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### RESEARCH ARTICLE

#### IMPACT OF POSTURAL TAPING IN PATIENTS WITH FORWARD SHOULDER POSTURE.

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Forward posture, taping ,stretching exercises.

#### Abstract

**Background:** Forward shoulder posture is a common abnormal posture. Posture taping is a new technique that recently used in rehabilitation. the purpose of this study was to determine the effect of Posture taping and stretching exercise on forward shoulder angle in male subjects with Forward shoulder posture. **Methods:** thirty male students aged between 18 to 25 years old with forward shoulder posture participated in this study. Then, the subjects were randomly and equally assigned to two groups: the stretch group and the stretch plus tape group. tape group received Posture taping on shoulder area ad. Forward shoulder angle was measured. Two-way repeated measures ANOVA was used for data analysis. **Results:** tape group showed significant within-group decrease in forward shoulder angle between first session with three other sessions ( $P \leq 0.05$ ). There was no significant within-group difference in stretch group and between groups ( $P = 0.20$ ) forward shoulder angle-by-group interaction in measurement sessions was significantly different ( $P = 0.02$ ) **Conclusion:** Posture taping with stretching exercise improved forward shoulder posture in all subjects of the present study. So it is suggested as a complementary treatment with immediate effects on postural correction of forward shoulder.

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#### Introduction:-

Posture is an important and often neglected part of overall health. Ideal posture maintains the structural integrity and optimum alignment of each component of the kinetic chain. The kinetic chain consists of the myofascial system, articular system and the neural system. When one component of this system is out of alignment, then the entire system is placed at a disadvantage (Lewis et al, 2005).

Postural malalignment is thought to create predictable patterns of tissue overload and dysfunction, initiating injury. This injury begins with tissue trauma and inflammation, leading to muscle spasm, adhesions, and muscle imbalance. (Hsu et al, 2009).

Forward Shoulder Posture (FSP) is a common postural adaptation which can alter shoulder movements and can produce shoulder and back muscle imbalances (**Borstad and Ludewig, 2005**).

Past research confirms that FSP is associated with a tight pectoralis minor (chest) and weakness of the lower trapezius (back). The associated pathomechanics of the muscle imbalance can lead to alterations in throwing, swimming, spiking, running, or even activities of daily living (**Magee, 2002**).

Individuals who suffer from chronic shoulder injuries are at risk for pain and decreased performance potentially removing an athlete from competition. In addition, FSP has been linked to secondary shoulder injuries such as sub acromial impingement, bicep tendonitis, rotator cuff pathology, and glenohumeral joint instability (**Wilk et al., 2009**).

FSP is characterized by a protracted, downwardly rotated, and anteriorly tipped scapula position with increased cervical lordosis and upper thoracic kyphosis. This pattern may be associated with tightness of serratus anterior, pectoralis minor, pectoralis major and upper trapezius muscle, and weakness of middle and lower trapezius. The imbalance in muscle function is believed to result in reduction of amplitude in posterior tilting and lateral rotation of the scapula during arm elevation (**Merino et al, 2011**). The literature has shown that altered scapular kinematics and associated muscle imbalance in FSP places the anterior acromion in close proximity to rotator cuff tendon and increase the potential for subacromial impingement (**Neumann, 2002**).

Forward shoulder angle was measured in the assessment phase by photography (**Lewis, J.S., C., et al 2005**) (**Thigpen C.A., et al 2010**)

Many shoulder rehabilitation programs emphasize scapular muscle control which indicates that despite limitations in evidence on causal relationship, there is clinical application of the association between scapular malalignment and shoulder pathology (Kendall et al, 2005).

Taping is believed to affect the resting position of the scapula and assist in maintaining the proximal shoulder girdle stability necessary to perform elevation of the arm. With the tape holding the scapula in a more proper alignment, the patient can then use the shoulder without further reduction of the space between the acromion and humeral head (Kendall et al, 1970). Additionally, the tape provides a feedback mechanism allowing the patient to feel normal alignment and positioning of the shoulder complex. The two most frequently proposed mechanisms of taping are proprioceptive and mechanical (**Kneeshaw, 2002**).

Although taping is used for the correction of postural abnormalities and many studies are available regarding beneficial effects of taping in symptomatic and specific group of population, nevertheless, there is lack of evidence for its use in clinical practice for upper quarter postural correction in healthy subjects who are at risk of musculoskeletal disorders due to altered posture. Box Taping is one of the scapular taping techniques explained to correct the scapular position (**Lee et al, 2012**).

#### **Purposes of the study:-**

To determine the effect of posture taping in patients with Forward Shoulder Posture (FSP) over a period of 3 weeks.

#### **Delimitation:-**

1. Thirty male subjects aged from 18 to 25.
2. Subjects with FSP
3. Forward shoulder angle ,  $FSA \geq 53$  degree
4. Treatment is given for 3 weeks
5. taping to maintain the corrected positional fault at the shoulder joint

#### **Methodology:-**

##### **Study design:-**

A randomized control trial (RCT) design was used in this study.

##### **Duration:-**

3 weeks

**Subjects:-**

Thirty healthy male subjects recruited from Hail University KSA ,

**Inclusion criteria:-**

1. The inclusion criteria is healthy subjects with forward shoulder posture FSP,
2. and BMI not more than 26.
3. Forward shoulder angle (FSA  $\geq 53$  degree) ,
4. All the subjects are right-hand dominant and had no previous treatment experience with taping.

**Exclusion criteria:-**

1. Participants was excluded if they were symptomatic,
2. had any neurological deficit in upper extremity,
3. or any surgical intervention affecting the thorax and scapula. Subjects with neck and/or shoulder pain,
4. a history of neck and/or shoulder surgery,
5. and neurological or cardiac symptoms

**The participants were randomly divided into two groups:-**

Group A (n = 15); was received posture tape with stretching and strengthen exercises training.

Group B (n = 15); was received posture tape only

**Procedures:-**

Each participant underwent posture taping of both shoulders with a different method (with stretch or without stretch) for each shoulder.

Posture tape was applied with approximately 35–40% stretch, which achieved by cutting the tape to three-quarters of the length required for taping and stretching it from origin area to insertion area.

**Statistics analysis:-**

All Data were Presented As A Mean And Standard Deviation. Student T-Test Was Used To Compare The Differences Between Values Also Results Of Repeated Measures ANOVA AND 95% Confidence interval Is Used The accepted level of significance for differences was equal to or less than 0.05 for all tests (P value < 0.05).

**Results:-**

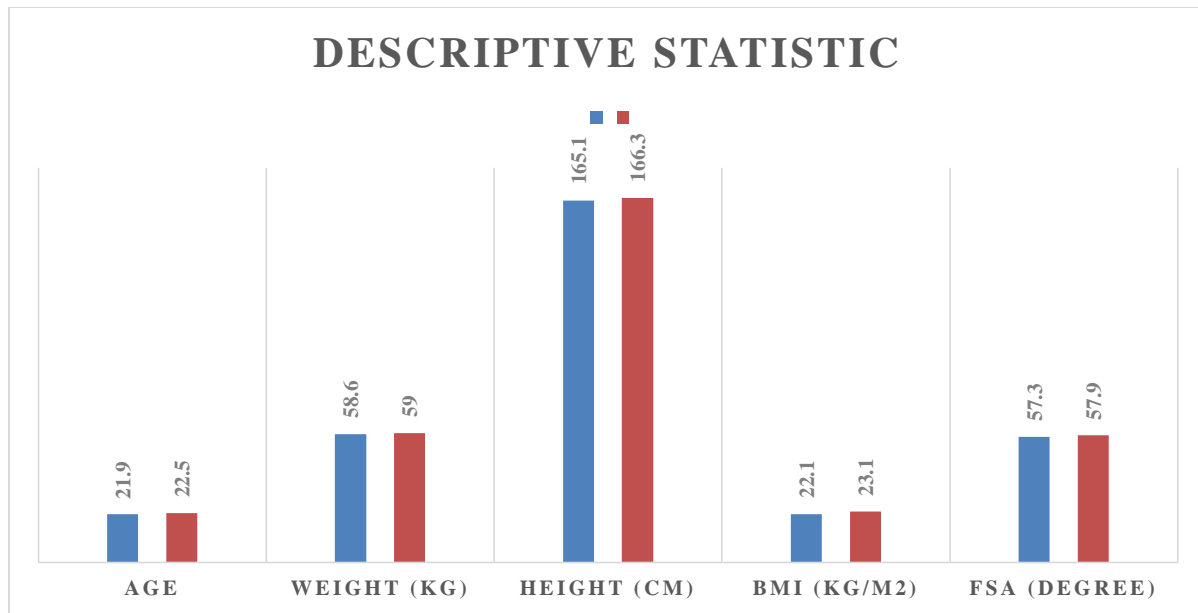
Thirty male subjects of hail University of Medical Science, aged 18 to 25 years participated in this study. Any of the participants did not attend in assessment session and those data were excluded from the analysis but other subjects were replaced., Anthropometric characteristics of the participants are showed in Table (1 ) and figure (1) .

There was no significant difference between groups (P=0.20, F=1.74). also significant difference was found in FSA-by-group interaction (FSA degree changes) in measurement sessions between groups (P=0.02).

**Table 1:-** Descriptive statistic and result of comparing participant

Variable / groups	Mean Standard deviation		95% Confidence interval		T	P value
	group A (N=15)	group B (N=15)	Group A (N=15)	group B (N=15)		
Age	21.9 $\pm$ 1.72	22.5 $\pm$ 1.72	21.32_22.67	20.71_23.08	-1.21	0.06
Weight (Kg)	58.6 $\pm$ 4.83	59.0 $\pm$ 4.08	54.94_61.75	55.28_60.51	-0.10	0.51
Height (cm)	165.1 $\pm$ 6.29	166.3 $\pm$ 2.67	162.07_170.12	161.87_167.91	-6.95	0.12
BMI (Kg/m <sup>2</sup> )	22.1 $\pm$ 0.71	23.1 $\pm$ 1.47	20.77_21.77	20.18_21.89	0.58	0.06
FSA (degree)	57.3 $\pm$ 8.61	57.9 $\pm$ 7.10	51.13_61.46	52.79_63.00	-0.17	0.75

BMI=Body mass index, FSA=Forward shoulder angle



**Fig1:-**Descriptive statistic and result of comparing participant

**Table 2:-** Results of intratester reliability study

Variable	Intraclass correlation	P value	95%Confidence interval	
			Lower bound	Upper bound
FSA	0.956	<0.001	0.741	0.921

### Discussion:-

FSP and associated muscle imbalance is one of the factors contributing to episodes of head, neck, and shoulder pain and multiple upper quarter dysfunctions such as bicipital tendinitis (Griegel-Morris et al, 1992), thoracic outlet syndrome, painful trigger areas, and neuropathies. Since few prospective studies have included patients prior to development of these disorders, cause-and-effect has not been clearly established. However, there is an assumption that this association does indicate that FSP is a maladaptive posture that warrants correction (Peterson et al, 1997). Individuals who suffer from chronic shoulder injuries are at risk for pain and decreased performance potentially removing an athlete from competition. In addition, FSP has been linked to secondary shoulder injuries such as subacromial impingement, bicep tendonitis, rotator cuff pathology, and glenohumeral joint instability (Wilk et al., 2009).

There are various treatment interventions for rehabilitating FSP including stretching tight muscles and strengthening weak musculature to correct the modified shoulder position (Lee et al., 2015). Although exercises that promote scapular retraction have been shown to aid in the correction of FSP, positive outcomes of rehabilitation are typically slow to achieve (Lee et al., 2015). Clinicians have attempted to assist rehabilitation efforts through bracing (Cole et al., 2013).

our study done to determine additive effects of posture taping in patients with Forward Shoulder Posture (FSP) over a period of 3 weeks. The results of this study indicated that Posture taping with stretching exercise decreased forward shoulder angle significantly.

The benefits of taping are still under contention. However, it is still widely accepted in clinical practice that taping is a useful treatment modality. The clinical application of scapular taping has been supported in one case reports, one cross over study done with a wash-out period of one hour, one double blinded randomized controlled trial, and a recent pilot randomized control trial in which taping was one component of treatment provided to patients with shoulder pain (Miller and Osmotherly, 2009).

The mechanism for the effect of posture taping on proprioception is based on the cutaneous input. For the purpose of mechanical correction, posture taping is applied in such a way that there is a minimal or no tension when the body is at the desired position but the tension increase if the body move outside of this position (Morrissey, D,2000) .

### Conclusion:-

The results of this study indicated that Posture taping with stretching exercise decreased forward shoulder angle significantly. Also, it is suggested as a Complementary treatment because of its immediate effect and maintain this corrective effect until the end of treatment period.

### References:-

1. Borstad J. & Ludewig P. (2005). The effect of long versus short pectoralis minor resting length on scapular kinematics in healthy individuals. *Journal of Orthopaedic & Sports Physical Therapy*, 35, 227-238.
2. Griegel-Morris P., Larson K., Mueller-Klaus K., and Oatis C. A., "Incidence of common postural abnormalities in the cervical, shoulder, and thoracic regions and their association with pain in two age groups of healthy subjects," *Physical Therapy*, vol. 72, no. 6, pp. 425-431, 1992.
3. Hsu YH, Chen WY, Lin HC, Wang WT, Shih YF 2009 The effects of taping on scapular kinematics and muscle performance in baseball players with shoulder impingement syndrome. *Journal of Electromyography and Kinesiology* 19: 1092-1099.
4. Huang CY, Hsieh TH, Lu SC, Su FC 2011 Effect of the Kinesio tape to muscle activity and vertical jump performance in healthy inactive people. *Biomedical Engineering Online* 10: 70.
5. Kendall F. P., McCreary E., and Provance P.G., *Muscles Testing and Function with Posture and Pain*, Lippincott Williams and Wilkins, Baltimore, Md, USA, 4th edition, 2005.
6. Kendall H. O., Kendall F. P., and Boynton D. A., *Posture and Pain*, Edited by E. Robert, Krieger Publishing Company, Huntington, NY, USA, 1970.
7. Kneeshaw D., "Shoulder taping in the clinical setting," *Journal of Body work and Movement Therapies*, vol. 6, no. 1, pp. 2-8, 2002.
8. Lee J.-H. And Yoo W.-G., "Effect of scapular elevation taping on scapular depression syndrome: a case report," *Journal of Back and Musculoskeletal Rehabilitation*, vol. 25, no. 3, pp. 187-191, 2012.
9. Lewis J. S., Wright C., and Green A., "Subacromial impingement syndrome: the effect of changing posture on shoulder range of movement," *Journal of Orthopaedic and Sports Physical Therapy*, vol. 35, no. 2, pp. 72-87, 2005.
10. Lewis, J.S., C. Wright, and A. Green, Subacromial impingement syndrome: the effect of changing posture on shoulder range of movement. *J Orthop Sports Phys Ther*, 2005. 35(2): p. 72-87.
11. Lynch SS, Thigpen CA, Mihalik JP, Prentice WE, Padua D 2010 The effects of an exercise intervention on forward head and rounded shoulder postures in elite swimmers. *British Journal of Sports Medicine* 44: 376-381.
12. Merino R, Ferná'ndez E, Iglesias P, Mayorga D 2011 The effect of Kinesio taping on calf's injuries prevention in triathletes during competition. Pilot experience. *Journal of Human Sport and Exercise* 6: 305-308.
13. Miller P. And Osmotherly P., "Does scapula taping facilitate recovery for shoulder impingement symptoms? A pilot randomized controlled trial," *Journal of Manual & Manipulative Therapy*, vol. 17, no. 1, pp. E6-E13, 2009.
14. Morrissey, D., Proprioceptive shoulder taping. *J Bodyw Mov Ther*, 2000. 4(3): p. 189-194.
15. Neumann DA 2002 *Kinesiology of the musculoskeletal system: Foundations for physical rehabilitation*. St Louis, MO, Mosby. Sahrman S 2002 *Diagnosis and treatment of movement impairment syndromes*. St. Louis, MO, Mosby.
16. Peterson D. E., Blankenship K. R., Robb J. B. Et al., "Investigation of the validity and reliability of four objective techniques for measuring forward shoulder posture," *Journal of Orthopaedic and Sports Physical Therapy*, vol. 25, no. 1, pp. 34-42, 1997.
17. Thigpen C.A., Padua DA, Michener LA, Guskiewicz K, Giuliani C, Keener JD, Head and shoulder posture affect scapular mechanics and muscle activity in overhead tasks. *J Electromyogr Kinesiol*.2010. 20(4): p. 701-709.
18. Wilk K.E., Obma P.O., Simpson C.D., Lyle C., Dugas J., & Andrews J.R. (2009). Shoulder Injuries in Overhead Athlete. *Journal of Orthopedic & Sports Physical Therapy*, 39(2), 38-54.