deviations, the difference of arithmetic means, its standard deviation, the calculated value of (t) and the significance of the differences for the test of force elongation in the results of the pre- and post- measurements										
Variables	measuring unit	Pre-test		Post-test		The differences	Differences STD	T value Calculated	The tabular value	significance
		A	ST D	A	ST D					
Strength elongation test	R	5,6	1,77	11,9	2,26	10	1,41	17,95	2,75	sign

The results of the strength tensile test appeared, where the arithmetic mean was (5.6) with a standard deviation (1.77) for the pre-test, while the arithmetic mean value for the post test was (11.9) with a standard deviation (2.26) after using the (T) test for differences. Between the pre and post tests, the calculated value of (t) was (17.95), which is greater than the tabular value of (2.75) at the level of significance (0.05) and the degree of freedom (5), and this confirms the existence of high significant differences between the pre and post tests and in favor of the test Dimensional.

Through the above values, we notice that there are significant differences between the pre and post tests and in favor of the post test for this test, which shows the amount of development in the strength elongation of the two men in the research sample, and the researcher believes that the rehabilitative exercises included in the rehabilitation program and weight training in the water medium had a clear effect for this Evolution “The application of

scientifically standardized physical programs that develop the types of muscle strength for special individuals with motor deficits, often in large proportions” (Syed Jumaa Khamis Abu Draham, 1981, p. 18).

The group of exercises that were performed in the swimming pool and the auxiliary tools added additional resistances that helped to improve the muscular performance of a large group of muscles as the process of loading muscles in training with the aim of developing muscle strength stretching takes many forms and in different methods, and among the oldest of these methods is the method called the repetition method With increased loading "(Talha Husam al-Din and others, p. 149).

Targeting the leg muscles in the performance of the rehabilitative program exercises and the use of different weights increased the strength of these muscles and the amount of their ability to endure muscle with the use of the most important principles of training in physical therapy, which is the graduation of loads, as “the use of weights is a basic means for developing muscle strength of all kinds, and training With weights, it can be directed at certain muscle groups to cause development in them "(Essam Abdel-Khaleq 1999, p. 107).

Also, taking into account the number of repetitions in the performance of the exercises helped the success of these exercises in increasing the length of strength of the muscles of the legs, and despite the fact that the disabled are among those who practice sports, their practice of sport was a non-positive factor due to the use of the wheelchair while playing or during training, which leads to non-use The two legs, as sources affirm that “rehabilitative exercises stimulate blood circulation in the muscles, reduce muscle atrophy, contractions and muscle fibrosis, preserve muscle elasticity and activate contraction and relaxation” (Sayed Juma Khamis Abu Draham; p. 187), as indicated by (Jurgen Innenmoser 2006)) "Most of the disabled, who are young or not practicing sports, show comprehensive and wide developments in muscular strength in all its forms, and primarily the lengthening of the muscle to work when applying a correct scientific approach or exercises."

Table (2) shows the arithmetic means, standard deviations, the difference of arithmetic means, its standard deviation, the calculated value of (t) and the significance of the differences for the test of force elongation in the results of the pre- and post- measurements										
Variables	measuring unit	Pre-test		Post-test		The differences	Differences STD	T value Calculated	The tabular value	significance
		A	STD	A	STD					
Strength elongation test	R	50,5	2,34	140,60	1,07	12,33	2,2	13,71	2,75	sign

The results of the elongation test appeared, where the arithmetic mean reached (50.5) with a standard deviation (2.34) for the pre-test, while the arithmetic mean value for the post test was (140.60) with a standard deviation (1.07) after using the (T) test for the differences between the two tests. Before and after, the calculated value of (t) was (13.71), which is greater than the tabular value of (2.75) at the level of significance (0.05) and the degree of freedom (5). This confirms the presence of high significant differences between the pre and post tests and in favor of the post test.

The use of multiple and varied exercises in the swimming pool helped greatly in the development of the protracted trait among the sample members, as the performance of the exercises in water contributed to adding an atmosphere of fun and a fun way away from traditional exercises as well and the gradual intensity of exercises added to their diversity contributed to the development of the characteristic. Tabliness, as "the diversity in training methods and methods and the difference in the atmosphere of training from the usual helps to raise the degrees of private and public prolongation" (Muhammad Ibrahim Shehata, 1997, p. 128)

The use of exercises in water helped to increase the period of exercise, which was positively reflected in the development of the endurance characteristic of the sample members and the delay in the appearance of fatigue as well as the positive feeling of the sample members due to the different atmosphere of the exercise performance in addition to the fact that the water medium is resistance in itself as all movements performed in Water is the shedding of resistance on the body, which leads to an increase in the efficiency of the working muscles, especially for the disabled, which is considered as a major change in movement activity and physical performance, which leads to the activity of the blood and respiratory system, as Hussein Abu Al-Raz indicates that "sports programs for the disabled work to lower the pulse rate. During rest and an increase in their vital capacity, which is positively reflected in the increase in the general stress rate for these individuals "(Hussein Abu Al-Raz, 1989, p. 30).

The rehabilitation program has taken into account the principle of gradual intensity, as the transition from intensity to higher was dependent on the amount of adaptation obtained by the members of the sample, as well as the extent of psychological receptivity to increase the training loads of the sample members, as the researcher was keen to ensure that the general atmosphere for the implementation of the rehabilitation program is a positive atmosphere and the performance of exercises Accompanied by a sense of happiness and fun among the sample members, and that the application of the program's vocabulary in the water medium greatly contributed to the success of the rehabilitation program.

Conclusions and recommendations

Conclusions:

Through the results of the research, the researcher reached the following conclusions: The rehabilitative approach has a positive impact on the development of physical abilities through the difference between the results of the pre-tests and the post-tests of the measured physical abilities, which helped in achieving the rehabilitation and general fitness of the disabled. Also, the researcher concluded that the exercises inside the water have a great impact on the development of physical capabilities, which is directly reflected on the mobility ability of the disabled, such as general skills, including walking.

3. RECOMMENDATIONS:

The researcher recommends several recommendations, including:

It is necessary to provide swimming pools in the rehabilitation programs and that most rehabilitation programs include the use of water media in the rehabilitation of the disabled, as it requires the performance of water rehabilitative exercises and weight training to achieve the required rehabilitation goals and the need to benefit from the rehabilitation program prepared in the rehabilitation of the handicapped people with partial paralysis Problems and weakness of movement in the lower extremities, and the researcher recommends conducting more research and preparing rehabilitation programs for other injuries and benefiting from the current rehabilitation program. The researcher also recommends the necessity of continuous follow-up of the disabled after the operation or after the occurrence of injuries

through the application of rehabilitation programs to ensure that there is no atrophy in Some muscles as a result of lack of use or as a result of insufficient use, as the disabled segment needs to provide specialized centers to take care of them through periodic examination, provision of the necessary supplies, rehabilitation programs, and the provision of an integrated specialized staff.

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