Original Research Paper

Volume - 12 | Issue - 09 | September - 2022 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Physiotherapy

EFFECTIVENESS OF CERVICAL PROPRIOCEPTION TRAINING ON FORWARD HEAD POSTURE IN UNIVERSITY STUDENTS OF AGE GROUP 18-25 – EXPERIMENTAL STUDY.

Khushi Telge Intern, PES Modern College Of Physiotherapy, Shivajinagar, Pune-05, Maharashtra, India.

Dr. Chetali Paliwal Assistant Professor, PES Modern College Of Physiotherapy, Shivajinagar, Pune-05, Maharashtra, India.

ABSTRACT **Objective-** To study the effectiveness of Cervical Proprioception training on forward head posture in university students for 6 weeks. **Method-** A total of 60 participants were taken , and were divided into two group, Group A was given Conventional forward head corrective exercises and Group B was given Cervical Proprioceptive Training along with Conventional Forward head correction exercises for 6 weeks. **Outcome Measure-** Craniovertebral Angle (Image J Software). **Result-** The post intervention value obtained by performing unpaired t-test showed that craniovertebral angle was comparatively more increased Group B than in Group A. **Conclusion-** This study concludes that Conventional forward head correction exersices along with cervical proprioception training is more effective in increasing craniovertebral angle than conventional forward head corrective exercises alone in individuals with forward head.

KEYWORDS : cervical proprioception, craniovertebral angle, forward head posture.

INTRODUCTION

Incorrect posture is one of the major musculoskeletal concerns [1] Incorrect posture is an abnormal state of the body, when it can't maintain a normal proper state and hampers the functioning of the tissues and organs in the body.[1]

Forward Head Posture is a condition in which the head lies anterior to the line of gravity. [3]

Muscles length are altered significantly in forward head posture. Weak and lengthened muscle are longus capitis and longus coli whereas the overactive and shortened muscles are longissimus capitis, Splenius Capitis, Cervical Multifidus. [3]

Proprioception is defined as the sense of position. [6]

Cervical muscles have muscle spindles with mechanoreceptors in them which helps in sensing the proprioception and plays a important role in afferent transition of information. [7] [8] Thus, an altered muscle length has a significant impact in reducing the proprioception of the cervical region. [8]

MATERIALS AND METHODOLOGY

The study included 60 participants (male and female both) with forward head posture (craniovertebral angle <49.9) of age group 18-25 years are divided equally into Group A (30 participants) group B (30 participants)

Study Design- Experimental study

Study Duration- 6 Months

Treatment Duration- 6 Weeks, 5 days per week.

Sampling Technique- Convenient sampling

Inclusion Criteria

1) Students between the age of 18-25 with forward head.
2) Both male and females
3) Craniovertebral angle < 49.9.
4) University Students.

Exclusion Criteria

1) Any musculoskeletal or neurological impairement.
2) Pathology like cervical vertebrae fracture,dislocation of spine.
3) Deformity of spine like scoliosis.
4) Medical condition like tumor in cervical region.
5) Any traumatic condition for cervical region.

EXERSICE PROTOCOL

Group A were given Conventional forward head corrective exercises.

Strengthening deep cervical flexors: Chin tucks in supine , Stretching cervical extensors through a chin drop in sitting , shoulder retraction: standing position. The patient was asked to pinch the scapulae together without elevation.

Unilateral and bilateral pectoralis stretches alternating each two-week period, Participants completed three sets of 12 repetitions of the strengthening exercise and three stretching exercises held for 30 seconds each.

Group B were given Conventional forward head corrective exercises along with Gaze direction recognition exercise. Conventional forward head correction exersices were give as described above. GRDE [gaze direction recognition exercise]PROTOCOL [11]

Small boxes numbered between 1 and 6 will be ordered on a table with the same interval to divide five equal parts. The therapist sits towards the table at a distance of 75cm.

The patient sits behind the therapist at a distance of 75cm and towards the table. The therapist looks at the boxes randomly with cervical rotation.

The patient at the back looks at the box and he should know which box the therapist is looking at by saying the number of the box. The subjects are instructed not to move their body.

An assistant to the therapist can recorded correctness of the response.

Fig.1 Stretching Of Cervical Extensors

OUTCOME MEASURE

Craniovertebral angle (Image J software) measuring of the craniovertebral angle : intersection of a horizontal line passing through C7 spinous process and the line joining the midpoint of the tragus of ear is identified as craniovertebral angle. Smaller the craniovertebral angle more is the forward head posture. Normal craniovertebral angle is 49.9 degrees.

Data Analysis

Paired t test was used to analysis pre- post difference within the group and Unpaired t test was used to analysis post- post difference between the 2

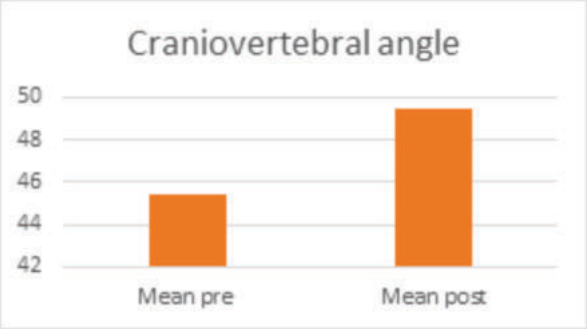

Fig2. Pre and post mean graph of craniovertebral angle for conventional forward head corrective exersice + gaze recognition direction exercise.

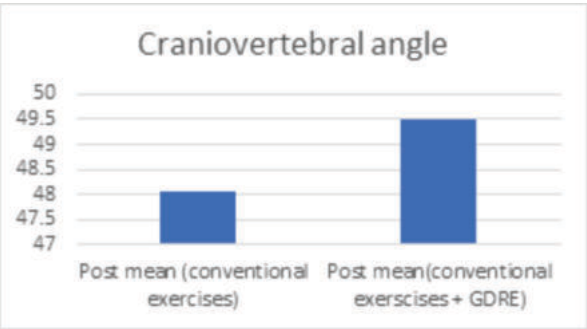

Fig3. Post and post mean graph of craniovertebral angle after convention exercises and conventional exercises + gaze direction recognition exercise.

RESULTS

The result for craniovertebral angle obtained by Conventional forward head correction exercises were ,' p ' value obtained was less than 0.0001 and the t value obtained was 17.64 this suggests that there is extremely statistical significant effect of Conventional forward head correction exercises.

The result for craniovertebral angle obtained of Conventional forward head correction exercises with Gaze direction recognition exercise were ,' p ' value obtained was less than 0.0001 and the t value obtained was 20.39 this suggests that there is extremely statistical significant effect of. Conventional forward head correction exercises + gaze direction recognition exercises.

DISCUSSION

Forward Head Posture (FHP) and is described as head positioned anterior to a vertical line passing through the centre of gravity.This study focused on checking the effects cervical proprioception training in increasing craniovertebral angle in subjects withforward head posture.

It was a study where 60 samples were chosen according to the inclusion and exclusion criteria. The collected data was analysed as there were 2 groups , with in the group paired t test was done and pre and post values were compared. To compare post values of both groups unpaired t test was done.

Danish Hassan et al (2020), Forward head occurs due to change in muscle length. Weak and lengthened muscles in Forward head posture are deep neck flexors which include longus capitis and longus coli. The overactive and shortened muscles participating in Forward head posture are Deep upper cervical extensors which include longissimus capitis, Splenius Capitis, Cervical Multifidus. [3]

Proprioceptors provide sensory feedback from the body to the nervous system , thus contributes to maintaining optimal body alignment. Kronik boyun et.al stated that in GDRE Observing the movement of another individual activates the mirror neuron systems located in the temporal sulcus, and premotor area activate the brain's representation areas specific to the neck [23]

The motor imagery is also applied which causes the increase of activation of the neck specific representation areas in the brain. This indicated that the motor imagery resulted in the increase of the brain activation [23]

In the present study it has been proven that cervical proprioception training given with conventional forward head correction exercises has significant effect in increasing craniovertebral angle in subjects with forward head and was more effective in increasing craniovertebral angle than alone conventional forward head correction exercise.

CONCLUSION

This study concludes that Conventional forward head correction exersices along with cervical proprioception training is more effective in increasing craniovertebral angle than conventional forward head corrective exersices alone in individuals with forward head**.**

REFERENCES:

1 Effects of backpacks on students: Measurement of cervical and shoulder posture WunpenChansirinukor[1]DianneWilson[2]KarenGrimmer[2]BrentonDansie[2)]
2 Prevalence and associated risk factors of forward head posture among university students. Vinodhkumar Ramalingam, Ambusam Subramaniam
3 Strengthening and Stretching Exercise to Improve Forward Head Posture and Rounded Shoulders
4 The short-term effect of smartphone usage on the upper-back postures of university students. Maria Elizabeth CochraneORCID Icon,Muziwakhe Daniel TshabalalaORCID Icon,Nkateko Climax Hlatswayo,Rosina Mahlatse Modipana,Pertunia Phuti Makibelo,Exaggerate Potego Mashale &Lerato Caroline Pete |Duncan Shepherd (Reviewing editor)
5 Kang J-H, Park R-Y, Lee S-J, Kim J-Y, Yoon S-R, Jung K-I. The effect of the forward head posture on postural balance in long time computer based worker. *Ann Rehabil Med.* 2012
6 cervical joint position sense ; an intra and inter examiner reliability study. Gait posture. Strimpakos N, Sakellari V, Gioftsos G, Kapreli E, Oldham J.
7 Sjölander P, Michaelson P, Jaric S, Djupsjöbacka M. Sensorimotor disturbances in chronic neck pain—range of motion, peak velocity, smoothness of movement, and er M, Hadders-Algra M. Proprioceptive control of posture: a review of new concepts. Gait & posture. 1998;8(3):214-242
8 Allum J, Bloem B, Carpenter M, Hullig5 (Kang J-H, Park R-Y, Lee S-J, Kim J-Y, Yoon S-R, Jung K-I. The effect of the forward head posture on postural balance in long time computer based worker. *Ann Rehabil Med.* 2012;36(1):98–104
9 The influence of forward head posture on cervical proprioception in dentists , Ravi Shankar Reddy
10 Cervical proprioception and its relationship with neck pain intensity in subjects with cervical spondylosis Ravi Shankar Reddd , Jaya Shanker Tedla, Snehil Dixit& Mohammed Abohahrh.
11 Effect off proprioceptive training on balance in patient with chronic neck pain. Kronik boyun.
12 The effect of adding gaze direction recognition to stabilizing exercises on pain intensity , muscular endurance and proprioception of women with chronic non-specific neck pain Serveh tohidi1 , Malihehadadnezhad2 , Sadreddin Shojaedin
13 Effects of forward head posture on static and dynamic balance control.*Lee JH J Phys Ther Sci. 2016 Jan; 28(1):274-7.*
14 Hertling D, Kessler RM. Management of common musculoskeletal disorders: physical therapy principles and methods. Lippincott Williams & Wilkins; 2006repositioning acuity. Manual therapy.
15 Treleaven J. Sensorimotor disturbances in neck disorders affecting postural stability, head and eye movement control. Manual therapy. 2008;13(1):2-11
16 Prevalance of forward head posture among university students April 2018 Rawal Medical Journal 43(2):260-262.
17 Lee M-Y, Lee H-Y, Yong M-S. Characteristics of cervical position sense in subjects with forward head posture. Journal of physical therapy science. 2014;26(11):1741-1743
18 Characteristics of cervical position sense in subjects with forward head posture Mi-Young Lee[1], Hae-Yong Lee[2], Min-Sik Yong
19 Nejati P, Lotfian S, Moezy A, Moezy A, Nejati M. The relationship of forward head posture and rounded shoulders with neck pain in Iranian office workers. Med. J. Islam. Repub. Iran.
20 Aman JE, Elangovan N, Yeh I, Konczak J. The effectiveness of proprioceptive training for improving motor function: a systematic review. Frontiers in human neuroscience. 2015 Reliability of photographic posture analysis of adolescentsZeynep Hazar,Gul Oznur Karabicak, Ugur Tiftikci
21 Effectiveness of an Exercise Program to Improve Forward Head Posture in Normal Adults: A Randomized, Controlled 10-Week Trial K. Harman, C. Hubley-Kozey, Heather L. Butler
22 Atya AM, Ahmed GM. Effectiveness of Physical Therapy Intervention on Neck Proprioception and Balance Parameters in Patients With Chronic Mechanical Neck Pain. Bulletin of Faculty of Physical Therapy 2009;4(2):41–7
23 Effect of the gaze direction recognition task on pain intensity, range of motion and isometric muscle endurance in chronic neck pain Kronik boyun ağrısında bakış yönü tanıma egzersizlerinin ağrı şiddeti, eklem hareket açıklığı ve izometrik kas enduransına etkisi