

Adding McConnell Taping to Selected Scapular Exercises in Patients of Chronic Non-Specific Neck Pain with Scapular Dyskinesia

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Abstract

Background: One of the most prevalent musculoskeletal conditions in middle-aged populations is chronic non-specific neck pain (CNNP), there were many traditional physiotherapy modalities and treatments that contribute to pain and neck disability reduction and improve cervical range of motion and functional activities. Adding McConnell taping to scapular exercises compared to scapular exercises alone needs to be explored.

Aim of Study: To compare between the effectiveness of adding McConnell taping to selected scapular exercises and selected scapular exercises alone on cervical pain and level of disabilities in chronic non-specific neck pain patients with scapular dyskinesia.

Material and Methods: Thirty patients from both genders participated in this study. There were randomized into two equal groups: Group A (control group): they performed selected scapular exercises included scapular stabilization exercises as (push-up plus, press-up) and scapular strengthening exercises as (Side-lying external rotation, side-lying forward flexion, prone horizontal abduction with external rotation, prone extension) with stretching exercises of upper trapezius and Levator scapula muscles and Group B (experimental group): They received McConnell taping in addition to selected scapular exercises with stretching exercises of upper trapezius and Levator scapula muscles as group A. All outcome measures were taken for all patients before and after 6 weeks of treatment application through Visual analogue scale (VAS) for measuring pain intensity and the Arabic version of north park neck pain Questionnaire (NPQ) for measuring level of disabilities.

Results: There was a significant difference in Visual analogue scale (VAS) ($p < 0.001$) and the Arabic version of north park neck pain Questionnaire (NPQ) ($p < 0.001$) in both groups in favor group B (experimental group).

Conclusion: Six weeks of McConnell taping in addition to selected scapular exercises with stretching exercises of up-

per trapezius and Levator scapula muscles can significantly decrease pain and improve level of disabilities in patients of chronic non-specific neck pain with scapular dyskinesia.

Key Words: Chronic neck pain — McConnell taping — Scapular exercises — North Park neck pain questionnaire.

Introduction

One of the most common musculoskeletal conditions is neck pain and the second musculoskeletal complaint in adults after low back pain [1,2]. It is a common condition affecting general populations and increasing the economic and social costs due to treatment costs, loss of the quality of work and work-related disorders [3]. Fifty to eighty-five percentage of neck pain patients have chronic symptoms such as limited range of motion, muscle weakness and more than six months of neck pain [4].

Chronic Non-specific Neck Pain (CNNP) is one of the most prevalent musculoskeletal conditions in middle-aged population and define as the pain extends from the first thoracic vertebra to the superior nuchal line [5] and increase during cervical motion, prolonged bad postures, palpation of the cervical muscles [6] without underlying cause [7] or signs and symptoms of structural or neurological problems [8].

Chronic non-specific neck pain (CNNP) affects between 30% and 50% of the population on an annual basis [9]. Its prevalence varies from 16.7 to 75.1% in the adult population [1]. Females have higher prevalence of neck pain 22% than male 16% [10].

Scapula dyskinesia (SD) is defined as changes in scapular orientation and motion relative to the thorax at static positions or during arm movements [11] and divided into four categories, type I exhibiting a prominent inferior angle, type II exhibiting a prominent medial border, type III exhibiting an elevated

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superior border and an anterior displacement of the scapula from the thorax, and type IV exhibiting bilateral scapular symmetry [12].

There were many traditional physiotherapy modalities and treatments that contribute to pain and neck disability reduction and improve cervical range of motion and functional activities [13] such as strengthening exercises for cervical erector spinae, sternocleidomastoid, scalenes and trapezius muscles [14], Maitland mobilization to the cervical spine [15], muscle energy technique and static stretches for the Levator muscle and upper trapezius [16], stabilization exercises include cranio cervical flexion, cervical retraction exercises [9] and deep neck flexor muscle exercises [17] and thoracic spine manipulation more than thoracic mobilization [6].

Although, the mechanism behind CNNP is still unclear [9], Many studies supporting that the scapula dyskinesia is the main risk factors for CNNP due to many reasons such as change in the scapular stabilization role due to the over activity in the upper trapezius muscle and decrease the activity of the lower trapezius and serratus anterior muscles [18], decrease the scapular dynamic stability due to the over activity of pectoralis muscle with moderate middle trapezius and serratus anterior activity [19], change the axioscapular muscles functions such as the trapezius [20] and delay the serratus anterior muscles' time-course of activation [21], and changes in the muscles' length-tension connections between the scapula and the cervical spine that increase the compression and shear forces on the neck region and reduce the range of motion (ROM) due to weakness of the neck muscle [22,23].

The McConnell taping (rigid tape) applied from the coracoid process to the inferior border of the scapula and diagonally from the anterior deltoid across the spine of scapula towards the thoracic vertebrae and aimed to improve the function of shoulder joint during arm movements [24], inhibit the excessive muscle activation, facilitate weak muscles [25], correct the pathomechanical changes of the scapula, restricted abnormal motion of scapula [26,27], improve the scapular posterior tilt position due to it is positive effect on stretching pectoralis minor muscle [27], reduce pain [24,28,29] and activate subcutaneous mechanoreceptors and proprioception [30].

Selected scapular exercises included the scapular stabilization exercises such as push up plus and press up which are effective for patients with chronic nonspecific neck pain [31], reduce pain and muscle imbalance between trapezius and serratus anterior muscles to correct the scapular position [32] and the scapular strengthening exercises that help in treatment of scapula dyskinesia included prone horizontal abduction with external rotation, prone extension, prone external rotation, and prone forward flexion, which increase the activation of the

lower and middle trapezius while reducing the upper trapezius's level of activation [33,34].

Many studies had investigated the effect of using rigid tape (McConnell taping) or elastic tape (Kinesiotaping) or comparing the effectiveness between both on shoulder pain and function only or the effect of scapular exercises program on neck pain. As a result, it is unclear if adding McConnell taping to selected scapular exercises effect on cervical pain and level of disabilities in chronic nonspecific neck pain with scapula dyskinesia. So, here is the significance of our study in filling this research gap.

Material and Methods

The study was conducted at the outpatient clinic of Physical Therapy in Horus University, New Damietta, Egypt in the period from November 2022 to January 2023.

Study design:

Double blinded Randomized controlled trial (patients was blinded to the intervention and research assistant who performed the assessment of all patients was blinded about the treatment group).

Patients:

Thirty patients were enrolled from the clinic of Faculty of Physical Therapy Horus University in Egypt. Before beginning the study, each patient was informed of the objectives and procedures of the study. Each patient provided informed written consent form. The study was approved by the ethical committee of scientific research of the faculty of Physical Therapy, Cairo University, Egypt (No: P.T.REC/0 12/004178).

Thirty patients (9 males and 21 females) suffering from neck pain for three months or more with scapula dyskinesia and their aged from 18-30 years. Patients were randomized into Group A (control group): They performed selected scapular exercises with stretching exercises for upper trapezius and Levator scapula muscles and Group B (experimental group): They received McConnell taping in addition to selected scapular exercises with stretching exercises for upper trapezius and Levator scapula muscles as group A.

Sample size was calculated considering the difference in pain intensity among the 2 groups to be 0.45 (effect size), significance level=0.05, and with 80% power. Sample size was calculated to be 15 individuals per group, allocation ratio N2/N1 =1. The presumed effect size was based on data of pain intensity measured by VAS derived from [35] who found a significant difference in Pain intensity between groups, sample size calculation was conducted using G Power statistical software [version 3.1.9.2; Universitat Kiel, Germany] and MANOVA test.

Inclusion criteria: Age range from 18-30 years old from both sexes [36], a history of cervical pain for three months or more [22], moderate pain intensity (>3 on VAS) [35] and positive lateral scapular slide test (distance more than 1.5cm or 15mm between RT and LT side at one or more of the three positions) [37] with type I or II scapula dyskinesia [12].

Exclusion criteria: Any previous shoulder or neck surgery [22], poor general health status interfered with the exercises during the study [38], cervical fractures or trauma history [9], previous temporomandibular surgery or dysfunctions [9], idiopathic scoliosis, extreme thoracic kyphosis, torticollis [39], neurologic diseases, discogenic problems, osteoporotic patients or vertebral basal insufficiency [32], and any skin problem (skin diseases or skin infection) in the shoulder or scapular region [27].

Measurement procedures:

1- Lateral Scapular Slide Test (LSST):

- The Lateral Scapular Slide Test (LSST) a reliable, both intra-rater and inter-rater, with ICC: 0.83-0.96 [40] and had validity for evaluating scapula dyskinesia [41] and one of the clinical tests most used to assess scapula dyskinesia.

- Patient was in a constant posture and focus their eyes on an item in the front wall for each position, the scapular distance measurement was taken three times and averaged [37].
- Firstly, two prominent bony landmarks were marked with a permanent-ink pen (The inferior angle of the scapula and the T7 spinous process. The distance between these two points was measured in three positions bilaterally with tape measurement. In the first position, the patient's arms loosened at the sides (0° of shoulder abduction), in the second position, the patient's hands positioned on the hips with the fingers anteriorly and the thumbs posteriorly (45° of shoulder abduction with about 10° of shoulder extension) and in the third position, the patient's arms placed at 90° of shoulder abduction with full internal rotation of the shoulder joint [42]. The shoulder positions of abduction at 45° and 90° was determined with a goniometer to show the correct testing positions [37].
- The criteria to determine scapula dyskinesia is the distance between RT and LT side >1.5cm or 15 mm at one or more of three positions [37].



Fig. (1): Lateral Scapular Slide Test. (A) with arms at sides, (B) with hands on the hips, (C) with arms at 90° shoulder abduction and full internal rotation.

2- Visual Analog scale (VAS):

- The VAS is valid and had a good reliability both intra-rater and inter-rater. It is used to assess the current level of patient neck pain [43].
- It is considered the simplest self-reported scale and consists of a horizontal line with one end meaning no pain and the other end meaning the worst pain [44].

- The patient was asked to make a hand written mark on a 10cm line (100mm) Measurements from the starting point of the scale to the point that subject marked was recorded as their pain intensity [44]. The results were: No pain (0-4mm), mild pain (5-44mm), moderate pain (45-74mm) and severe pain (75-100mm) A higher score indicated a greater pain intensity [45].

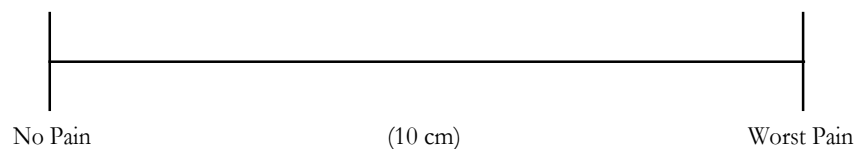


Fig. (2): Visual analogue scale.

3- The Arabic version of Northwick Park Neck Pain Questionnaire (NPQ):

- Northwick Park Neck Pain Questionnaire (NPQ) is a valid tool to assess the level of disabilities in patients with physiological neck pain in Egypt [46].
- Northwick Park Neck Pain Questionnaire (NPQ) depend on self-reported subjective feelings and reductions in neck pain. It consists of nine sections such as pain intensity, duration of symptoms, numbness at night, pain affecting sleep, the effect on social life, carrying, reading/watching television (TV), working/housework and driving [47].
- Firstly, Patients answered the 9 sections of NPQ as each section contains 1 question and 5 possible answers. The patients were asked to mark the one answer that described their current problem. Each segment received a score ranging from 0 (no disability) to 4 (the most severe disability), with a possible overall score range of 0 to 36. The patient's score is then divided by the whole number of sections they successfully answered to arrive at a percentage. If all nine questions are correctly answered, the percentage score for the NPQ is calculated as $(\text{total scored}/36) \times 100\%$. If one question is left unanswered, the score is calculated as $(\text{total score}/32) \times 100\%$. The range is rated from 0 to 100, with a high percentage indicating a more severe disability [47].

Treatment procedures:

Group A (Control): Patient performed selected scapular exercises which include scapular stabilization exercises and scapular strengthening exercises with stretching exercises of upper trapezius muscle and Levator scapula (3 session per week for 6 weeks).

1- Scapular stabilization exercises [32]:

Patients performed the following two exercises 3 session per week for 6 weeks (2 sets of 10 repetitions):

Push-up plus exercise:

Patient started from prone position, supported on the elbows and knees and braced the abdominals to keep the back rigid (core muscle activation) then elevate the body as high as possible off the plinth by protracting the scapula and return to the starting position.

Progression: After 3 weeks, the patient started the exercise on the feet not on the knees and adding resistance such as weights (2-4Kg) as patient tolerance on the upper back.

Press up exercise:

The patient sat on a chair, feet on the floor with straight arms and the palms on the edge of the chair then he lifted himself off the chair and return to the starting position.

Progression: After 3 weeks, adding resistance such as weights (2-4Kg) as patient tolerance on the thigh.

2- Scapular strengthening exercises [3a]:

Patient performed the following four exercises 3 session per week for 6 weeks (2 sets of 10 repetitions) bilaterally.

In the first 3 weeks, patient started the four exercises with 1Kg:

Side-lying forward flexion:

The exercise started from side-lying position and the shoulder in neutral position then the patient performed 90 degrees of unilateral forward flexion in a sagittal plane.

Side-lying external rotation:

The exercise started from side lying position, the shoulder in neutral position, the elbow flexion 90 with a towel between the elbow and trunk to avoid compensatory movement then patient performed 90 degrees of external rotation of shoulder.

Prone horizontal abduction with external rotation:

The exercise started from prone position with the shoulders resting in 90 forward flexion then performed bilateral horizontal abduction with external rotation of the shoulder at the end of the movement.

Prone extension:

The exercise started from prone position with the shoulder in neutral rotation and the upper limb resting beside the body then performed bilateral extension to a neutral position.

Progression: After 3 weeks, patient started the four exercises with 2Kg.

3- Cervical Stretching exercises:

Patients performed stretching exercises 3 session per week for 6 weeks (hold the position for 10 seconds 3-5 repetitions):

Upper trapezius muscle (RT<):

Stretch right (RT) trapezius muscle: Patient sat on chair with deep neck flexion then RT hand below chair or under the buttock to reduce scapular elevation and upward rotation, LT hand took the neck in LT side binding and held for IOs and vice versa for LT upper trapezius [48].

Levator scapula muscle (RT<):

Stretch RT Levator scapula muscle: Patient sat on chair, RT arm elevated and palm behind neck, turned head & neck away from RT side and LT hand flexed head and held for IOs and vice versa for LT muscle [49].

Group B (experimental): Patients were received McConnell taping in addition to selected scapular exercises include scapular stabilization exercises and scapular strengthening exercises with stretching exercises of upper trapezius muscle and Levator scapula.

- 1- Scapular stabilization exercises: Same as group A.
- 2- Scapular strengthening exercises: Same as group A.
- 3- Cervical stretching exercises: Same as group A.
- 4- Mc Connell taping:

Before the tape application, the skin was cleaned with alcohol [29], Patient sat on a chair and the therapist applied two straps of rigid tape before the exercises: The initial strap was placed over the anterior deltoid muscle and extended posteriorly over the scapular spine to the midline and the second strap applied over the coracoid process, cross the upper trapezius and extended posteriorly over the scapula to the lower trapezius muscle. The tape lasted on the skin till the next session and before every session, the therapist replaced the old tape with a new one [24].

Outcome measures:

The primary measures for determining treatment outcomes were pain intensity and level of disabilities and the measurement tools were Visual Analogue Scale (VAS) and the Arabic version of north park neck pain questionnaire (NPQ). All measures were assessed before treatment application (pre-treatment) and after 6 weeks of treatment application (post-treatment) for each patient in two groups of the study (group A and group B).

Statistical analysis:

Statistical analysis was conducted using SPSS for Windows, version 28 (SPSS, Inc., Chicago, IL). Before final analysis, data were screened for normality assumption, homogeneity of variance, and presence of extreme scores, and the p-value was set at <0.05. This analysis was done as a pre-requisite for parametric testing of the analysis of differences.

Comparison between mean values of the different parameters in the two groups was performed using repeated measure MANOVA test to determine the significant differences between both groups at the two times testing interval (pre and post). The significant differences between groups in the demographic data were assessed by the independent sample t-test except for sex distribution which was assessed by the Chi-square test. Between groups comparison was assessed by independent sample t-test and inside group comparison was assessed by paired sample t-test.

Results

Comparing the mean values of age, height, weight, and BMI for all patients in both groups using the independent sample t-test revealed that there were no significant differences between them in age ($p=0.082$), Height ($p=0.200$), weight ($p=0.140$), and BMI ($p=0.183$) as shown in Table (1).

Table (1): Demographic and clinical characteristics of patients in all groups.

Variables	Age (years)	Height (m)	Weight (kg)	BMI (Kg/m ²)	Gender [N (%)]	
					Male	Female
Group A (15) (±SD)	27.47±233	169.93±11.79	81.87±18.09	28.09±3.998	4 (26.7%)	11 (73.3%)
Group B (15) (±SD)	26.27±228	166.80±7.91	74.73±17.41	26.63±4.66	5 (33.3%)	10 (66.7%)
F-Value	1.426	0.855	1.100	0.919		
p-Value	0.082	0.200	0.140	0.183		
χ^2						
Sig.	NS	NS	NS	NS		

X : Mean.

χ^2 : Chi square test.

p-Value: Probability value.

SD: Standard Deviation.

F-value: One-way ANOVA test.

NS: Non-significant.

a- The effect of treatment on pain intensity in group A and group B:

The mean difference between VAS pre and VAS post in the control group A was -3.27 mm and the percentage of change was 52.74%. There was a significant decrease in VAS between pre- and post-measure in the control group ($p < 0.001$ *).

While the mean difference between VAS pre and post in the experimental group B was -4.94 mm and the percentage of change was 84.16%. There was a significant decrease in VAS between pre- and post-measure in the experimental group ($p < 0.001$ *).

There was no significant difference in the VAS of group A (control) compared to that of group B (experimental) at pre-treatment protocol ($p = 0.290$). There was a significant difference in the VAS of group A (control) compared to that of group B (experimental) at post-treatment protocol ($p < 0.001$ *) Table (2).

b- The effect of treatment on cervical functional disability in in group A and group B:

The mean difference between the NPQ pre and post in the control group was -22.97 and the percentage of change was 58.23%. There was a significant difference in the NPQ between pre and post-measure in the control group ($p < 0.001$ *).

While the mean difference in the NPQ between pre and post in the experimental group was -30.54 and the percentage of change was 83.74%. There was a significant difference in the NPQ between pre- and post-measure in the experimental group ($p < 0.001$ *).

There was no significant difference in the NPQ of group A (control) compared to that of group B (experimental) at pre-treatment protocol ($p = 0.225$). There was a significant difference in the NPQ of group A (control) compared to that of group B (experimental) at post-treatment protocol ($p < 0.001$ *) Table (2).

Table (2): Mean, within and between-group comparisons for pain intensity and functional disability.

	Group A (Control) N = 15 $\bar{x} \pm SD$	Group B (experimental) N = 15 $\bar{x} \pm SD$	Between-group comparison		
			MD	p-value	Sig.
VAS:					
Pre	6.20±1.70	5.87±1.552	0.333	0.290	NS
Post	2.93±1.624	0.93±0.961	2.0	<0.001*	Sig.
MD	-3.27	-4.94			
p-value	<0.001 *	<0.001 *			
Sig.	Sig.	Sig.			
NPQ:					
Pre	39.40±9.76	36.47±11.13	2.93	0.225	NS
Post	16.43±6.10	5.93±2.37	10.50	<0.001*	Sig.
MD	-22.97	-30.54			
p-value	<0.001 *	<0.001 *			
Sig.	Sig.	Sig.			

X : Mean.
SD : Standard Deviation.
MD : Mean difference.
x2 : Chi square test.

t-value: Unpaired t-value
p-Value: Probability value.
S: Non-significant.

Discussion

The present study was conducted to compare the effectiveness of adding McConnell taping to selected scapular exercises and selected scapular exercises alone on the cervical pain which measured by the visual analogue scale (VAS) and on the level of disabilities which measured by the Arabic version of north park neck pain questionnaire (NPQ).

The finding of this study revealed that there was a statistically significant effect of adding McConnell taping to selected scapular exercises on the cervical pain and level of disabilities. There was a significance difference in the mean values of VAS and significant difference in the mean values of NPQ

in both groups in favor of group B (experimental group) post-treatment.

Pain intensity:

Scapula dyskinesia increases the tension in the levator scapulae muscle, increases the compression and shear forces on cervical vertebrae [19] that lead to increasing the cervical pain [9].

There was a significant decrease in VAS in both groups in favor group B (experimental group).

This result came in agreement with the finding of the previous work that was conducted by Im et al. (2015) [50] who found decrease cervical pain when he measured pain intensity by VAS due to the ef-

fectiveness of scapular stabilization exercises for 30 minutes in individuals with neck pain 3 times for 4 weeks.

The results of the current study concerning the improvement in pain intensity by VAS were augmented by the finding of Seo et al. (2020) [31] who conducted a systematic review that included four articles (three randomized controlled studies and one prospective study) and found decrease in neck pain due to the effectiveness of scapular stabilization exercises such as press-up in a chain, push-up plus, supine deep breathing, supine shoulder at 90° of flexion with scapular protraction, arm raise in the quadruped position, lateral arm raise with 2 kg dumbbells, posture education, prone I, prone Y, prone T, prone W, scapular retraction, lateral pull-down and push-up plus exercise in managing CNNP 3 times for 4 weeks aged >18 years old.

Also, this result was reinforced by Ozdemir et al. (2021) [35] who found decrease pain intensity by VAS because of the effectiveness of scapular stabilization exercise such as scapular retraction, lateral pull-down, and push-up exercises in patients with chronic neck pain and scapular dyskinesia 15 session 5 days per week.

Moreover, this finding was also reported by El Gendy et al. (2021) [10] who found that scapular stabilization exercise had a significant effect on cervical pain intensity measured by VAS three times per week for six weeks with chronic mechanical neck pain females aged from 30 to 40 years old.

Additionally, Javdaneh et al. (2021) [22] found that Adding scapular exercises included: Wall facing arm lift, prone arm lift, backward rocking arm lift, elevation of the arm in line with the lower trapezius muscle fibers, elevation of the arm in the plane of the scapula, shoulder shrug to cervical stretching exercises of levator scapular and the pectoralis minor muscle three days per week for six weeks had a significant effect in decreasing pain intensity measured by VAS.

The improvement in cervical pain in the group **B** could be explained as the McConnell taping (rigid tape) inhibit the excessive muscle activation such as upper trapezius and facilitate weak muscles such as lower trapezius and serratus anterior that lead to increase axio-scapular muscle balance and strength which decrease load and pain in neck region [25].

However, the findings of the current study was not supported by a previous study conducted by Yildiz et al. (2018) [9] who showed that the scapular stabilization exercises had no extra effect in the short term treatment on pain measured by VAS in patients with neck pain when he found no significance difference between scapular stabilization exercises include scapular retraction, lateral pull-down, and push-up plus exercises and neck-focused exercises

include cervical stretching, cranio cervical flexion, and cervical retraction exercises and neck-focused exercises alone in chronic neck pain patients with scapula dyskinesia training for 6 weeks aged 18 to 45 years old.

Neck disabilities:

There was a significant effect of adding McConnell taping to selected scapular exercises and stretching exercises in experimental group **B** and selected scapular exercises to stretching exercises in group **A** on neck disabilities measured by the Arabic version of North Park neck pain Questionnaire (NPQ). The significant decrease in NPQ has been reported in both groups in favor group **B** (experimental group).

This result came in agreement with the finding of the previous work that was conducted Ozdemir et al. (2021) [35] who found decrease level of disabilities by NPQ due to the effectiveness of scapular stabilization exercise such as scapular retraction, lateral pull-down, and push-up exercises in patients with chronic neck pain and scapular dyskinesia 15 session 5 days per week.

Patients with neck pain reported higher neck disability and fear of movement [51], the improvement in level of neck disabilities in group **B** could be explained as the McConnell taping (rigid tape) changed the psychological status of patients (decrease discomfort and fear of movement) due to its supporting effect [52], reduce pain [24,28,29], improve the function of shoulder joint [24], improve range of motion [53], inhibit the excessive muscle activation, facilitate weak muscles [25], support the muscles around the scapula, correct the scapula position [26,27], improve pectoralis minor length [27], activate subcutaneous mechanoreceptors [30].

The results of this study regarding NPQ score come in contradiction with the findings of Yildiz et al. (2018) [9] who showed that the scapular stabilization exercises had no extra effect in the short term treatment on level of disabilities measured by NDI in patients with neck pain when he found no significance difference between scapular stabilization exercises include scapular retraction, lateral pull-down, and push-up plus exercises and neck-focused exercises include cervical stretching, cranio-cervical flexion, and cervical retraction exercises and neck-focused exercises alone in chronic neck pain patients with scapula dyskinesia training for 6 weeks aged 18 to 45 years old. However, it could be seen that his intervention focused on cervical exercises more than scapular exercises.

Conclusion:

In the present study, it could be seen that McConnell taping was more effective with scapular exercises on pain and level of disabilities in patients of chronic non-specific neck pain with scapula dys-

kinesia than scapular exercises alone. So, using McConnell taping combined with scapular exercises may be a major strategy in dealing of chronic non-specific neck pain patients with scapula dyskinesia.

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Conflicts of interest:

There is no conflict of interest.

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إضافه شريط الماكونيل الطبى إلى التمارين المختارة للوح الكتف فى المرضى الذين يعانون من آلام الرقبة المزمنة الغير محددة مع خلل الحركة فى لوح الكتف

يهدف البحث إلى المقارنه بينتأثير اضافه شريط الماكونيل الطبى إلى التمارين المختارة للوح الكتف مع تمارين الإطاله لعضلات الرقبه مع التمارين المختاره للوح الكتف وتمارين الإطاله فقط على المرضى الذين يعانون من الام الرقبه المزمنه الغير محددده مع خلل لوح الكتف. وتم اختيار أربعة وثلاثون مريضاً تراوحت أعمارهم بين ١٨ و ٣٠ سنة من العيادات الخارجية بكلية العلاج الطبيعى جامعه حورس بدمياط الجديدة بمصر. تم تقسيم المرض عشوائياً إلى مجموعتين. تلقت المجموعة أ (المجموعه الحاكمه) تمارين لوح الكتف المختارة التي تشمل تمارين التقوية وتمارين ثبات لوح الكتف بالإضافة الي تمارين الإطاله لعضلات الرقبه. تلقت المجموعة ب (مجموعه الدراسه) اضافه شريط الماكونيل الطبى اللاصق إلى تمارين لوح الكتف المختارة وتمارين اطاله عضلات الرقبه (نفس تمارين المجموعه الحاكمه). أجريت الجلسات العلاجيه ثلاث مرات اسبوعياً يوم بعد يوم لمدة ستة أسابيع وذلك للمجموعه أ والمجموعه ب. تم تقييم الم الرقبه لجميع المشاركين عن طريق مقياس شده الالم البصرى ومدى اعاقات الرقبه من خلال النسخة العربية من استبيان النورث بارك قبل العلاج وبعده.

النتائج: تم تحسين معلمات مقياس شده الالم البصرى واستبيان إعاقه الام الرقبه. اظهرت نتائج ما بعد العلاج ان هناك تحسناً ملحوظاً فى شده الالم والوظيفه فى مجموعه الدراسه ب.