

The Effects of the Exercises and Some of the Physical Therapy Means for the Treatment of the Cervical Pain Patients and the Patients Attending at the Physiotherapy and Prosthesis Center in Sana'a

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Abstract: *The aim of the current research is to identify the effects of therapeutic exercises and some of the physical therapy means for the treatment of the cervical pain and attending patients: dynamic range when a neck is bended right and left, a head is wrapped around and inclined right and left, the muscular strength that bends a neck and the pain stage of cervical zone forward and backward. In order to achieve this aim the researcher applies the experimental curriculum, which is an appropriate method for this study, with designing one experimental group, on a sample of 20 males, who have cervical pains due to muscle contraction and spasm. This sample was chosen by applying a purposive sample at the Physiotherapy and Prosthesis Center in Sana'a between the ages of 30 and 45, who committed themselves to the treatment program of three weeks three therapy sessions per week) the research result found differences of statistically significant ways between the prior and post measurement for the post researcher has recommended the measurement in all changes under consideration the importance of practicing appropriate physical. Activities in general and therapeutic exercises in particular, in addition to the importance of treatment devices and their role for cervical pains medication.*

Keywords: disc herniation, exercises, massage, pain level

1. Introduction

Laurie (2003) A study aimed at determining the best and quickest methods between passive exercises and manual therapy in the treatment of neck pain has been published. The researcher used the experimental method in the study on a sample of 183 patients with neck pain ranging in age from 18 to 70, who were divided into three groups. The first group of 60 patients received manual treatment. The second group of 59 patients was given passive exercises, and the third group of 64 patients was given drug treatment by the doctor. The results showed that patients who received manual therapy were cured faster than patients in the other groups, and patients who received passive exercise therapy were cured faster than patients who received drug therapy, which was similar to our study.

Sherman, 2009. A study used a random selection procedure to determine the efficacy of therapeutic massage as one of the most common complementary relationships in the treatment of neck pain. For patients suffering from neck pain, therapeutic massage was far more beneficial than personal care. The researcher used an experimental method in the study on 64 patients who were chosen at random, and 10 massages were performed for a period of no more than 10 weeks. Telephone interviews were conducted after a 26 - week period to evaluate the results, which included disability and disease, and there were differences in the percentages. The proportion of participants who improved significantly.

Vicezion (2009) The purpose of the massage therapy research was to determine the effect of light load caused by cervical curvature as well as strengthening exercises on activating the deep neck flexor muscles during neck movement and stability. In addition to the electrical activity of the deep neck flexors, they were randomly assigned to a 6 - week training program.

The outcomes were as follows: Training of the deep neck flexor muscle resulted in an increase in muscle contraction strength as well as an increase in electrical activity. The study found that the light load of the cervical muscular exercises changed the properties of the muscle, demonstrating, at least in part, the efficacy of these exercises in improving muscle motor performance.

The results showed that there was an improvement in neck movement after 10 weeks of treatment, and after 29 weeks of the massage group, patients recorded an improvement in the return of neck movements to their normal state. There were statistically significant differences in pain after 4 weeks, but these differences were not statistically significant between groups after 29 weeks. The researcher concluded that massage is a safe procedure with clinical benefits in treating neck pain in the short term.

Seftom (2010) In a study aimed at determining the effect of therapeutic massage of the neck and shoulders on blood flow using an infrared thermometer in a fixed thermal room, the researcher used the experimental method on 17 patients (8 males and 4 females) ranging in age from 23 to 30 years. The therapeutic massage for the neck and shoulders was

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performed for 20 seconds in each case, and the results showed that the massage treatment reduced pain in the upper chest, back of the neck, upper areas of the back, the back of the right arm, and the middle of the back the therapeutic massage also caused an increase in temperature.

As it became clear after the therapeutic massage, there was an increase in temperature. After 60 minutes, the temperature had risen above the baseline level, and the changes were accompanied by changes in blood flow in both the treated and surrounding areas. Furthermore, the findings of this study show that infrared thermotherapy is a useful tool for measuring changes in physical activity and peripheral blood flow in the context of pain rehabilitation and elimination.

2. Methods

The research group consists of 12 patients from the Limb Center in the capital, Sana'a, who suffer from pain in the cervical region of the spine and range in age from 30 to 45 years the following measurements were taken both before and after the study program:

A. Using a visual analogue scale of 1 to 10, assess the level of pain:

The visual analog scale VAS is a simple scale used in much research and treatment when a correct and rapid report on pain is required. It has a numerical assessment, which is a ruler divided by millimeters from zero to one hundred millimeters 10 cm horizontally, starting with the point "No Pain" and ending with "Severe Pain" from number 1 to number 10.

B. Measure or test the forward - flexion range of motion of the neck:

The goal of the measurement is to determine the range of motion of the neck's posterior muscles performance synopsis the laboratory assistant is seated on a fixed chair, his body upright, his head straight, and his arms next to his body. the device's zero point is placed in the middle of the ear opening, and the first ruler is fixed on the device's zero line 19 and towards the point of the nostril then the person gives a signal to the laboratory by bending the head from the cervical vertebrae forward and installing the other ruler after bending the neck at the point of the nostril the laboratory performs the selection in three attempts the laboratory's best attempt is calculated, and the degree of measurement is taken in degrees from the zero point to the end point of bending the spell.

C. The test or measurement's name for the kinematic range of flexion of the neck backwards:

The goal of the measurement is to determine the motor range of the neck's front muscles the laboratory assistant is seated on a fixed chair, his body upright, his head straight, and his arms next to his body the device's zero point is placed in the middle of the ear opening, and the first ruler is fixed on the device's zero line and towards the point of the nostril, after which a signal is given to the laboratory by bending its head from the cervical vertebrae back and installing the other ruler after bending the neck at the nostril point.

The laboratory makes three attempts at the selection, and the best attempt is calculated, and the degree of measurement is taken from the zero point to the endpoint of the neck bend.

D. The right neck flexion range of motion must be tested or measured:

The goal of the test is to determine the motor range of the muscles that travel in the neck description of the act The laboratory assistant is seated on a fixed chair, his body erect, his head straight, and his arms next to his body the device's zero point is placed at the seventh paragraph of the column, and the first ruler is fixed to the device's zero line in the middle of the spine, followed by a signal the laboratory must bend its head from the cervical vertebrae in a mania and install the other ruler after bending the neck to the right in the direction of the point of the posterior horn of the head. The test is performed three times by the laboratory, and the best attempt is calculated, and the degree of measurement is taken in degrees from the zero point to the end point of the neck bend.

E. Left neck flexion measurement or kinematic measurement:

The goal of the measurement is to determine the motor range of the neck while the laboratory worker is sitting on a fixed chair with his body erect, head straight, and arms next to his body. the device's zero point is located at the seventh point of the column, and the first ruler is fixed on the device's zero point in the middle of the spine. after bending the neck, the other ruler.

Test: The test attempts to validate a zero - point checkpoint.

F. Test or measure the range of motion of the neck to the right:

The objective of the measurement is to determine the motor range of the posterior muscles on the left side of the neck the laboratory assistant is seated on a fixed chair, his body erect, head straight, and arms next to his body the device's zero point is located in the center of the head, and the first ruler is fixed on the device's zero line towards half of the face and nose, followed by a signal to the laboratory by turning the device. Turn one of the cervical vertebrae to the right and fix the other ruler after wrapping the neck around half of the face and nose. The laboratory performs the test in three attempts, and the laboratory's best attempt is calculated and the degree of measurement is taken in centimeters from the zero point to the end point of the neck wrap.

G. Test or measurement of the left neck's motor range:

The right side of the neck is used to measure the range of motion of the posterior muscles, the laboratory must sit on a fixed chair with its back erect, head straight, and arms beside its body. The device's zero point 24, is placed in the middle of the head, and the first ruler is fixed on the device's zero line towards half of the face and nose, followed by a signal to the laboratory by turning the head from the cervical vertebrae to the left and fixing the other ruler after turning the neck. Half of the nose and half of the face are missing.

The test is performed in three attempts by the laboratory, with the best attempt calculated for the laboratory, and the degree of measurement is taken in centimeters from the zero point to the end point of the neck wrap.

H. Test or measurement neck muscle strength should be measured:

Measuring muscular strength the laboratory assistant is seated in a fixed chair. His body is erect, his head is straight, and his arms are by his side the signal is given to the laboratory to begin pushing the head back for five seconds, ensuring that the shoulders and the rest of the body are stable and straight.

Registration: The laboratory runs the test three times. The best attempt is calculated, and the degree of measurement in kilograms is taken from zero to the numerical value of the thrust.

I. Measurement or testing Determine the muscle strength of the muscles in the back of the neck:

The laboratory is sitting on a fixed chair, its body is erect, its head is straight, and its arms are by the side of the body to measure the muscular strength of the congenital muscles of the neck the signal is given to the device and the laboratory to begin pushing the head forward for five seconds so that the position of the shoulders and the rest of the body parts is fixed and straight recording the laboratory runs the test three times, and the best attempt is calculated, as is the degree of measurement in kilograms from zero to the digital value of the thrust force.

J. Measurement or testing The muscle strength of the left side leaf was measured:

The laboratory is sitting on a fixed chair with its body erect, head straight, and arms beside the body to measure the muscular strength of the muscles on the left side of the royal the device is adjusted to kilograms and installed on a column with a height parallel to the laboratory head, after which the researcher places the clamp attached to the device on the right side of the head for five seconds so that the test muscle is in the position of the tester, and the direction of the device is towards the left side of the laboratory, and the laboratory is given the signal to begin pushing the head to the shoulders

and the rest of the body parts fixed and straight. The laboratory performs the test three times, the best attempt is calculated, and the degree of measurement in kilograms is taken from zero to the numerical value of the thrust.

K. Muscle strength analysis measurement or test:

The measurement's goal is to assess muscle strength the laboratory is sitting on a fixed chair, with its body erect, head straight, and arms by its side the device has been calibrated to the kilogram degree the device is mounted on a column that is parallel to the laboratory head in height the researcher then positions the clamp attached to the device on the laboratory head with the device pointing to the side the laboratory is given the go ahead to begin pushing the head to the left for five seconds, ensuring that the shoulders and the rest of the body are fixed and straight the laboratory runs the test three times, and the best attempt is calculated, as is the degree of measurement in kilograms from zero to the numerical value of the thrust.

3. Results

Data variables were analyzed with SPSS 22.0 software program. We used descriptive statistics and t - test for results.

Table 1: Participant's mean age and anthropometric variables n=12

Variables	Mean±SD
Age (year)	35.58±2.97
Body weight (kg)	71 ±14.03
Height (cm)	163 ±4.83
BMI (kg/m ²)	21.85±4.49

Table 1, mean height, body weight and age of participants was shown And also, as an anthropometric measurement variables of body mass index BMI, kg/m² was calculated from body weight and height.

Table 2: The pre and post measurements of the research variables n=12.

Variables	Before		After		Rate of improvement (%)	T	P
	\bar{X}	SD	\bar{X}	SD			
The level of pain	57.75	15.97	16.33	8.18	- 71.72	- 13.31	0.000*
Muscular strength of the muscles working to bend the neck in front of	3.35	1.53	11.34	2.56	238.51	- 15.66	0.000*
Muscular strength of the muscles working to bend the neck backward	3.45	1.44	12.60	2.14	265.22	- 20.14	0.000*
Muscular strength of the muscles working on the right head tilt	3.50	1.21	11.42	1.53	226.29	- 13.34	0.000*
Muscular strength of the muscles working on the head tilt left	3.81	1.58	11.74	1.58	208.14	- 9.42	0.000*
Range of motion when the head is tilted to the left	38.67	13.13	56.25	11.07	45.46	- 8.23	0.000*
Range of motion when bending the neck backwards	38.17	16.99	55.00	17.06	44.09	- 8.30	0.000*
Range of motion when the head is tilted to the right	41.17	13.16	59.25	12.09	43.92	- 6.84	0.000*
Range of motion when bending the neck forward	47.25	12.85	64.17	11.92	35.81	13.31	0.000*
Range of motion when turning the head to the left	46.67	2.79	62.92	11.81	34.82	- 8.96	0.000*
Range of motion when turning the head to the right	46.67	12.79	62.92	11.81	34.82	- 8.96	0.000*

(DF) = 12 The degree of freedom *P<0.05

Table 3: The difference of the (Mean) between the pre and post measurements of the research variables.

Variables	Before	After	The difference of (\bar{X}) (%)
The level of pain	57.75	15.97	0.111
Muscular strength of the muscles working to bend the neck in front of the front	3.35	1.53	0.969
Muscular strength of the muscles working to bend the neck behind	3.45	1.44	0.908

Muscular strength of the muscles working on the right head tilt	3.50	1.21	0.228
Muscular strength of the muscles working on the head tilt left	3.81	1.58	0.405
Range of motion when bending the neck forward	36.17	13.50	0.224
Motor range when bending the neck backward	38.17	16.99	0.538
Motor range when the head is tilted to the right	41.17	13.16	0.863
Motor range when the head is tilted to the left	38.67	13.13	0.798
Motor range when turning the head to the right	46.67	12.79	0.473
Motor range when turning the head to the left	47.25	12.85	0.79

4. Discussion

The study aimed to verify the hypothesis of the study, which states that "there are statistically significant differences between the tribal and remote measurements of the effect of therapeutic exercises and some physical therapy methods in treating cervical pain among those who suffer from it and who frequent the Limb Center in Amanat Al - Asimah Sana'a and in favor of the post - measurement, where the researcher used both: Arithmetic mean, standard deviation, level of improvement, and T test in order to identify the significance of the differences between the two measurements before and after the study sample there are statistically significant differences between the tribal and remote measurements in favor of the dimensional measurement in the variable, as demonstrated in tables 2 and 3 muscular strength of the working muscles and corresponding to the muscle groups targeted in the study on bending the neck in front, bending the neck behind tilting the head right and tilting the head left.

Where the researcher discovered that the nature of the program and the use of more than one means as this led to an increase in muscular strength, which led to the regularity and commitment of the sample members in the program and the use of more than one physical therapy treatment method in the program and their arrangement and legalization of the program and diversity in the use of exercises and not limited to one or one method or one type of exercise, as well as the regularity and commitment of the sample members in the program and the use of more than one treatment method of physical.

This was confirmed by studies Sami'a, (2010, 2006, 2008) and Muhammad's study, (2011), Ahmed (2012), Atta (2007) and the study of Jawad, (2006), Howung (2011), Hwangju (2016), Mohsin (2016) and Hamza (2012), Mohsen (2016) where these studies showed that the use of galvanic current causes chemical changes inside the body due to the influence of this electrode, which converts chemical compounds into ions that collect in the area of the negative or positive electrode depending on the type of intensity, and it alerts the muscles and muscle fibers.

And that is through the events of contractions in the muscle even in the case of injury to the nerves singing to the muscle, which works to rehabilitate the muscle re - educating the muscle to move as the thermal energy produced from infrared rays works to alert the sensory nerve, which leads to a decrease in pain and muscle spasm and expansion of blood vessels as well as The importance of hot wet compresses by using them topically at a temperature of 40 - 45 degrees Celsius, as they help to revive the blood circulation locally after the acute phase of the injury, and are applied to the

contracting muscles to work on their relaxation and are used as a means of forced warm - up before kinetic treatment, and the diversity of exercises Rehabilitation therapy improves the level of functional performance of the neck.

Tables 2 and 3 show that there are statistically significant differences in the arithmetic mean between the two measurements, tribal and remote, and that the tribal measurement has a statistical advantage in the variable the degree of pain compared to the pre - test, there was a significant reduction this demonstrates the safety and consistency of the treatment program using some physiotherapy approaches, as the legality of the training load was considered until the program's therapeutic objectives were attained.

Through pressure on the nerve centers or making massage movements, survey massage increases the secretion of endorphins, which act as a natural anesthetic, which helps to reduce the degree of pain in addition to muscle relaxation, thanks to the work of survey massage and therapeutic exercises, which helped to relieve muscle contractions to relieve pressure on the nerves and thus reduce the degree of pain, as a large part of the pain is often caused by muscle spasms in the back.

According to a study Mohammed (2011), Hamza, (2014, Hussein, (2012), Samia, (2019) Abdel Ghali (1999), Atta 2017, Ramadan (2016), physical activity has an influence on reducing pain levels and the employment of more than one means in pain management is beneficial the purpose of the program is to reduce pain, and the inclusion of an electrical stimulation device Tens in the rehabilitation program has a significant impact on pain reduction.

Tables 2 and 3 show that there are statistically significant differences in the kinetic range between the tribal measurement and the dimensional measurement and the valid dimensional measurement in the variables of leaning the head to the left, right bending the neck forward, and back turning the head right and left, which the researchers attribute to the nature of the treatment program (rehabilitation and the use of more than one methadone).

This was confirmed by a study Sami'a (2010), Ointment (2013), Saeed (2005), Ramadan (2006), Ataa (2007), Abd Al - Ghani (1999), Ahmad (2012), Muhammad (2011) and a study Muhammad (2013) Hamadi, (2011) and a study Hamza (201) and Ali (2010), which indicated that electrotherapy is used with a preventive and curative purpose because of its mechanical, magnetic and chemical effect on tissues, so it is used in cases of musculoskeletal disorders, work against hypertension, restore muscle tone, maintain the flexibility and elasticity of muscle fibers and

prevent the adhesion of their fibers, as the use of tennis device and infrared radiation, hot water compresses works to heat the cervical region and increase blood circulation, which increases the elasticity of the muscles and thus increases the range of motion. Studies have also confirmed that therapeutic rehabilitative exercises have a positive effect in increasing the muscle lengthening of the neck and increasing the elasticity of the tendons and muscles and work to relax thus, increased range of motion.

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