



Science, Movement and Health, Vol. XIV, ISSUE 1, 2014

January 2014, 14 (1): 38-44

Original article

## THE EFFECTS OF KINESIOTHERAPY ON RECOVERY SPEED FOR WOMEN WITH CERVICAL DISCECTOMY

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### Abstract

*Purpose.* Kinesiotherapy is the application of scientifically based exercise principles adapted to enhance the strength, endurance, and mobility of individuals with functional limitations or those requiring extended physical conditioning. The aim of this study was to determine the effect of 8-week Kinesiotherapy on recovery speed for women with cervical discectomy.

*Methods.* (18) women with cervical slipped disc cases after surgery to have it Demerdash University Hospital, and the ages ranged between (35: 45) years, (4) women to pilot study was conducted and (2) women have been disposed for irregular qualifying program and thus become basic research sample (12) women.

*Results.* The results Showed statistically significant differences between the three measurements for the experimental group in all variables.

*Conclusions.* Finally, (8) Weeks of Kinesiotherapy program can improve flexibility, strength and reduce the neck pain.

*Key words:* Kinesiotherapy- flexibility- strength – neck pain

### Introduction

Neck pain from more health problems prevalent, where there is hardly anyone except complain of them at some time during his lifetime, the neck is a member of a vital and sensitive are those which connects the head to other parts of the body, where it passes through the bone marrow, nerves and blood vessels feeding the brain, head and face as they factor strut and fulcrum of the head.

As a result of scientific and technological progress became the man moves with his mind more than his body moves, becoming modern machines do most of the work was carried out by rights, which leads to the weakness of the muscles and ligaments on both sides of the cervical spine.

According to (Jull, et al. 2009) that the habits acquired for the person causing stress constant neck muscles, as stay long hours behind the wheel and in front of the computer and the large number of convexity and bending forward while working office, all of this leads to the weakness of the muscles and ligaments on both sides of the cervical spine, exposing the cervical spine neck for many health problems and troubles.

And confirms (Mokhtar, 1987) that more areas of the spine vulnerable to injury is the area of the cervical and lumbar region, and the reason that they are more spine in terms of movement and use, the burdens located them significantly compared to other paragraphs.

(David, 1979) indicated that the neck area contains many pain - sensitive tissues, due to the complexity of

the nervous system pathways exposing them to injury and pain sensation

caused by diseases and infections paragraphs.

And refers (Thomas, 1985) to the neck pain that appear in the three areas as follows:

- The highest neck pain. It is the pain extends to the back of the skull and arises from the point of contact of the neck skull in the first and second paragraphs.
- Connected neck pain shoulder. A mother extends from the neck to the shoulder and sometimes affects the efficiency of the arm.
- Setelelevator muscle syndrome symptoms palette is pain arising from the connection point of the neck area greatness of the board as a result of myocardial contractility board, as well as the upper part of the muscle, pain may occur on one side or on both sides.

And confirms (Barbara 1990) to be infected area cervical lead to limited in range of motion, and thus the difficulty in the movement of the neck accompanied by pain in the middle of it may extend the pain to the back of the head with the emergence of some numbness and loss of feeling in some of the parties, may end results of the examination to be injury may be ligaments or muscles.

Kinesiotherapy is the application of scientifically based exercise principles adapted to enhance the strength, endurance, and mobility of individuals with functional limitations or those requiring extended physical conditioning.

Kinesiotherapy is a somato-therapeutical activity

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using model, goal-aimed movement programs. Performing these requires an active participation of patient; it works not only with the biological part of a personality but also with the psychic one and with social relations. Kinetic exercise could only be considered as a therapy when it is goal-directed and focused on somato-psychical influence of psychical disorders.

Kinesiotherapy is defined as the application of scientifically based exercise principles adapted to enhance the strength, endurance, and mobility of individuals with functional limitations or those requiring extended physical conditioning.

Kinesiotherapy is a gentle method of exercise and has great practical application in a wide range of chronic diseases and injuries.

As a method it has several advantages since it is considered one of the best ways for prevention and treatment.

In essence, it enables the patient to "cure himself" through an exercise program that may include:

- Active / passive exercises
- Balance and coordination exercises
- Exercise in Equipment
- Relaxation techniques
- Mobilization techniques, etc.

Kinesiotherapy applies to all ages, and at the same time is "adjusted" for each individual separately, so as to "minimize" the potential for deterioration or injury and meet the needs of each individual.

The intervention process includes the development and implementation of a treatment plan, assessment of progress toward goals, modification as necessary to achieve goals and outcomes, and client education. The foundation of clinician-client rapport is based on education, instruction, demonstration, and mentoring of therapeutic techniques and behaviors to restore, maintain, and improve overall functional abilities.

Through the scientific studies in the Egyptian environment and within science researcher, it was observed that most of the studies on spinal injuries especially cervical vertebrae focused on the causes of infection and how to treat them and put some exercise qualifying them, as noted researcher lack and scarcity of studies that dealt with injuries cervical vertebrae after surgical intervention especially for women, and reviewing the researcher to doctors some spine surgery hospitals found through personal interview that there are a large number of cases of disease carried them

Operations of a herniated disc my neck and they are most in need of Physiotherapy apply a physical to complete the success of the surgery and the recovery speed of recovery in a short time, and to meet with the researcher to some specialists physical therapy and physical rehabilitation to see the problems that you meet with patients during a rehabilitation their confirmed the existence of a large number of patients dropping out of complete qualifying program prepared for them, and this is what called researcher to develop

a treatment program apply a Conquer codified (Kinesiotherapy) for fast recovery healing treatments surgically from slipping herniated cervical in a short time in order to continue patients infected with the completion of the program qualifying without feeling tired and the stress and boredom of program lengthening the time period especially that the time period of the previous rehabilitation programs ranging between three months and more.

Hence, the researcher hopes that this study will serve as new scientific in how quickly restore the healing of surgical treatments of the cervical slipped disc.

- Reduce the pain level of cervical region after surgically processors for ladies of the cervical slipped disc.
- Improved dynamic range and flexibility of the cervical region in all directions in the research sample of surgically processors ladies of the cervical slipped disc.
- Increase the strength of the muscles of the cervical region and the surrounding muscles in the research sample of surgically processors ladies of the cervical slipped disc.

#### Methods

(18) women with cervical slipped disc cases after surgery to have it Demerdash University Hospital, and the ages ranged between (35: 45) years, (4) women to pilot study was conducted and (2) women have been disposed for irregular qualifying program and thus become basic research sample (12) women.

#### Terms choose the research community:

- To be with cervical herniated slide and held them to remove the cartilage surgically slider.
- The sample has successfully passed the surgery laparoscopic surgical intervention for the first time.
- Aged (35: 45) years.
- No suffer from any diseases or other injuries of the spine.
- That you have a firm desire to undergo the experience and attendances were obtained written consent from them.
- Is submissive to any other treatment program.

#### Devices used in the measurements:

- Measuring Height.
- Measurement of weight / using the Medical balance.
- Measuring muscle strength / using dynamometer.
- Measuring neck Dynamic range / using a Filksometer.

#### Tools used during the search application:

- Electrical stimulation device (AC).
- Ultrasound device.
- Treadmill.
- Ergometer Bike.
- Swedish seats.
- Stopwatch.
- Graded intensity weights.

### Training Protocol.

The 8-weeks in-season Kinesiotherapy program consisted of.

- Taking into account the warm - up and initialization commensurate with the nature of the injury.
- The sequence of exercises from easy to difficult and from the simple to the complex.
- Taking into account the flexibility during the application of the program and its ability to change without prejudice to the scientific underpinnings of the program.
- The program applies an individual basis according to the state and date of attendance of each member of the search.
- Time kidney to implement the program (2) a month , divided into three phases ( the first phase of three weeks, and the second stage two weeks and the third stage three weeks ) .
- Subject to give adequate rest periods between rehabilitation units.

#### Stages of the program:

The program was divided in terms of implementation into three phases (the first phase of three weeks and the second stage two weeks and the third stage three weeks).

- Phase I: containing electrical stimulation, ultrasound and therapeutic massage (screening superficial - deep screening) and a set of static exercise intensity gradient.

This phase aims to:

- Alleviating postoperative pain.
- Stimulate blood circulation and lymph place of injury and the surrounding parts.
- Work on alert and stimulate nerves and muscles is not working and that in order to prevent these muscles atrophy.

- Phase II: containing electrical stimulation, ultrasound and therapeutic massage (screening superficial - and screening deep) also contain static and dynamic exercises intensity gradient.

This phase aims to:

- Degree of pain relief and increased dynamic range and flexibility of the cervical spine.
- Stimulate blood circulation and lymph place of injury and the surrounding parts.
- Development of fixed muscle strength to the muscles of the neck.

Phase III: containing electrical stimulation and therapeutic massage (screening superficial - and screening deep - vibratory) and exercise rehabilitation dynamic gradient intensity, whether in the form of therapeutic free or tools or devices with the work of

exercises public and private to improve the efficiency of the spine and its flexibility.

This phase aims to:

- Stimulate blood circulation and lymph place of injury and its surrounding parts.
- Work to increase the dynamic range and flexibility of the cervical spine.
- Strengthen the muscles of the neck and surrounding muscles.

#### Basic study:

The program has been applied therapeutic rehabilitation on research sample in the period of 24 / 2 / 2013 to 11/08/2013 , and was the individual application for ( 2 ) months from the date of taking pre - measurements , was taking into account the sequence of measurements common to all members of the research sample .

#### Pre- measurements

Tribal measurements were made on a sample search in the period from 24/2/2013 to 11/6/2013; measurements were taken in the following order:

- 1 - Measure the total length of the body in centimeters.
- 2 - Measurement of body weight in kg.
- 3 - Measurement of motor term flexibility of the cervical spine in all directions.
- 4 - Measuring muscle strength to the muscles of the neck in all directions.

#### Consecutive measurements:

Was the work of measurements longitudinal after three weeks of program implementation therapeutic qualifying in the period from 17/03/2013 to 03/07/2013 so as to know the extent of progress in achieving the objectives of the first phase in terms of easing the degree of pain and swelling and inflammation resulting from the impact of the procedure, and stimulate blood circulation and lymph place of injury, measurements were taken with the same way pre-measurements.

#### Post-measurements:

Post- measurements were working on the sample after the completion of the implementation of the program and that was after the end of the eighth week , during the period from 23/4/2013 to 10/8/2013 , measurements were taken with the same arrange pre-measurements and tracking .

#### Statistical analysis

All statistical analyses were calculated by the SPSS statistical package. The results were reported as means and standard deviations (SD). The data were analyzed by ANOVA and Tukey-test to determine the differences.  $P < 0.05$  was considered as statistically significant.

**Results:**

Table 1. Show distributed of the study universe

Participations	Universe	Rejected	Main sample	Pilot sample
women with cervical slipped disc	18	2	12	4

Table 2. Age and anthropometric characteristics of the group (mean ± SD).

Variables	Measur. unit	Mean	SD.	Median	skewness
Age	Year	40.25	3.36	40	0.22
High	Cm	162.69	5.92	164	-0.665
Weight	Kg	79.63	7.54	80	-0.149
Cervical pain in the region	Degree	6.19	0.83	6	0.674
Dynamic range to drape neck (front)	Degree	16.19	3.39	16	0.166
Dynamic range to drape neck successor (back)	Degree	20.13	3.90	19	0.866
Dynamic range to drape neck (right)	Degree	19.44	3.72	19	0.353
Dynamic range to drape neck (left)	Degree	15.75	3.02	16	-0.248
Dynamic range to neck rotation (right)	Degree	14.63	1.90	14.5	0.198
Dynamic range to neck rotation (left)	Degree	13.06	1.77	12	1.802
Muscle strength to the muscles of the neck drape (front)	Kg	1.92	0.52	1.9	0.109
Muscle strength to the muscles of the neck drape (back)	Kg	1.98	0.53	1.8	0.996
Muscle strength to the muscles of the neck drape (right)	Kg	1.93	0.48	2	-0.434
Muscle strength to the muscles of the neck drape (left)	Kg	1.95	0.49	1.8	0.913
Muscle strength of rotation of the neck (right)	Kg	1.84	0.31	1.75	0.836
Muscle strength of rotation of the neck (left)	Kg	1.91	0.39	1.9	0.048

Table 2. Showed No significant differences were observed for the subjects.

Table 3. Mean ± SD and "F" sign between the three measurements for the experimental group in cervical pain and physical tests.

Variables			Sum of squares	DF	Mean square	F
1	Cervical pain in the region	Between groups	145.39	2	72.69	Sign
		Within groups	11.5	33	0.348	
		Total	156.89	35		
2	Dynamic range to drape neck (front)	Between groups	5798.72	2	2899.36	Sign
		Within groups	558.25	33	16.92	
		Total	4771.06	35		
3	Dynamic range to drape neck successor (back)	Between groups	4771.06	2	2385.53	Sign
		Within groups	583.17	33	17.67	
		Total	5354.22	35		
4	Dynamic range to drape neck (right)	Between groups	2746.72	2	1373.36	Sign
		Within groups	843.83	33	25.57	
		Total	3590.56	35		
5	Dynamic range to drape neck (left)	Between groups	3273.39	2	1636.69	Sign
		Within groups	481.83	33	14.60	
		Total	3755.22	35		
6	Dynamic range to neck rotation (right)	Between groups	3870.5	2	1935.25	Sign
		Within groups	358.25	33	10.856	
		Total	4228.75	35		
7	Dynamic range to neck rotation (left)	Between groups	4467.17	2	2233.58	Sign
		Within groups	512.83	33	15.54	
		Total	4980	35		
8	Muscle strength to the muscles of the neck drape (front)	Between groups	65.34	2	32.67	Sign
		Within groups	10.33	33	0.313	
		Total	75.67	35		

9	Muscle strength to the muscles of the neck drape (back)	Between groups	48.91	2	24.46	Sign
		Within groups	12.42	33	0.38	
		Total	61.33	35		
10	Muscle strength to the muscles of the neck drape (right)	Between groups	54.16	2	27.08	Sign
		Within groups	7.92	33	0.24	
		Total	62.08	35		
11	Muscle strength to the muscles of the neck drape (left)	Between groups	66.89	2	33.44	Sign
		Within groups	11.45	33	0.35	
		Total	78.33	35		
12	Muscle strength of rotation of the neck (right)	Between groups	76.03	2	38.01	Sign
		Within groups	5.21	33	0.16	
		Total	81.24	35		
13	Muscle strength of rotation of the neck (left)	Between groups	83.77	2	41.89	Sign
		Within groups	8.63	33	0.26	
		Total	92.40	35		

Table 3. Showed statistically significant differences between the three measurements for the experimental group in all variables.

Table 4. Mean  $\pm$  SD and "Tukey" sign between the three measurements.

Variables	Measurements	Mean	Pretests	Consecutive tests	Posttests	Tukey
1	Pretests	6.08		2.66	4.91	0.593
	Consecutive tests	3.42			2.25	
	Posttests	1.17				
2	Pretests	16.85		15.09	31.09	4.13
	Consecutive tests	31.67			16	
	Posttests	47.67				
3	Pretests	21		16.25	28.08	4.22
	Consecutive tests	37.25			11.83	
	Posttests	49.08				
4	Pretests	20.42		9.25	21.33	5.08
	Consecutive tests	29.67			12.08	
	Posttests	41.75				
5	Pretests	15.92		10.75	23.33	3.84
	Consecutive tests	26.67			12.58	
	Posttests	39.25				
6	Pretests	14.75		10.25	25.25	3.31
	Consecutive tests	25			15	
	Posttests	40				
7	Pretests	13.42		10.66	27.08	3.96
	Consecutive tests	24.08			16.42	
	Posttests	40.5				
8	Pretests	2.03		1.44	3.29	0.562
	Consecutive tests	3.47			1.85	
	Posttests	5.32				
9	Pretests	2.04		0.96	2.81	0.616
	Consecutive tests	3			1.85	
	Posttests	4.85				
10	Pretests	1.92		1.36	3	0.492
	Consecutive tests	3.28			1.64	
	Posttests	4.92				
11	Pretests	2.07		1.07	3.27	0.592
	Consecutive tests	3.14			2.2	
	Posttests	5.34				
12	Pretests	1.9		1.33	3.53	0.399



	rotation of the neck (right)	Consecutive tests	3.23			2.2	
		Posttests	5.43				
13	Muscle strength of rotation of the neck (left)	Pretests	1.93		1.61	3.73	0.514
		Consecutive tests	3.54			2.12	
		Posttests	5.66				

Table 4. Showed statistically significant differences between the three measurements to the experimental group in all variables for the Pretests.

### Discussion

Due researcher that the differences between the three measurements (tribal and tracking and a posteriori) and increase the percentage of improvement in the level of pain in the region cervical to the proposed program, which has been applied in a manner regulated on the research sample, where the researcher believes that the speed of dealing early with the rehabilitation of injury, especially after surgery, as well as appropriate therapeutic exercise for the nature of the injury, and contain a fixed exercise program and how negative the injured joint exercises dynamic animation and variety in terms of intensity and volume, rest periods and also contain the program on the method of therapeutic massage helps to relieve pain ratio.

Due to the use of electrical stimulation and shortwave, because for them the impact of the increased activity of the circulatory system and expand the arteries and veins in the affected area, and reduce the inflammation and joint pain rheumatic and reduce the sensation of pain in the affected part, and consistent results of this study with the study of (Yasser, 2005; Hamdy, 2006; Safaa, 2007; Ahmed, 2010, Khaled, 2012) to exercise rehabilitative and therapeutic massage and treatment alarm electrical help to stimulate blood circulation place of injury and heating deep tissue, which helps to reduce and eliminate pain.

The study confirms (Sherman, et al. 2009) the massage process is safe and has clinical benefits in the treatment of severe neck pain.

It also indicates (Mario – Paul, 1999) that the massage technique survey light, and survey the deep technology effectively reduces the presence of conglomerates muscle small and helps to extend the muscles tight in addition to promoting blood circulation, which helps to get rid of the pain area cervical vertebrae.

The researcher believes that physical therapy motor rated with therapeutic massage helps to relieve and remove the mother's neck after removing cartilage cervical, and is consistent with the study (Laurie, 2003; Naheed, et al. 2006) indicates that manual therapy massage and exercise rehabilitation inhalers proved in the treatment of neck pain in the shortest time.

also pointed (Kadri, 2000) to the that inhalers movement therapy aimed a natural means in the field of full treatment and the use of various types of motor physical therapy through physical exercise works to

strengthen and improve the general condition of the patient.

And refers both (Jerrilyn, et al. 2006; Abkkar, 2008; Sefton, et al. 2010) indicate that therapeutic massage helps to get rid of waste and sediment in the affected parts of the body, also helps on improving the function of the skin and stimulate blood circulation infected portions.

Through the previous display researcher believes that the proposed program has had a positive impact on increasing the flexibility of the cervical spine of the neck -term motor of the neck in all directions, and thus have been achieved imposition Second Search, which provides that "the existence of statistically significant differences between the measurements and tribal consecutive and a posteriori to increase the motor run of the cervical vertebrae in all directions and these differences were in favor of the dimensional measurements of the sample.

The result of a study agrees with the study of both (Hamdy, 2006; Safaa, 2007) to rehabilitative exercises improve and increase the range of motor and muscle strength of the muscles working on the neck.

As consistent results of the study with both (Laurie, 2003; Jerrilyn, et al. 2006), where indicated these studies indicate that exercise rehabilitation and therapeutic massage for two major impact in reducing neck pain and improve motor run and muscle strength to the muscles of the neck and back.

Also due researcher improvement in the strength of the neck muscles to therapeutic massage and short-wave electrical stimulation, which leads to increase the range of motor and works to increase the capacity of muscle to receive exercises strengthening and flexibility are the highest, as an increase in flexibility and rubber muscles allow an increase susceptibility muscle to further strengthen them, as Therapeutic massage helps to increase muscle Alert and raise the ability to contraction.

Through the previous display is clear that the proposed program has a positive impact on improving and increasing muscle strength to the muscles of the neck in all directions.

### Conclusions:

In light of the objectives and results of the study researcher reached the following conclusions:

- that the program (proposed Kinesiotherapy) has a positive effect on the degree of pain relief and increase muscle strength and motor run to the muscles of the neck and surrounding muscles.



- to contain the proposed program is a set of exercises for to increase the flexibility of the region cervical and development of muscle strength of the neck and surrounding muscles in addition to the use of therapeutic massage and use of shortwave and alarm effective in the rehabilitation of the cervical spine neck after surgical intervention as a result of sliding herniated cervical.

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