



# EFFICACY OF THERABAND EXERCISES IN FEMALES AFFECTED FROM NON-SPECIFIC CERVICAL PAIN

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**Abstract:** Mechanical Neck Pain is one of the most common causes of disability nowadays in young college going females. The aim of this study was to determine the effectiveness of Theraband exercises for reduction of disability & pain and improving strength of neck muscles in mechanical neck pain. **Methodology:** 30 subjects were included in the study on the basis of dependent variables NDI, VAS, MMT. The study is of 4 week. An appropriate reading of VAS, NDI and MMT was taken on first day (1 day) and last day (28<sup>th</sup> day). **Result:** The paired t-test was used to compare within group differences. Significant difference found between Pre & Post readings of NDI, VAS & MMT. **Conclusion:** The results of the study suggest that Theraband Exercises may be effectiveness in reduction of Disability & Pain and increases the strength of neck muscles.

**Keywords:** Theraband , Mechanical Neck Pain, Disability.

## INTRODUCTION

The most frequent primary complaint among female college students has been neck discomfort. In the general population, almost everyone experiences mild neck discomfort at some point in their lives.. In addition, headaches and arm discomfort are frequently present. Most often, painful conditions originate from severe mental and physical stress<sup>1</sup>.

Between 14 and 71% of persons have neck discomfort at some point in their life. Adults might have a prevalence of 16–75% over the first year.<sup>2</sup> According to Mclean et al.<sup>3</sup>, in the general population, the development of neck discomfort was associated with female gender, older age, high job demands, little social or professional support, ex-smokers, and a history of low back and neck diseases.

Age, previous musculoskeletal pain, high quantitative job demands, low social support at work, job insecurity, low physical capacity, poor computer workstation design and work posture, sedentary work position, repetitive

work, and precision work were among the risk factors listed by Cote in 2009<sup>4</sup> Among undergraduate students, using a computer is highly prevalent.<sup>5</sup>

Mechanical neck pain is defined as the neck pain that lack an identifiable pathoanatomic cause for their symptoms or patho-anatomic cause of mechanical neck pain is rarely identifiable<sup>6</sup>. Mechanical neck pain commonly arises insidiously and is generally multifactorial in origin including one or more of the following poor posture, anxiety, depression, neck strain and sporting or occupational activities<sup>7</sup>.

Neck pain is common health complaints in the general population throughout the lifespan it has been shown that up to 75% of adults are affected by neck pain at some point in their life<sup>8</sup>. Neck pain with post traumatic onset, soft tissue injury can impair information from mechanoreceptors in the injured tissues, which can cause sensory and motor dysfunctions.<sup>9</sup>

It may be divided in to acute, sub acute & chronic states. Acute injuries at may be due to trauma unaccustomed activity, or a poor working or sleeping position. Chronic pathology is usually due to poor posture, poor muscle tone, or illness.

Neuropathic neck pain, mainly due to disc impingement, disc degeneration, or herniation, leads to irritation of the cervical nerve roots and subsequent radicular pain in the shoulder or arm<sup>10</sup>

#### **Clinical Features:-**

- Pain in and around neck.
- Movement restriction
- Pain worsen during movement

Mechanical neck pain can not only create local neck symptoms but also symptoms in to the shoulders and upper extremities as well as headaches.<sup>11</sup>

#### **Material & Methodology**

The total number of participants were n=30 (only females).

#### **Type of sampling – Purposive sampling**

The subject diagnosed as having mechanical neck pain which showed signs and symptoms and were requested to participate in study. An informed consent was taken from the subject. The purpose and procedure of the study were explained in detail in their mother tongue language and consent was taken.

The study is of 4 weeks, 6 days per week.

#### **Place of Study.**

Physiotherapy OPD, CSS Hospital, Meerut.

## Study Design

It was an experimental design where subjects are randomly allocated in 1 group, Group A.

Group A was having Theraband exercises with Moist Heat Pack for 15-20 min for the effect of intervention of the Dependent variables i.e, NDI, VAS and MMT.

An appropriate readings of variables were taken on first day (1 day) and last day (28<sup>th</sup> day).

## Source of subjects

All the subjects were selected from Physiotherapy OPD Physiotherapy OPD, CSS Hospital, Meerut. (U.P.) on the basis of dependent variables VAS, NDI and MMT. The subjects were selected according to inclusion and exclusion criteria and were put into group.

## Selection Criteria:-

### Inclusion Criteria

1. Age 18-25 years.
2. Females only
3. History of neck pain duration less than 7 weeks.
4. VAS score of less than 7.

### Exclusion Criteria

1. Age not above 25 years or less than 18 years
2. Any degenerative changes
3. Recent fracture
4. Recent surgery
5. Cervicogenic headache.
6. Tumors
7. Any pathology around shoulder.
8. Whiplash injury .

## Procedure

Moist heat pack is given before the treatment for 15-20 min.. There are 7 different colors of Theraband which provides different levels of resistance. Yellow, Red, Green, Blue, Black, Silver, Gold are the colors of the Theraband in which yellow provides less resistance force.<sup>12</sup>

## Neck Isometrics with Theraband:-

### 1) For Flexion

**Position of patient:** - Seated on the chair.

**Position of Therapist:** -Standing by the side of the patient

**Method**

The exercises were performed in sitting position by holding the theraband directly forwards for neck flexion. This was done for 10 repetitions with hold time of 6 sec. This exercise was performed 6 times a week for a period of 4weeks.<sup>13</sup>

**2) For Extension**

**Position of patient:** -Seated on the chair.

**Position of Therapist:** -Standing by the side of the patient

**Method**

The exercise was performed in sitting position by holding the theraband backward for neck extension. This was done for 10 repetitions with hold time of 6 seconds at 75% elongation with 1.1 kilogram resistance offered by the theraband. These exercises were performed 6 times a week for a period of 4 weeks.<sup>13</sup>

**3) For Lateral Flexion**

**Position of patient:** -Seated on the chair.

**Position of Therapist:** -Standing by the side of the patient

**Method**

The exercise was performed in sitting position by holding the theraband obliquely towards right and left for neck lateral flexion respectively on either side. This was done for 10 repetitions with hold time of 6 seconds at 75% elongation with 1.1 kilogram resistance offered by the theraband. This exercise was performed 6 times a week for a period of 4 weeks.<sup>13</sup>

**Result**

**Table-1. Mean & Standard Deviation of Pre & Post Scores of VAS, NDI, MMT of Flexion and Extension**

Sl. No.	Variables	Mean		Standard Deviation	
		Pre Score	Post Score	Pre Score	Post Score
1	VAS	5.67	0.47	0.82	0.64
2	NDI	23.57	0.8	3.17	1.28
3	Flexion	2.2	3	0.41	0
4	Extension	2.2	3	0.41	0

**Table-2 Mean & Standard Deviation of Pre & Post scores of MMT of Lateral Flexion & Lateral Rotation (Rt & Lt)**

Sl. No.	Variables	Mean		Standard Deviation	
		Pre Score	Post Score	Pre Score	Post Score
1	Lateral Flexion (Rt & Lt)	2.3	3.6	0.49	0.51
		2.33	3.33	0.49	0.49
2	Lateral Rotation (Rt & Lt)	2.27	2.93	0.46	0.26
		2.33	3.6	0.49	0.51

**Table-3 Paired t – test of Pre and Post VAS, NDI, MMT Flexion, Extension, Lateral Flexion and Rotation (Rt & Lt) Scores**

Sl No.	Variables	t-Value	SEM	p-Value
1	VAS	29.78	0.17	0
2	NDI	28.33	0.67	0
3	MMT Flexion	5.2915	0.123	0
4	MMT Extension	10.717	0.12	0
5	MMT[Lateral flexion (Rt)]	7.48	0.12	0
6	MMT[Lateral flexion (Lt)]	7.48	0.12	0
7	MMT [Lateral Rotation (Rt)]	7.17	0.12	0

The Paired t-test was applied to find out the significance difference between pre and post values of VAS, NDI and MMT in group A respectively, which shows a significant difference in both the groups separately at 5% level of significance ( $p < 0.05$ ).

Results were analyzed using student t- test (paired) by using SPSS version20.0. The entire group A completed all 24 training session for 4 weeks. Before the exercise protocol were started the pre-readings (day 1) are measured, and post-readings (day 28th) were also noted down.

The Table- 1 & 2 shows a mean and SD values of VAS, NDI & MMT for Group A.

The table- 1 & 2 shows a pre to post scores of group A for VAS, NDI & MMT respectively and shows a significance difference of pre to post readings in group.

The statistical analysis shows significant difference for VAS, NDI, and MMT in group A.

The Paired t-test was applied to find out the significance difference between pre and post values of VAS, NDI and MMT in group A and B respectively, which shows a significant difference in the group separately at 5% level of significance ( $p < 0.05$ ). The Table- 3 shows a pre to post scores of group A for VAS [0.000] NDI (0.0000) & MMT (0.0000), respectively and shows a significance difference of pre to post readings in each groups i.e.,  $p < 0.05$ .

## DISCUSSION

The purpose of this study is to find the effectiveness of Theraband exercises in subjects with mechanical neck pain. Here the group was made and received a strengthening exercises. Before starting the exercise protocol the VAS, NDI and MMT was measured similarly the readings also noted after 4 weeks.

The result of this study revealed that Theraband exercises are effective in increasing the strength of muscles and improving the pain and decreasing the disability. *Jeoung-AH et al in 2015<sup>14</sup>*, who also stated that the reduction of pain is may be due to the strengthening exercise of flexor, extensors, lateral flexors (right & left) may reduces the pain.

Further application of unpaired t-test to find the significance difference between pre & post intervention study Theraband exercises, which revealed significant difference for the patients at 5% level of significance. The Paired t-test was applied to find out the significance difference between pre and post values of VAS, NDI and MMT in group A and B respectively, which shows a significant difference in the group separately at 5% level of significance ( $p < 0.05$ )

*Kay TM, Gross A et al in 2005<sup>15</sup>* stated that the neck strengthening exercises in a patient of mechanical neck pain reduces the pain, improving the disability in adults.

Our study is in accordance with previous study of *Pooja Pancholi et al<sup>16</sup>*, she did a study and suggested that the resistive band training exercises is helpful in reducing the pain, disability & correcting the posture. So we can effectively use Theraband (Strengthening Training) for strengthening to reduce pain, disability and increase the muscle strength.

## Conclusion

The study concluded that Theraband exercises are effective in reduction of pain, improving the strength and decreasing the disability and the result also revealed a significant difference in pre to post readings of Dependent variables of the group i.e., Group A

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