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The Effect Of Movement Therapy And Dia-Dynamic Currents In Increasing Muscle Strength And Reducing The Pain Caused By The Erosion Of The Cartilage Of The Cervical Spine

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Abstract

The study aimed to preparestrength exercises and D-Dynamic current sessions that fit the research sample can reduce pain and increase the and identify the effect of strength exercises and D-Dynamic sessions. You statistically significant differences The research hypothesis included .muscular strength of the neck muscles The researcher dealt with .between the pre and post-tests in the research variables and favor of the post-tests ,many theoretical studies, such as the nature of kinesiotherapy and day currents Denmic and cervical vertebrae The researcher used the experimental method by designing a .of strength exercises as well as the definition single group and a tribal and remote measurement method. The research was conducted on a sample of (18 injured) who were deliberately selected from women with erosion of the cervical vertebrae who frequent the physiotherapy department at Al-Sadr General Hospital. Their ages ranged between 40-50 years, They were presented to a specialist doctor to diagnose their injury, and then the sample was subjected to treatment. The researcher also used statistical methods to process the data obtained from the tribal and post-tests. After processing the data and the results received statistically, the researcher reached many conclusions, the most important of which are: The emergence of moral differences between the results of the tribal and post-tests for the variable degree of pain and in favor of the post-tests. The kinetic therapy and di-dynamic currents reduced the degree of pain and the strength of the neck muscles. The recommendations were: the necessity of continuing the treatment programs for a sufficient period and not being interrupted, which leads to favorable results. Di-dynamic currents treat other injuries because of their benefits in physical therapy.

Keywords: - kinetic post-test dynamic currents, erosion of the cartilage of the cervical vertebrae.

1- Introduction and importance of the research:

The occurrence of cartilage injuries and the erosion of the cervical vertebrae and the pain resulting from them are common injuries today as a result of modern technology represented in the Internet, mobile, and computer, which made everything within reach without fatigue or movement, as well as the wrong postures while sitting or sleeping. The use of modern technologies led to increased injuries

to the cervical vertebrae and their cartilage, resulting in pain that the patient cannot bear. It may also happen with age that the ability of the discs between the vertebrae to reduce the friction of the vertebrae with each other decreases, leading to abnormal bone growth in the vertebrae. These bony appendages press on the nerves. The vertebrae are characterized by the presence of cartilage between each other, which is a gelatinous substance that acts as a cushion to prevent any friction between the vertebrae. However, in some cases, there is a decrease in the volume of this material or erosion in the cartilage, so the distance between the vertebrae decreases, which causes friction and results in This includes bone spurs, difficulty in movement, and severe and excruciating pain.

The cervical vertebrae are one of the most complex areas of the spine from an anatomical point of view. It contains a lot of nerves and muscles, so it is considered one of the most vulnerable areas to injury. (Ahmed Salama, 2 , 2010).

Hence the importance of research in using kinetic therapy and di-dynamic currents, which relieve pain and strengthen the muscles working around the cervical vertebrae.

The injuries of the cervical region are many and varied. To protect against complications of these injuries, treatment programs must be developed that contain kinetic therapy represented by exercises and some physical therapy (Naheed, 23, 2006).

Movement Therapy

Kinetic therapy is one of the most effective means of physical therapy if used in an organized, legal, and accurate manner. It uses movement for prevention, treatment, and rehabilitation when injured. Kinetic therapy is represented in therapeutic exercises, whether positive or negative. On the other hand, scientific progress in treatment and rehabilitation has led To injuries. Many physical therapy devices have appeared, which are used to reduce the pain resulting from the injury. (Samaya Khalil,201, 2010),.

The advantages of kinetic therapy. (Sami'a Khalil, 2010, 202)

1- It can be used for all ages and different types of injuries, diseases, deformities, bodily tissues, and various stages.

Kinetic exercise therapy is essential in maintaining the patient's health and fitness and restoring the joints' flexibility and muscular joints.

3- Developing functional capabilities and skills and strengthening working muscles.

4- Prevent prolonged sleep complications, especially in circulatory, respiratory, nervous, muscular, and orthopedic diseases.

Objectives of movement therapy:

1- Maintaining the effectiveness of the unaffected parts of the body and restoring the work of the affected region to its level before the injury.

2- Restoring the essential functions of the affected organ, such as restoring the feeling of nervous sensation and restoring motor memory.

3- It raises the levels of metabolic reactions that help in healing the affected tissues.

4- Preventing sticking in soft tissues.

5- Strengthening the muscles of the affected area and raising their efficiency so that their functions are not affected.

Dia dynamic streams

They are direct, intermittent, continuous, or pulsating high or low-frequency galvanic currents that, if circulating in the body, lead to a state of polarization of tissues and cells and their repolarization or ionization. They are four types according to their effects. It relieves pain, increases fluid absorption, and improves tissue metabolism and nutrition. (Aqdous Salim Hamid, 23, 2008).

Cervical spine:

The cervical vertebrae are seven relatively small, occupying the neck area centered on (C1 - C7), which are called the cervical vertebrae.

The vertebrae that make up the backbone of the neck and the first cervical vertebra are distinguished from them, which is called the vertebra, the second vertebra is called the axis, and the seventh vertebra is called the lofty vertebra. The spinal cord is in the neck region. The spinous processes (C2-C6) are always cleft at the end, as we find in each cervical vertebra three holes, the intervertebral foramen (the vertebral tunnel) and one in each transverse protuberance called the transverse foramen, which passes vertically in the transverse process to allow the passage of arteries The spine. (Quraish Muhammad, Taher Osman Ali, 1998,99).

Muscular strength:

The muscle can overcome external resistance, that is, the ability of the power to exert force against the opposition. (Zaki Darwish, 1970, 360),

Search problem:

In the past, man used to gain strength through the practice of his life activities. Still, now the modern technologies that have invaded the world, such as mobile phones, the Internet, and office work, have directly affected human health through the lack or lack of practice of daily living activities. Strong muscles have turned into weak muscles. Incorrect situations taken by humans come with painful pathological results, the most important of which is the pain of the cervical vertebrae resulting from cartilage erosion, hence the research problem of the necessity of using movement as a treatment for this problem and strengthening the neck muscles in addition to using one of the required natural treatment methods in treating and relieving pain.

Research aims :

- Preparing strength exercises and treatment sessions with dynamic currents fit the research sample.
- Recognizing the effect of strength training and day-dynamic therapy sessions in relieving the degree of pain and increasing muscle strength.

Research hypotheses:

- There are statistically significant differences between the results of the pre and post-tests for the research sample in the degree of pain and the strength of the muscles of the cervical region.

Research areas:

- The human field: a sample of women with b. erosion of the cartilage of the cervical vertebrae.
- Time domain: the period from 1/11/2019 to 19/7/2020,
- Spatial domain: Physical Therapy Department at Al-Shaheed Al-Sadr Hospital.

2-Research methodology and field procedures

Study Approach

The researcher used the experimental method by designing one group and using the technique of pre- and post-measurement due to its suitability and the nature of the research problem. Empirical research is "the most accurate type of scientific research that can affect the relationship between the variables of the experiment" (Ikhlas Abdel Hafeez, 107, 2000). Also, "Experimental research studies the effect of the independent variable on the dependent variable" (Munther Al-Dhamen, 146, 2009).

variable	**mean**	**median**	standard deviation	skewness
Right tilt muscles	**2.44**	**2.33**	**0.29**	**0.905**
Left-leaning muscles	**1.79**	**1.87**	**0.17**	**0.755**
anterior muscles	**2.24**	**2.32**	**0.28**	**0.527**
posterior muscle	**2,76**	**2.72**	**0.526**	**0.269**
degree of pain	**8.33**	**9**	**1.19**	**0.736**

The research sample

The sample was chosen from the women who visited Al-Sadr General Hospital / Physiotherapy Unit and who were examined by one of the specialized doctors. Through medical examination and radiology, the injury was determined (erosion of the cartilage of the cervical vertebrae), and the number of the sample was (18) injured, ranging from ages range between (40-50) years.

Sample homogeneity:-

The homogeneity of the research sample was carried out in the variables of the degree of pain and the strength of the neck muscles. When processing the results, it was found that the sample was homogeneous and under one starting line. Table (1) shows this.

Table (1) homogeneity of the research sample

exploratory experience

In order to obtain accurate and reliable results, the researcher conducted an exploratory experiment on 4 of the research sample to identify the appropriateness of the sessions and exercises prepared as well as the measuring devices.

The tests used in the research

The researcher used the visual analog scale to measure the degree of pain and the force sensor measure to measure the strength of the neck muscles before and after the experiment.

Scientific Transactions for tests

Validity:-

Honesty is one of the conditions for determining the validity of the test, and it is the most critical transaction for any scale or test, and honesty means "the degree of validity with which we measure the test what we want to measure." (Marwan Abdel Majeed, 13, 1999)

Reliability:-

The validity of the scale depends on how stable its results are. Without it, there is no confidence in those results. A fixed scale or a fixed measuring device will "give the same result to the same person when the measurement is taken several times on the same day or on different days, where the result is a good indicator of that person's capabilities." (Laila El-Sayed Farhat, 134, 2007).

Objectivity:-

Objectivity is one of the factors affecting the stability of the test, and it means "the measurement results are not affected by subjective and personal factors, and the measurement is estimated with known and specific units and standards that have the attribute of stability, such as centimeters for lengths, kilograms for weights, and on." (Masaad Ali Mahmoud, 317, 2004).

Table (2) Stability, honesty, and objectivity

Variable	Reliability	Validity	Objectivity
Right tilt muscles	**0.90**	**0.94**	**0.95**
Left-leaning muscles	**0.88**	**0.93**	**0.97**
anterior muscles	**0.90**	**0.94**	**0.97**
posterior muscle	**0,88**	**0,93**	**0,95**
degree of pain			

Experimental procedures:

Tribal measurements:-

Tribal measurements of the research sample were carried out in the Physiotherapy Department of Al-Sadr General Hospital on 24-25/6/2020, corresponding to Wednesday and Thursday at nine in the morning.

The primary experience (strength training and Dia-Dynamic sessions).

The researcher prepared strength exercises and di-dynamic sessions, and they were presented to a group of experts and specialists. The researcher took into account the principle of gradualness in giving the exercises, as the repetitions were gradually increased. The exercises were fixed in number and applied daily and with repetitions that increase according to the ability of the sample to perform them, as the exercises started with (6) repetitions and ended with (15) repetitions for each exercise, and rest was given Intermittently between repetitions according to the duration of the exercise (1:1). Also, a break was given between one exercise and another. The exercises were varied and contained stability in the situation in the presence of repetition and time, and the experiment lasted ten treatment units.

Dimensional tests

The dimensional measurements were carried out on 22-23/7/2020, corresponding to Wednesday and Thursday at nine o'clock in the morning, taking into account the stabilization of the same conditions in which the tribal measurements were carried out.

Statistical methods used in the research

SPSS statistical package was used. To find the mean, arithmetic, standard deviation, skew coefficient, and T-test value for correlated samples.

3- Presentation, analysis, and discussion of the results of the pre and post-measurements of the research sample.

Table (3) The significance of the differences between pre and post-measurements in muscle strength and degree of pain

The test	Pre-test		post-test		Sig
	mean	standard deviation	mean	standard deviation	
Right tilt muscles	2.44	0.29	5.77	0.19	0,00
Left-leaning muscles	1.79	1.70	4.73	0.13	0,00
anterior muscles	2.24	0.28	6.87	0.11	0,00
posterior muscle	2.76	0.53	7.78	0.15	0,00
degree of pain	8.33	1.19	2.22	0.89	0,00

By presenting and analyzing the results of the tribal and remote measurements, among which are tables (3), it appeared to us that there are significant differences in the muscular strength variables of the neck muscles (front, back, correct inclination, left inclination) between the tribal and remote measurements in favor of the dimensional and the researcher attributes the reason for these differences in the results to the stomach exercises and the sessions of the dynamic currents that the research sample regularly received, as the various strength exercises prepared by the researcher led to an increase in the muscular strength of the neck muscles, which led to the recovery of the sample." Muscular strength helps improve health by increasing the stabilization of muscles and joints and gives the ability to confront Many sudden injuries" (Jamal Sabry, 415, 2011).
We also note that there are significant differences between the tribal and remote tests in the degree of

pain variable, and the researcher attributes the reason to that the strength exercises prepared as well as the di-dynamic currents positively affected the sample, which led to the reduction of pain, as "the application of regulated strength exercises to those with cervical cartilage pain It works to reduce pain and strengthen muscle groups in the cervical region and the surrounding muscles (Bassam Abdel Majeed, 98, 2011)

4- Conclusions and recommendations:

- **Conclusions:**

1- The emergence of significant differences between the pre and post-test results for the variable degree of pain and in favor of the post-tests.
2- The significant differences between the results of the pre and post-tests for the muscular strength variable of the neck muscles and in favor of the post-tests.
3- The kinetic therapy and di-dynamic currents reduced the degree of pain and the strength of the neck muscles.

- **Recommendations:**

1- Adopting the scientific bases in developing treatment programs and using modern and non-traditional physical therapy methods in treatment.
2- Continuing the treatment programs for a sufficient period and not being interrupted leads to obtaining favorable results.
3- Using dynamic currents in treating other injuries because of their benefits in physical therapy.
4- Implementation of the program on other samples of men and women of different ages and with the same injury.

Sources

v Ahmed Salama Ali: A rehabilitation program for treating pain points in the cervical region, unpublished master's thesis, Faculty of Physical Education for Boys, Tanta University, 2010.

v Ikhlas Abdel Hafeez, Mustafa Hussein Bahi: Methods of Scientific Research and Statistical Analysis in the Educational and Psychological Sports Fields, Al-Kitab Center for Publishing, Cairo, 2000.

 Akdous Salim Hamid: Physiotherapy and Medical Rehabilitation, Iraq, Baghdad, 2008.

 Bassam Abdel-Majeed Mohamed: Efficiency of the rehabilitation program for deep sensory receptors in cervical cartilage injury, unpublished master's thesis, Faculty of Physiotherapy, Cairo, 2011.

 Jamal Sabri Farag: Strength and Ability for Modern Sports Training, Jordan, Dijla Publishing House, 2011.

 Zaki Darwish, Adel Abdel Hafez; Strength games in the art of throwing and kinetic games, part 5-6: (Egypt, Dar Al-Maaref, 1970).

 Samia Khalil Muhammad: Physiotherapy Methods and Techniques, University of Baghdad, College of Education for Girls, 2010.

Veeranki S. R, Varshney M. (2022). Trends and Application of Data Science in Bioinformatics. Design Engineering, (1), 3541 - 3555. Retrieved from, Trends and Application of Data Science in Bioinformatics | Design Engineering (thedesignengineering.com), http://www.thedesignengineering.com/index.php/DE/article/view/9502,

Veeranki S. R. (2022). Metagenomics and Single-Cell Technologies for Microbiome Big-Data Mining: Precision Medicine in the Making, International Journal of Mechanical Engineering, https://kalaharijournals.com/journals.php,ISSN: 0974-5823 Vol. 7 (Special Issue, Jan.-Mar. 2022) , https://kalaharijournals.com/resources/SP%20Jan_Mar_125.pdf

Quraish Muhammad Ali, Taher Othman Ali: Functional Human Anatomy, Damascus, Contemporary Technical Center, 1998.

 Laila Mr. Farhat. Test and Measurement in Physical Education, 4th Edition, Al-Kitab Center for Publishing, Cairo, 2007

 Marwan Abdul Majeed Ibrahim. Scientific foundations and statistical methods for tests and measurements in physical education, 1st edition, Dar Al-Fikr for printing and distribution, Amman, 1999.

 Massad Ali Mahmoud, Amr Badran: Introduction to Physical Education and Sports, 3rd Edition, Dar Al-Islam for Printing and Publishing, Mansoura, 2004.

 Munther Al Damen. Fundamentals of Scientific Research. Beirut, Dar Al Masirah for Publishing, Distribution and Printing, 2nd Edition, 2009.

Naheed K. Anderson, susan J. Hall, Sports Injury Management,2ed, Lippincott Williams and wikkins, .U.S.A