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Incidence of Upper Cross Syndrome in Tailors

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Abstract: ***Upper Cross Syndrome can be defined as specific altered muscle activation along with altered movement patterns involving some postural deviations in the upper quarter of the body. Individuals who have Upper Crossed Syndrome will significantly show a forward head posture, hunching of the thoracic spine, elevated and protracted shoulders, scapular winging, and decreased mobility of the thoracic spine. In Tailoring profession, occupation related musculoskeletal system disorders are highly prevalent. The Neck Disability Index along with tests for tightness and weakness were used to assess disability in Tailors. Method: 35 individuals from tailor profession were taken in this study. They were screened for inclusion and exclusion criteria and further they were assessed by the tests mentioned above. Result: Among 35 participants 77% individuals had Upper Trapezius tightness, 91% population had Pectoralis Major and Minor tightness, 86% had Lower and Middle Trapezius weakness, 80 % population had positive craniocervical flexion test, Neck disability index which indicates 17 % participants with no disability, 23% with mild disability, 43 % with moderate disability, and 17 % with severe disability and no complete disability. Conclusion: Among 35 tailors 35% males and 46% females have Upper Cross Syndrome.***

Keywords: Neck disability, Tailors, Tightness, Upper Cross Syndrome, Weakness

1. Introduction

Upper Cross Syndrome (UCS) can be defined as, specific altered muscle activation along with altered movement patterns involving some postural deviations in the upper quarter of the body.[1]The cause Upper Cross Syndrome is weak Deep Neck Flexors, Middle and Lower Trapezius, Rhomboids, Serrated anterior, and tight Upper Trapezius, sternocleidomastoid, Sub Occipital muscles, and Pectoralis Major and Minor. Muscle imbalance is the main reason for Upper Cross Syndrome. Human body consists of two types of muscles. The postural muscles such as Pectoralis Major, Upper Trapezius and Sternocleidomastoid whereas other phasic muscles such as Deep-Neck Flexors, and Lower Trapezius. Static or postural muscles are prone for tightness and phasic muscles are prone for weakness.[2]

Individuals who have Upper Crossed Syndrome will significantly show a forward head posture (FHP), hunching of the thoracic spine (rounded upper back), elevated and protracted shoulders, scapular winging, and decreased mobility of the thoracic spine. The upper cross syndrome mainly arises as a result of muscular imbalance that usually develops between tonic and weak muscles. In various movements, postural muscles are activated more compared to dynamic muscles. Opposite group muscle imbalances in upper crossed syndrome give rise to postural disturbance.[2]

Upper Cross syndrome leads to a series of dysfunctions within the body involving early degeneration of the cervical spine, headache and loss of the lordosis of cervical spine. In addition, Upper Cross Syndrome causes abnormal kyphotic thoracic spine and altered biomechanics of the glenohumeral joint. The alterations in function of the musculature, in people with upper cross syndrome, often cause these individuals to develop chronic headaches. “Age-related degenerative changes show effect on the subsequent mechanics of the cervical spine and structure of tissues. Some studies show a reduction in proprioception for neck movements of individuals over the age of 45 years.[3]

Occupation related musculoskeletal system disorders are highly prevalent in the people associated with the profession of stitching. Prolonged working hours, working at lower levels of table, accurate hand work, and these risk factors cause neck pain in tailors. The commonest risk factors among tailors are adaptation of awkward posture due to poorly designed seating devices that lack adjustable seat heights and back rests, and repetitive activities of them such as pedalling, and extreme flexion of the trunk and neck.[4]

They spend their maximum time sitting on a chair or on the floor, performing repetitive activities with improper body postures. This causes musculoskeletal discomforts discomfort among them and also results in back and neck pain. The posture they assume during stitching a garment involves bending their neck forward, raising their elbows above /below the shoulders, their wrist is bent downward and inward and bend their back forward and this causes postural discomfort that increases with years of employment. Due to inappropriate posture, they experience muscle stiffness, pain and swelling in the affected area. This muscular spasm and muscle stiffness leads to severe pain and inability to continue their occupation and in later cases, inability to sleep as well. [5]

Sustaining static posture for long duration such as sitting increases the demand on the muscles, ligaments, and other soft tissues of the musculoskeletal system. These physical burdens lead to problems at the shoulder, neck and in the lower extremities of trailers. When Tailors work, they adapt a certain posture like upper back and neck flexed over sewing machine and has to do tedious and highly repetitive tasks like assembly, pressing, sewing. Tailoring is one of the occupations which puts stressful atmosphere leading to a

negative effect on the tailor's performance, mental and Physical health of the people.[5]

The NDI is a relatively short, paper-pencil instrument that is easy to apply in both clinical and research settings. The NDI is the most widely used and most strongly validated instrument for assessing self-rated disability in patients with neck pain. It has been used effectively in both clinical and research settings in the treatment of this very common problem.[6]

2. Literature Survey

Study was conducted in TMV Physiotherapy OPD, other rehabilitation center and also freelancing tailor professionals in and around city.

Target Population was working tailors from tailoring institutes in and around the city. Tailors were screened based on their postures attained during work and also as per the presence of pain and other discomforts. This study was taken to find out the prevalence of Upper Cross Syndrome in this population owing to the long hours of attainment of faulty postures to fulfill their professional demands.

3. Method

- Different institutes were approached and permission was obtained prior to the study.
- The study procedure and aim of the study was explained to the participant.
- 35 participants were selected according to inclusion and exclusion criteria.

Inclusion criteria:

- Age group of 25 to 50 years
- Both genders
- Practicing tailoring from minimum past 3 years.
- Willing to participate

Exclusion criteria:

- Any upper quadrant malignancy.
- Any upper quadrant fractures or surgeries.
- Any chronic pathological condition of neck like torticollis.
- Any other cervical pathologies like spondylosis, spondylitis, and spondylolisthesis.
- The consent was obtained from each participant prior to examination.
- Demographic data was obtained using data collection sheet which consisted of demographic data and tailoring experience.
- For the assessment of Upper Cross Syndrome, Pectoralis Major and Minor Tightness Test, Upper Trapezius Tightness Test, Middle and Lower Trapezius Weakness Test, And Deep Cervical Neck Flexors Weakness Test were done.
- Neck disability index (NDI) was use to assess neck disability.

(1)

(2)

(3)

(4)

(5)

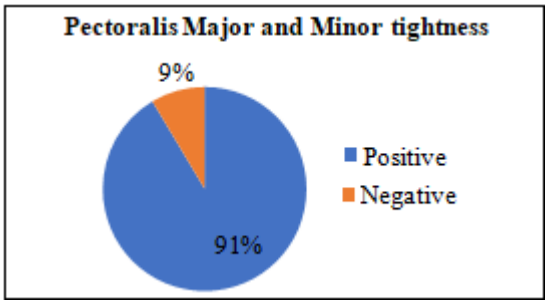
(6)

(1) Pectoralis Major Contracture Test
(2) Pectoralis Minor Tightness Test
(3) Upper Trapezius Tightness Test
(4) Middle Trapezius Weakness Test
(5) Lower Trapezius Weakness Test
(6) Craniocervical Flexion Test

Calculations were done after collection of all the samples.

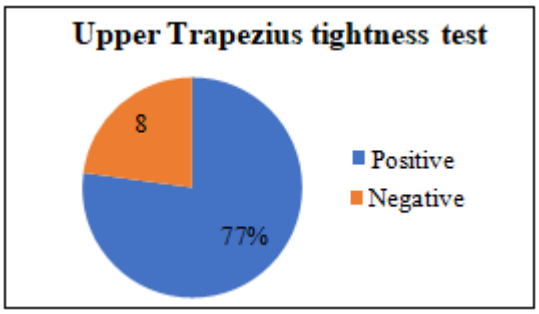
4. Results

Among 35 participants 91% population had Pectoralis Major and Minor tightness, 77% individuals had Upper Trapezius tightness, 86% had Lower and Middle Trapezius weakness, 80 % population had positive craniocervical flexion test, Neck disability index which indicates 17 % participants with no disability, 23% with mild disability, 43 % with moderate disability, and 17 % with severe disability and no complete disability.



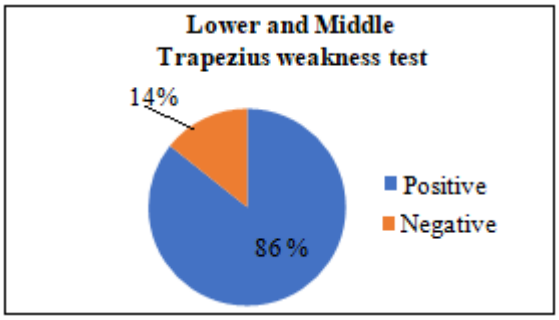
Graph 1: Pectoralis Major and Minor tightness test

Graph no 1 shows among 35 participants 91% population had Pectoralis Major and Minor tightness.



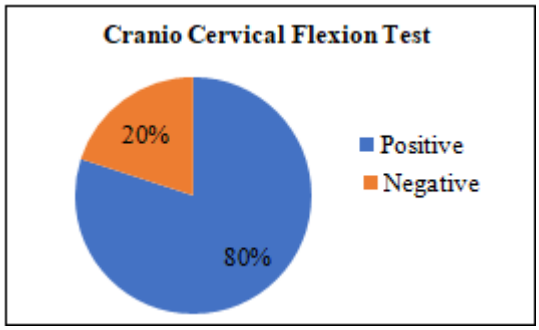
Graph 2: Upper Trapezius tightness test

Graph no 2 shows among 35 participants 77% individuals had Upper Trapezius tightness.



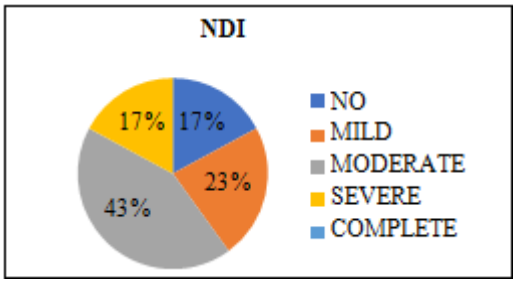
Graph 3: Lower and Middle Trapezius weakness test

Graph no 3 shows among 35 participants 86% had Lower and Middle Trapezius weakness.



Graph 4: Craniocervical Flexion Test

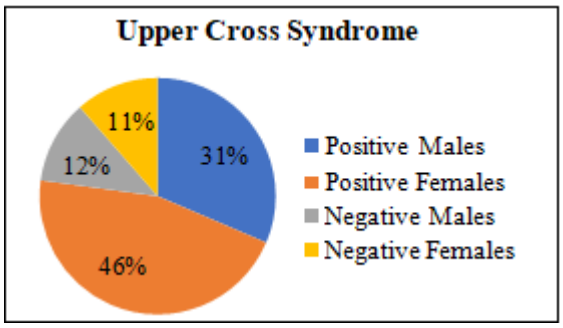
Graph no 4 shows among 35 participants 80 % population had positive Craniocervical Flexion Test.



Graph 5: Neck disability index (NDI)

Graph no 5 shows, Neck disability index (NDI) which indicates 17 % participants with no disability, 23% with

mild disability, 43 % with moderate disability, 17% with severe disability and no complete disability.



Graph 6: Upper Cross Syndrome

Graph 6: Graph no 2 shows 31% males and 46% females having upper cross syndrome

5. Discussion

Upper cross syndrome is a form of musculoskeletal disorder involving anterior and upper trunk musculature's shortness and tightness and the posterior muscles undergoes weakness. In these syndrome postural deviations, muscle imbalance and other biomechanical changes like forward head, rounded shoulders, increased thoracic kyphosis, altered scapula humeral rhythm is noticed.

As tailors are included in high-risk group with high chances of musculoskeletal disorders, this recent study is conducted to find out the incidence of upper cross syndrome in working tailors in Pune city and to spread awareness in tailors. Tailors of age group 25 to 50 years, both genders and minimum 3 years of tailoring practice were included in study. Results of this study indicate 31% males and 46% females among 35 participants had upper cross syndrome. Various tests were performed to check tightness and weakness in specific muscles. Also, NECK DISABILITY INDEX was used to assess the disability in tailors. The result shows 91% population has pectoralis major and minor tightness, 77% population has upper trapezius tightness. 86% population has middle and lower trapezius weakness, 80% population has deep cervical neck flexors weakness. The neck disability index shows 23% population has mild, 43% population has moderate and 17% severe disability.

In tailoring, sewing machine workers do highly repetitive work in sitting posture along with forward bending of neck, upper back and lower back. While working, ergonomics is most important aspect to prevent musculoskeletal disorders. Tailors work in faulty posture for multiple hours for many years. In this study 12% male and 11% females don't have upper cross syndrome. Various factors such as backrest, exercises, working hours, type of sewing machine, comorbidities etc. can affect a tailor's posture and related musculoskeletal problems.

Working environment such as type of chair, back rest, foot rest, arm rest, height of sewing machine, type of machine, duration of work, frequency of breaks during work, exercise plays essential role in musculoskeletal discomforts and alteration of posture and leads to shoulder, neck, and back pain.

6. Conclusion

Among 35 tailors, 77% population is having Upper Cross Syndrome. (31% male, 46% females).

7. Future Scope

It is suggested that this study should be conducted on a large number of population, in a wider geographical area and in other various table work professionals.

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