



# Effect Of Stretching And Strengthening Exercises For Specific Muscles Group In Trapezitis: A Comparative Study

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## ABSTRACT

**Background:** Neck pain prevalence varies widely on different studies. Poor ergonomic work habit such as prolonged constrained work position with persistent neck or spine flexion may imply a risk factor. Maintaining poor posture for long periods of time can result in chronic muscular fatigue, discomfort or pain, leading to pathological effects like trapezitis and permanent disability. Trapezitis is an inflammatory pain arising from the trapezius muscle causing a severe neck spasm. Trapezius muscle pain and spasm is most common musculoskeletal disorder occurring in individuals who works with an awkward position of neck for a prolonged period of time, with repetitive movements.

**Objectives:** To compare the effectiveness of stretching of upper trapezius and pectoralis and Strengthening exercises of rhomboids and middle trapezius in trapezitis.

**Outcome measures:** Range of motion, Neck Disability Index (NDI)

**Methodology:** In this study total 60 participants were taken of age group 19–30-year-old both male and female were included. The participants are distributed in to 2 groups group A and group B. Group A under-went manual stretching of upper trapezius muscle and strengthening of rhomboid muscle. Group B were undergone manual stretching of pectoralis and strengthening of middle trapezius muscle. We evaluated both groups by Neck Disability Index [NDI] and Range of motion.

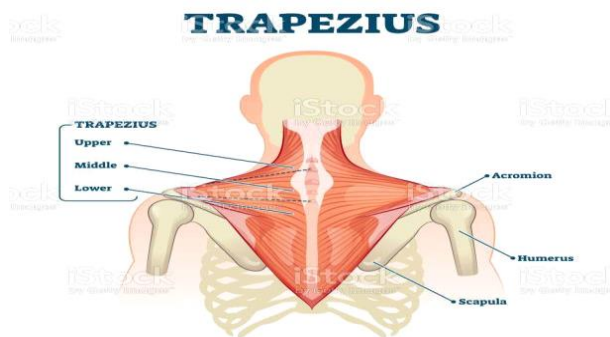
**Result:** The result shows the statistically p value is greater 0.005 in NDI and Cervical lateral flexion (ALF) which is not significant.

**Conclusion:** The result of the present study was concluded that as specific muscles were stretch and strengthen in group A and group B therefore significant results was not seen. After that we have accepted null hypothesis of this study. Hence the study concluded that there is no significant differences in both NDI and Cervical ALF. Clinically it was observed that treatment of group A was more effective compared to group B, but statistically there is no significant difference between group A and group B.

Keywords: Trapezitis, Stretching, strengthening, Range of motion, Neck Disability

## Overview

The trapezius muscle is a large superficial back muscle that resembles a trapezoid. It extends from the external protuberance of the occipital bone to the lower thoracic vertebrae and laterally to the spine of the scapula. The trapezius has upper, middle, and lower groups of fibers.<sup>[1]</sup>



**Fig no: 1.1.1 Origin insertion of Trapezius Muscle**

Neck pain (or cervicalgia) is a common problem, with two thirds of the population having neck pain at some point in their lives. Most patients who present with neck pain have “non-specific (simple) neck pain”, where symptoms have a postural or mechanical basis. Aetiological factors are poorly understood and are usually multifactorial, including poor posture, anxiety, depression, neck strain, and sporting or occupational activities.<sup>[3]</sup>

Trapezititis is an inflammatory pain arising from the trapezius muscle causing a severe neck spasm. Trapezius muscle pain and spasm is most common musculoskeletal disorder occurring in individuals who works with an awkward position of neck for a prolonged period of time, with repetitive movements.<sup>[4]</sup>

Upper crossed syndrome is caused by weakness in one group of muscles and tightness in other group of muscles. This syndrome refers to tightness of muscles such as pectoralis major, upper trapezius and levator scapulae and weakness of deep neck flexors, scalene, rhomboid, serratus anterior, middle and lower trapezius.<sup>[5][6]</sup>

## Materials and method

### **Study Design**

Comparative study

### **Sample size**

Total sample size = 60 [Both groups having 30 participants each]

### **Study population**

Trapezititis patients in OPDs

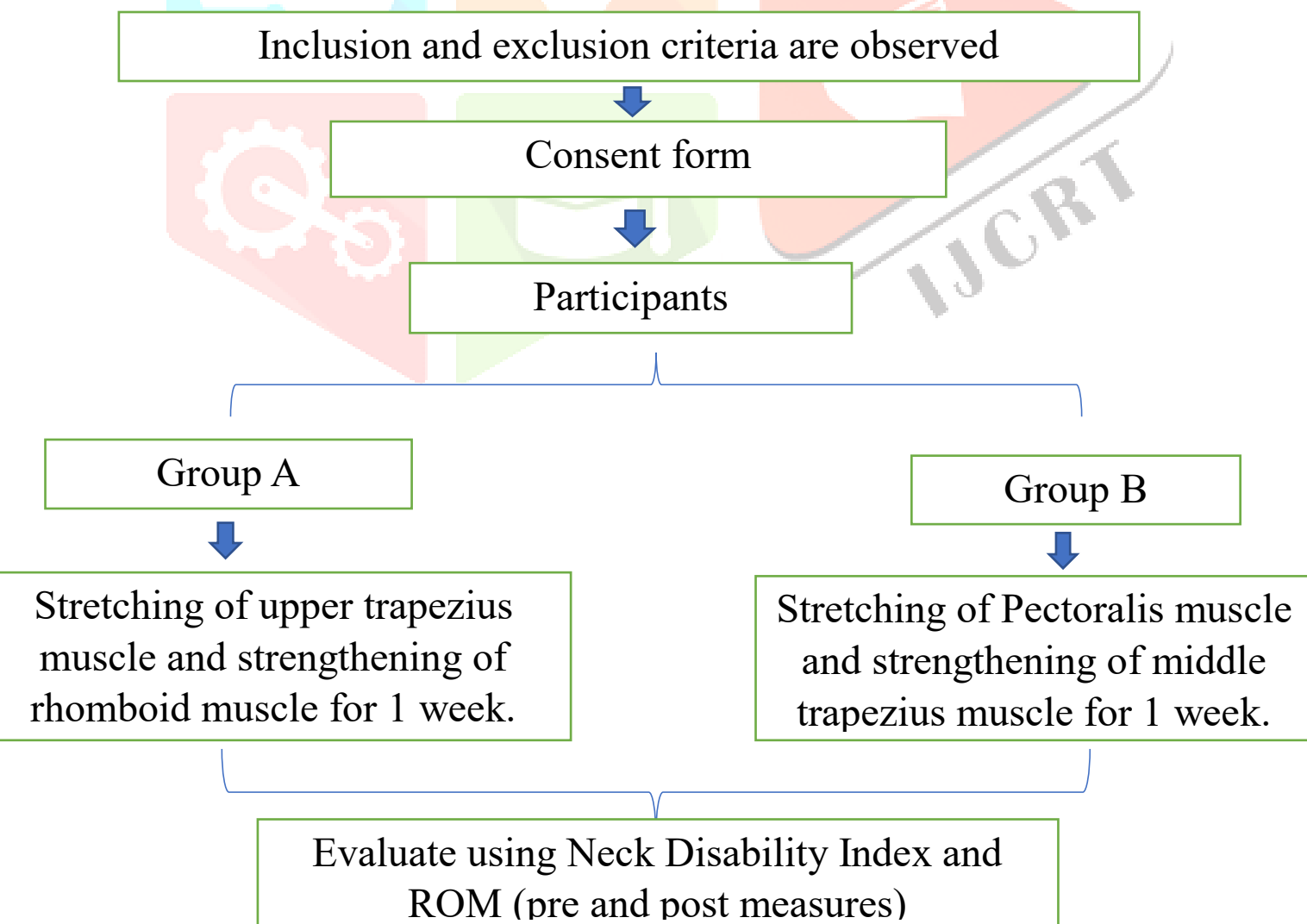
### **Sampling Method**

Convenient sampling

INCLUSION CRITERIA	EXCLUSION CRITERIA
(1) Age group is 19–30-year-old	(1) Fracture of upper limb
(2) Gender is both male and female	(2) Migraine
(3) Willing to participate	(3) Nerve lesion
(4) Pain since 3 – 6 weeks because of trapezitis	(4) Any Shoulder instability
(5) Less than 20 repetition of shoulder abduction in baseline strength testing	(5) More than 20 repetition of shoulder abduction in baseline strength testing

## Procedure

The samples are randomly divided into Group A and Group B each group contains 30 subjects. Pre-test and post-test are conducted by assessing Active cervical Range Of motion with Universal Goniometer and Neck Disability Index. The interventions in Group A includes manual stretching of upper trapezius muscle and strengthening of rhomboid muscle with red theraband while in Group B manual stretching of pectoralis muscle and strengthening of middle trapezius muscle with red TheraBand. Ice pack / hot pack was given as a home advice. Figure 3.10.1 shows the flow of procedure.





## Statistical Analysis

**GROUP A:** Stretching of upper trapezius muscle and strengthening of rhomboid muscle. In Group A the participants were instructed to maintain the correct posture while sitting and the therapist was standing behind the participants. Therapist placed one hand on the shoulder joint of the affected side and other one on the head of the participants and therapist gives manual stretching of upper trapezius for 3 repetitions with 45 seconds hold and after stretching participants were instructed to do the strengthening exercise of rhomboid with the red theraband with 30 repetitions.



(A) Stretching of Upper Trapezius muscle (B) Strengthening of Rhomboid muscle

**GROUP B:** Stretching of Pectoralis muscle and strengthening of middle, trapezius muscle.

In Group B the participants were instructed to maintain the correct posture, placing both the hands on the head and the therapist was standing behind the participants and manual stretch for the pectoralis muscle was given for 3 repetitions with 45 second hold and after that participant was instructed to do strengthening exercise of middle trapezius with the red theraband for 30 repetitions.

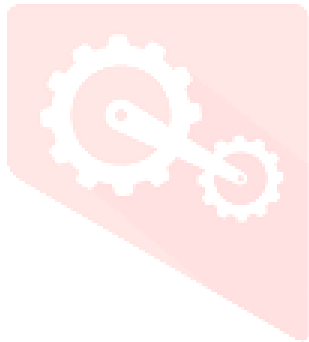


(A)

(B)

(A) Stretching of pectoralis muscle

(B) Strengthening of Middle Trapezius



## DATA ANALYSIS AND RESULTS

### Demographic Data

A Total 60 participants were referred to physiotherapy department diagnosed by Orthopedician and physiotherapist as unilateral upper Trapezitis were selected. Considering inclusion and exclusion criteria they were requested to participate in the study. The subjects were randomly divided into two group.

- Following data analysis was done using SPSS software version 23.
- Independent t-test was used to compare the differences in outcome measures between groups based on normality of the data.
- p value is greater than 0.005 in NDI and Cervical lateral flexion (ALF) which is not significant.

- Statistical Analysis

**TABLE :- COMPARISON OF POST NDI AND POST ROM BETWEEN GROUP A AND GROUP B**

	GROUP	MEAN	SD	t-value	p-value
NDI	A	7.0667	3.59054	0.477	0.657
NDI	B	6.6667	3.33563	0.477	0.657
ROM LF RT	A	36.5333	4.81902	2.132	0.37
ROM LF RT	B	33.6333	5.68412	2.132	0.37
ROM LF LT	A	36.9333	5.00988	2.386	0.20
ROM LF LT	B	33.6333	4.68412	2.386	0.20

### Results

As the  $p > 0.05$  in our study so the null hypothesis is proved. Thus, comparison of group A and group B was not significant

## **DISCUSSION**

The present study was steered to investigate and compare the effects of stretching and strengthening of specific muscles group in trapezititis. The subjects belonging to the present study were between age of 19 to 30 yrs. the subjects were matched for age and gender thus giving a homogenous population for study.

Recent studies show that active intervention is effective for pain and function in chronic neck pain patients, and among the different intervention methods, muscle strengthening exercise program that improves activation of scapulothoracic muscles via muscle contraction affects stabilization and postural maintenance of the scapular. Won-Sik Bae et, al study showed that posterior neck temperature in the test group increased after the muscle stretching and strengthening exercises and increased significantly when compared with the control group.

Work related neck pain are common problems in office workers, especially among those who are intensive computer users with long duration sitting job. The stretching and strengthening of specific muscles did not show significant research in our study. Probably, working on just stretching or strengthening for group of muscles might give better results. That might be a future scope for our study for assessing and treating Upper Cross Syndrome in a better manner.

## **CONCLUSION**

The result of the present study was concluded that as specific muscles were stretch and strengthen in group A and group B therefore significant results was not seen. After that we have accepted null hypothesis of this study. Hence the study concluded that there is no significant differences in both NDI and Cervical Lateral Flexion. Clinically it was observed that treatment of group A was more effective compared to group B, but statistically there is no significant difference between group A and group B.

## **LIMITATIONS**

- Study was done in small geographical area.
- Treatment duration was only 1-week due COVID situation.
- Regular follow-up not taken.
- In this study, a small sample of male students was recruited
- The study consisted of a small number of participants makes it difficult to detect small possible differences between groups.

## **FUTURE SCOPE**

- Further study can be carried out using protocol for more weeks or longer duration.
- Study can be done taking large sample size.
- A perspective study with regular follow-up can be taken up to evaluate the long-term effects of specific study.
- study can be compared with other techniques.
- Further studies with larger samples of both genders are suggested.

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