

The effect of the rehabilitative approach in the case of a replacing pelvic joint for men in age (70-75) years

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Abstract

Elderly people usually expose to multiple health problems, some of them caused by Physical and functional weakness as a result from aging and demolition operation especially in the structural system where the bones start with weakness because of the intense Osteoporosis which make bones easy to break and need a long process of care and treatment from where nutrition and rehabilitative effort in order to recover gradually. We may find that a large percentage of bone fracture cases that the elderly expose to are in the pelvic region, especially, the head of the thigh that is exposed to types of fractures as a result of falling on the pelvic and loss control on the body from the weakness of the surrounding muscles, which is necessary require surgical intervention for patient and control the condition based on the health condition of the patient, Therefore, the post-operative stage has a major role in restoring the patient's ability to return again to practice life closer to normal through the appropriate rehabilitation effort for the patient's condition.

Keywords: *rehabilitative, pelvic joint, bone fracture*

I. Introduction

Elderly people usually expose to multiple health problems, some of them caused by Physical and functional weakness as a result from aging and demolition operation especially in the structural system where the bones start with weakness because of the intense Osteoporosis which make bones easy to break and needs a long process of care and treatment from where nutrition and rehabilitative effort in order to recover gradually. We may find that a large percentage of bone fracture cases that the elderly expose to are in the pelvic region, especially, the head of the thigh that is exposed to types of fractures as a result of falling on the pelvis and loss control on the body from the weakness of the surrounding muscles, which is necessary require surgical intervention for patient and control the condition based on the health condition of the patient, Therefore, the post-operative stage has a major role in restoring the patient's

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ability to return again to practice life closer to normal through the appropriate rehabilitation effort for the patient's condition. So Therefore, the researchers decided to study this problem early and directly after completing the process of replacing the joint and setting the rehabilitation program within certain stages and studying the anatomical, functional and mechanical aspects related to the issue of rehabilitation for this case and the importance of the study lies in knowing the effect of a qualifying curriculum in case of replacing pelvic joint for men at the age of (70-75) year and evaluate this case using appropriate therapeutic methods, given the effects of this condition on the physical, motor and life aspects.

II. Research procedures

2-1 research curriculum

The two researchers used the experimental approach because it's related to and suitable for the research problem.

2-2 Research community and its sample

The research community consisted of individuals who had a menstrual joint replacement for men at the age of (70-75) and their number (3) and they were chosen intentionally and their percentage (68%) from the community. One group with pre and posttest were chosen to participate in the therapeutic program and they expressed their desire to volunteer to carry out the program according to the medical guidelines as it was done executing the therapeutic program on the research sample in succession (as there is a time interval between the members of the research sample in conducting the pelvic joint swap for a period of 3 days between one individual and another, and the same conditions were taken into account for all members of the research sample.

2-3 Homogeneity of the research group

After the two researchers conducted the pretests on the research sample, they conducted the homogeneity process between group of variables, age, height and weight variables "so that the researchers can return the difference to the experimental factor, the groups must be completely equal in all their circumstances except the experimental variable that affects the experimental groups (348:1982) as explained in the following tables (1). Table [1] The table shows a coefficient of homogeneity among the sample, height, weight and age variables

Statistical parameters variables		Measure unit			Calculated value	indication
			x-	y-+		
Physical specifications	length	cm	42,175	91,6	757,0	equivalent
	weight	kg	83,82	78,8	180,0	equivalent
	age	year	33,72	37,1	155,0	equivalent

The tabular value T (2.074) at the error rate $\leq (0.05)$ and the degree of freedom (4).

The above table shows the calculated value of (T) which calculated to variable length (757.0), weight (180.0), and age (155.0). Thus, the calculated value of (T) is smaller than the tabular value of (2.074) at a degree of freedom (4) And the error ratio 0.0 (0.05), i.e. the difference is not significant, meaning there are no differences between the group and this indicates the presence of homogeneity in the variables of length, weight and age.

2-4 Means of collecting information:

The researchers used measurement, interview and tests as means to gather information.

2-4-1 Devices and tools used in the research

A device for measuring weight and length chins origin

The tools that were used in the rehabilitation program are: small size medical balls, rollers with square hops, square weights 2 kg, 4 kg, rubber ropes

2-5 defining the variables:

By reviewing some scientific sources and references and interviewing with some practicing doctors in the field of fractures, and a number of experts in the field of measurement and evaluation as well through reading some similar studies and researches, the most important physical, motor and physiological characteristics were identified after that was presented to a number of experts in the remedial specialty qualification and physiology of training, which may affect it and know the extent of the impact of pelvic joint replacement on these physical and motor characteristics, including (the range of kinematic of the hip joint, front thigh muscles, posterior thigh muscles, closer muscles and far muscles, abdomen muscles, back muscles, and hip muscles) in addition to the diastolic systolic pressure and pulse.

2-6 Field research procedures

Through the official overtures to each of the Baghdad Health Authority, Al-Rusafa (Al-Wasiti Teaching Hospital), procedures were specified in the Physical therapy Center at Al-Wasiti Hospital, in order to provide the appropriate field with direct supervision of the treatment, physical therapy staff, and rehabilitation Field procedures:

1- Radiographic examination and surgical interference test: Radiological examination of the research sample was carried out to confirm the health condition of the patient, after which the pelvic joint replacement was performed by specialists in Al-Wasiti Teaching Hospital, and the consequences of this medical procedure effect the muscle groups and the peripheral ligaments of the pelvic joint, after the movement of the patient is usually determined within a certain range until the surgical suture is raised and the immediate medical follow-up period is terminated, this negatively affects the flexibility and strength of the muscles.

2- After performing the surgical operation, switching the pelvic joint and examining the patient's specialist after 24 hours, he indicated the necessity of conducting the appropriate rehabilitation program for the patient's health and age condition and within the limits of the pain bearing of the affected area through perfect

rehabilitation exercises appropriate to the patient's health status by measuring the kinetic range of the joint and the ability of the surrounding muscles thigh to work in the four directions (raise, lower, rotate inward, rotate in and out) and measure the ability of the muscles to constriction and the importance of these therapeutic exercises that continued for three phases, in the first stage of the patient for a period of (21) days where this stage exercise the kinetic range of the joint with (external assistance) and some fixed effort training with joint assistance between the patient and the therapist, and by using some helpful methods, within the patient's pain limits and the degree of bearing pain, within the recommendations of the surgeon regarding the suture and dressing process. As for the second stage after raising the suture and dressing process, the patient's situation became more secure in terms of the surgical procedure, the pelvic joint area, and the patient's health stability, so the rehabilitation effort continued gradually, corresponding to the ability and bearing of the patient to increase the rehabilitation dose in terms of the kinetic range of the ability of the joint implanted in the body and the ability to bear muscles surrounding the effort placed on it and raising its capacity and its qualifying functional efficacy, as this stage was characterized by assistive and positive exercises by the patient with the use of some assistance tools to increase the ability to bear the qualifying effort and self-reliance until the arrival to the approaching phase of the misfits within the same age, where the patient needed a period of 21 weeks.

2-7 main experience

2-7-1 Pre-test

The researchers conducted the pretests on the research sample for a day, the researchers presented them to the doctor (Imad Hassan), a specialist in orthopedics and fractures, to make sure more of the accuracy of the diagnosis, which in turn confirmed that they had a pelvic joint replacement that can be treated using the rehabilitation methods and Appendix No. (2) clarifies the doctor's report, on the date of 26/6/2019, physical and motor tests were performed for the affected sample with a pelvic joint replacement consisting of (5) infected, taking into account the rest periods between one test and the other, knowing that the tests were.

A- The kinetic range of the pelvic joint.

B- The left and right thigh circumference.

C - The strength of the muscles of the leg

D- Measuring the kinetic range of the pelvic joint using the manual Goniometer.

E - Measuring the circumference of both thighs using a tape measure, where five measurements were taken for each thigh starting from the circumference around the center of the patella bone to the top of the thigh by a distance of 5 cm between each point and another.

F- Estimate the strength of the muscles of the affected leg by placing thumbs over the patella of the injured knee (Patella) and asking the patient to raise the leg upward and then give him a degree from (zero-5) and according to the resistance shown by the patient, where the degree 5 represents the highest degree

2-7-2 Program implementation:

The therapeutic program was implemented on the experimental group consisting of (5) patients, as the program contained for a period of (24) weeks by six units per week and the units included a set of therapeutic exercises aimed at treating and improving the pelvic joint by strengthening the thigh muscles, and Pelvic joint ligaments "the intensity of exercises, size and quality of comfort used (negative and positive) between repetitions and between each exercise

and another, for the period from 27/6/2019 to 27/12/2019 with a time of (60) minutes per session in the physical therapy laboratory of Al-Wasiti Teaching Hospital in Baghdad and was Conducted tests in the following stages

- 1- Three weeks after applying the program on 18/7/2019 (i.e. after lifting the stitches of the operation)
- 2- Six weeks after the application of the program
- 3- At the end of the program 28/12/2019

2-9 Statistical methods: -

The researchers used the statistical bag of social sciences (spss) that they used to fulfill the study hypotheses

III. Presenting and discussing the research results:

3-1 Presentation and discussion of the results of measuring the footprints of the two experimental groups:

3-1-1 Presentation and discussion of the results of the differences in the measurement of the feet print between the pre and posttests of the first experimental group that used the therapeutic program:

Table (3)

Shows the statistical parameters and calculated values of (T) between the pre and posttests of the kinetic range of the pelvic joint for the affected leg and the circumference and strength of the thigh muscles from the lying down position

Statistical parameter variables	Test the strength of the thigh muscles of the affected leg from laying down position		Kinetic range Angle of the pelvic joint for the affected leg		Kinetic range Pelvic joint angle for healthy leg		Thigh circumference For the affected leg		Thigh circumference For the healthy leg	
	pre	post	pre	post	pre	post	pre	post	pre	post
1	3	5	35	80	102	105	40	45	47	48
2	2.5	5	37	82	100	101	39	43	46	50
3	3	4	40	81	101	102	37	43	45	48
4	2.5	4.5	42	85	102	102	42	45	48	48
5	2.5	5	38	85	102	102	41	44	45	46

Table No. (4) shows

Arithmetic mean and standard deviation in the pre and post tests and the range of the research sample.

Statistical parameters variables	Measuring unit	Pre test		Post test		Means difference	Deviations difference	Calculated T value	Error percentage	indication
		x-	y ±	x-	y ±					
Test the strength of the thigh muscles of the affected leg from laying down position	estimation (5-1)	2.70	0.27	4.70	0.44	2	0.61	7.30	0.002	moral
Kinetic range Angle of the pelvis joint for the affected leg	angle	38.40	2.70	82.60	3.30	44.20	1.01	43.36	0.000	moral
Kinetic range Pelvic joint angle for healthy leg	angle	101.40	0.89	102.40	1.51	1.11	0.54	1.82	0.142	moral
Thigh circumference For the affected leg	cm	39.80	1.92	44.00	1.00	4.20	0.58	7.20	0.002	moral
Thigh circumference For a healthy leg	cm	46.20	1.30	48.00	1041	1.80	0.73	2.44	0.070	moral

Results discussion

Tables (3,2) show in the test of thigh muscle strength of the effected leg from laying down position, the two researchers found that using exercises enhance the surrounding ligaments of this joint by strength the muscles which directly tight the effected ligaments and develop the strength of these muscles which in turn increase the strength of the ligaments and enhance the stability of the pelvic joint that has too much mechanical pressures are caused by body weight and for the purpose of gaining muscle effective in its efficiency. The two researchers (Frank Abdul Karim Wahbi Alwan Al-Bayati) agreed on that the muscle must be trained on all types of spasm to raise the effectiveness and efficiency, also it is necessary that the good player is able to analyze the movements of the type of sport practiced

and design exercises that fit with those movements (Frank Abdul Karim Wahbi Alwan Al-Bayati, 2007, 98), The development taking place in the level of the relative strength of the members of the research sample, this indicates that the exercises included in the rehabilitation program had a significant impact on the development of the relative strength index of the affected leg, which express the level of the maximum strength of these muscles and their ability to overcome body weight, as this indicator gives clear information for the therapist about the level of the maximum strength of the affected part compared to the maximum strength of the corresponding part relative to the body mass, "where the level of this strength can be raised either by raising the level of the maximum strength of the muscles or reducing the overall body mass relatively."

Table 3.2 shows the kinetic range test for the pelvic joint angle from the affected leg, the development in the level of the kinetic range of the individuals of the research sample. the researchers assigned that the use of the vocabulary of the qualification program prepared by the researchers according to the correct scientific foundations and based on the biomechanical indicators related to this development has a direct impact on the development of these indicators, which considered the result of working muscle, where some Sources referred "(Borgstrom, A, Bartonictz.K. Events, 1995, p 98.) That body mass indicators or its parts and lengths can give motional stimuli in the effect of force training and achieving greater angular speed and thus achieving the largest kinetic energy" (Jeffry. E. falkle k, 1986. 76). The developing of moral strength can be done by selecting fixed and moving muscle contractions that lead through specific programs to achieve better results to develop the characteristic of muscle strength. The researchers agree with what he mentioned (Qassem Hassan Hussein, 1990). The strength exercises lead to a major building process in the muscle protein and a significant increase in muscle mass and activate the rebuilding processes (ATP) as well as improving biochemical processes in the muscles if the muscle work is fast and for a short period of time.

From Table (3.2) in the kinematic range test the angle of the pelvic joint of the healthy leg shows that the development of the healthy leg, the development in the variables of the peripheral speed, angle and kinetic energy of the healthy leg came as a result of the development of the power and the intention work of this power on the pelvic joint, which was indicated in the previous topic, which clearly boosted the ability of muscles to produce the energy needed for movement and to exert an effort that is characterized by rapid muscle contractions in a short time, to link performance here with rapid, explosive, speed strength, and these differences mean that the progress made by the values of the median is not significant for the individuals of the research sample for the healthy leg, which means weakness in the capabilities of the speed force and the maximum force, which are considered one of the main causes of the occurrence of movement, the achievement of the required speed and the acquisition of the energy required for performance, the use of rehabilitation exercises according to the scientific basis adopted by the researchers to develop strength for the second muscles and the close and fare material of the pelvic joint, The patient can " perform these exercises for a specified period in order to improve the ability of work in regarding of shoulder muscles during performance as the kinesthetic range of the pelvic allows the achievement of multi-directional kinematic ranges and amounts of angular displacement that pelvic cuts by large values, (Suleiman Ali Hassan and Awatif Mohamed Labib. 1978, 160-161). Table 3.2 shows the thigh circumference test for the affected leg. And the development of the individuals of the research sample for the thigh circumference of the affected leg, the two researchers think that the

use of the the qualification program prepared by the researchers according to the correct and approved scientific basis indicates a clear indication of the increase in muscular hypertrophy of the muscle groups as a result of the application of the rehabilitation method prepared in the development of the muscle strength of the thigh, this development in strength of the muscle groups that affected the expand thigh muscles, which was improved an observed increase in the circumference of the affected leg's thigh, which means the large nominating section of these muscle groups, where he indicated (Muhammad Mahmoud Abdel Dayem and others, 1993, 75.) That there are "two types of muscular hypertrophy, the first type resulting from an increase in the size of sarcoplasm, that is, a non-systolic part that leads to hypertrophy, and increase in the reserve of energy materials in the muscles , this hypertrophy came from the dynamic work.(Isotonic exercises) , the second type resulting from an increase in the size of the constituents responsible for contraction, and therefore an increase in the cross section is characterized by an increase in the maximum strength and relative strength, and this inflation occurs as a result of fixed isometric exercises. It appears from Table (3.2) in the test of thigh circumference of the healthy leg, the development of research individuals sample the researchers assigned that the use of the of the rehabilitation program prepared by the researchers according to the correct and approved scientific basis, indicates a clear indication of the increase in muscular hypertrophy of the muscle groups as a result of applying the rehabilitative approach prepared in developing the muscle strength of the thigh by applying consistent exercises in line with the ability of the patient, which contributed to the development of the muscle within certain angles that was trained on. There is no muscle work because of the balanced power, this used in sporting activities and the maximum fixed force play distinctive role. This indicated by (Hamed, 2000, 73) that what happens in the central fixed action makes the muscle work on all the angles of the muscular action, but the amount of muscle tension varies according to the different angles due to the number of participating muscle fibers as well as the greater the resistance, the greater the muscle tension increases resulting from the participation of the largest number of muscle fibers, continuation of training generates neurological adaptations, and these adjustments in the beginning are neuromuscular harmonic, that is, the regulation of nerve fluids and may develop after a while to become cell adaptations that lead to an increase in the size of the motor unit and this makes the functional capability of the motor unit to greater innervation number of muscle fibers, or the possibility of recruiting the largest number of motor units, which increases the strength. As for the rehabilitation exercises that adopted mobile training aimed for developing the working muscle groups by increasing the muscle strength of the healthy part, the researchers assigned the reason of the development of the strength belongs to the exercises that were used in the curriculum through the different positions of the body and the tools used, especially when these exercises are based on correct scientific basis in terms of the use of appropriate intensity gradually and the use of optimum iterations and intermittent resting times, this is consistent with what it came from (Qasim Hassan 1995, 224) that training with different weights and tools such as the medical ball, the terraces and stairs have significant impact on force development, as this exercise depends on increasing the speed of muscle contraction; because the aim of creating the muscle contraction is to get muscle strength.

IV. Conclusion

According to the research objectives, the following conclusions were reached:

1. The use of the exercise for the affected and healthy part has a positive effect on the development of muscle strength, motor range.
2. There is a rapprochement in the level of muscular strength and kinetic range with the proper when using the approach in the pre and posttests.

As for the most important recommendations, they were:

1. dependence on the rehabilitative approach prepared by the researchers, which includes fixed and mobile efforts, in proportion to the patient's health condition and ability
2. Confirm the use of the training method by using fixed and mobile exercises in preparing the rehabilitative approach that aim to develop healthy muscles and improve the affected muscles.

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