COMPARING THE EFFECT OF KINESIO TAPING VERSUS MANUAL TRIGGER RELEASE ON THENAR EMINENCE PAIN IN PROFESSIONAL PALESTRATO

SURESH.T.N1* AND P.SRAVAN BABU2

1*Vice Principal, SRM College of Physiotherapy, SRM Institution of Science and Technology, Kattankulathur, Tamil Nadu, India
2 Students, SRM College of Physiotherapy, SRM Institution of Science and Technology, Kattankulathur, Tamil Nadu, India.

ABSTRACT

The muscles of thumb are the most flexible of all digits, which allow to movement in various direction. Thenar eminence pain is caused when the thumb is subjected to repetitive functions which leads to their overuse over a period of time which makes it tired. This pain is often is commonly reported by regular gym goers. Thenar eminence pain affects daily gym activity. It gets triggered during weight lifting and when dumb bells are used during workout. When overused, this part gets inflamed and results in thenar eminence pain. The ability to catch and grip may be compromised or lost. Tasks requiring agility and control such as bench press, double bar, and other weight lifting activities become difficult and frustrating because of muscle weakness and loss of fine motor control. This study aims at comparing the kinesio taping technique and manual trigger release for thenar eminence pain among professional gym goers and also at finding out which is the better of the two techniques and give results according to it. It is an experimental study done on 30 male subjects, who have the experience of going to gym for 3 or above months. 10 subjects are included in to Group-A taping and 10 subjects in Group-B trigger release and 10 subjects in Group-C control group. Visual analogue scale both pre and posttest were taken and calculated for obtaining results. Group A is more statistically significant than group B and group C. That is kinesio taping is significant in reducing pain than the manual trigger release technique.

KEYWORDS: Thenar eminence pain, Kinesio Taping, Trigger release, VISUAL ANALOUGE scale

SURESH.T.N*

Vice Principal, SRM College of Physiotherapy, SRM Institution of Science and Technology, Kattankulathur, Tamil Nadu.
INTRODUCTION

The structure of thumb has a special quality. The muscles of thumb are the most flexible of all digits, which allow to movement in various direction. Because of the increased work, thumb are subjected to a lot of repetitive strains, which leads to pain in the thenar eminence, which is soft muscular part at the base of the thumb. When overused, this part gets inflamed and results in thenar eminence pain. It was already reported that pain in thenar eminence affects performance of the daily gym activities. The ability to catch and grip may be compromised or lost. Tasks requiring agility and control such as bench press, double bar, and other weight lifting activities become difficult and frustrating because of muscle weakness and loss of fine motor control. According to Kinesio Taping Association (KTA), kinesio taping aids in athletic performance, which includes: pain reduction, neuromuscular system re-education, performance optimization, injury prevention, and the promotion of improved circulation and healing. Kinesio Taping is a method used to obtain therapeutical effects, such as circulation improvement in the area of tapping, cutaneous and subcutaneous lymph drainage, muscle inhibition, fascia correction and mechanical correction. The therapeutic effects of Kinesio Taping remains to be elucidated. However, it is hypothesized that KT exerts its effects by (1) increasing local circulation, (2) reducing total edema, (3) improving circulation of blood by facilitating the muscle, (4) providing a positional stimulus to the skin, muscle, or fascial structure, (5) providing proper afferent input to the central nervous system, or (6) limiting Range of Motion of the affected tissues. Tapping technique designed to support the thumb and reduce stress on the thumb during activity. They can be used for both the treatment and prevention of thumb injuries. When used correctly, thumb Taping techniques can aid healing of thumb injuries, allow an earlier return to sport or activity following injury, reduce the likelihood of injury aggravation, prevent thumb injuries during high risk activities or sports (such as gym activities). Trigger point is defined as localized and hyperirritable spot in a palpable taut fiber of a muscle. The spot is painful on compression and can give rise to characteristic referred pain, referred tenderness, motor dysfunction, and autonomic phenomena. These increases sensitivity to stretch because of a tightness is produced on the muscle fiber. Trigger release is a technique of identifying trigger points and resolving it. Trigger points in these small muscles of the hand cause their characteristic pain patterns, along with clumsiness of the thumb, and a great deal of misunderstanding concerning the attention and care of the owner of that thumb. The three muscles that make up the thenar eminence are tightly bound together by fascia, and that fascia is tough. The opponenspollicis is covered by the abductor pollicis brevis and often partially fused with the flexor pollicis brevis. The pain VAS is a unidimensional measure of pain intensity, which has been widely used. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimeters (100 mm) in length, anchored by two verbal descriptors, one for each symptom extreme.

MATERIALS AND METHODS

Study design: experimental design.
Study type: comparative study.
Sampling method: convenient sampling.
Study duration: 3 days
Sample size: 30 subjects
Study setting: gyms in and around chennai.

Inclusion criteria
- Age: 18 to 24 years.
- Gender: Male
- Minimum 3 months of exercise in the gym.
- Those who are willing to participate.
- Those marking 4 to 7 pain intensity on the VAS scale.

Exclusion criteria
- Recent fractures.
- Skin diseases (allergic to tape).
- Hyper sensitive skin.
- Females
- Those irregular to gym.
- Those who are not willing to participate.

Procedure
Participants were selected according to inclusion and exclusion criteria. Written informed consent was obtained from the selected samples. Participants were divided into three groups. Group A, Group B and Group C. Group A (10 participants), Group B (10 participants) and Group C (10 participants). Group A for Taping, Group B for trigger release and Group C is a control group. Participants were selected by doing selftest. That is thenar eminence pressure test. Participants marking 4-7 in VAS scale were included in study. Participant was instructed not to perform any upper limb gym activities for 2 days. Then Taping and Trigger release was done and instructed to mark the pain intensity in VAS scale. This value is taken as post test.

Taping
For preventing the painful removal of tape and skin irritation. Hairs on the particular treatment area is shaved before 12. Grease or sweat if any should be cleaned (Figure 1).

Anchor
Place a strip of tape around the forearm, just below the wrist. This should be applied gently to prevent circulatory problems and is used as a fixation point for the other Taping techniques.

Side Loop
Keeping the wrist and thumb in a neutral position (wrist should be bent backwards slightly – about 30 degrees), start the tape at the level of the anchor on the front of the wrist. Conclude this taping technique at the level of the anchor firmly at the back. Do 1 – 3 side loops slightly forward or backward of each other depending on the amount of support required.

Manual trigger release.
To address repetitive strain injuries, cumulative trauma injuries and constant pressure tension lesions, the
clinician uses manual therapy to apply compressive, tensile and shear forces during the treatment. The clinician applies deep tension at the area of tenderness whilst the patient is instructed to actively move the injury site from a shortened to a lengthened position. The placing of a contact point is near the lesion and patient is instructed to move in a manner that produces a longitudinal sliding motion of soft tissues, e.g., nerves, ligaments and muscles beneath the contact point. And after trigger release patient is instructed to keep cold packs (Figure 2).

**Figure 1**
*Shows the applying of Taping technique*

**Figure 2**
*Shows Manual trigger release technique*

**Outcome measures**
*Visual analogue scale*

**STATISTICAL ANALYSIS**

The statistical package for social science (SPSS) version 20 for Windows was used for data analysis. The statistical tool used in this study was the paired ‘t’ test, Independent t-test. Paired significant ‘t’ test was used for analysis of pre-test and post-test means within the groups; whereas independent t-test was used for analysis of the comparison between the 3 groups.
RESULT

Table I
Comparison of pre test and post test values

<table>
<thead>
<tr>
<th>Comparing the groups</th>
<th>Mean</th>
<th>Std.Deviation</th>
<th>T</th>
<th>Df</th>
<th>Sig(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test vas group a-post test vas group A</td>
<td>2.700</td>
<td>2.214</td>
<td>3.857</td>
<td>9</td>
<td>0.004</td>
</tr>
<tr>
<td>Pre test vas group b-post test vas group B</td>
<td>-1.5000</td>
<td>.70711</td>
<td>-6.708</td>
<td>9</td>
<td>.000</td>
</tr>
<tr>
<td>Pre test vas group c-post test vas group C</td>
<td>1.3000</td>
<td>1.56702</td>
<td>2.623</td>
<td>9</td>
<td>0.028</td>
</tr>
</tbody>
</table>

P<0.05 According to Table 1, Pre-test and post test mean value of group A visual analogue scale(VAS) is 2.7, group b is 1.5 and group c is 1.3 which explains there is a significant reduction in pain with Kinesio Taping on thenar eminence pain with P value of 0.004. (p <0.05)

Graph-1 and Table-1 shows that there was a significant reduction in visual analogue scale (VAS) score among Group-A subjects treated with KINESIO TAPING. Visual analogue scale (VAS) post-test mean value of Group-A is 2.7, for Group-B is 1.5 and for Group C is 1.3. It shows a significant reduction in pain value of Group A than Group-B and Group C. Therefore, there is a significant difference between Group-A, Group-B and Group-C showing that KINESIO TAPING is more effective than the MANUAL TRIGGER RELEASE (p<0.05).

DISCUSSION

The soft musculature part rounded at the base of the thumb is called thenar eminence. The stability of the thumb is mostly obtained from coordinated and active muscular tension. Thumbs are good in performing activities such as needle work, writing, playing, musical instrument, typing text messages on mobile phones, holding objects. Due to these increased levels of work, thumbs are subjected to a lot of repetitive functions which leads to their overuse over a period of time and they get tired. Due to overuse, this portion of thumb gets inflamed and results in thenar eminence pain. Pain in thenar eminence affects performance of the daily activities such as opening of drawers, handling of the latch, and opening of the door etc., In thenar eminence pain rather than the thumb itself, the muscles in thenar eminence portion experiences pain. Since it contains the primary muscles of finger to thumb, which helps in gripping and performing activities, this muscle is often overused. This leads to development of joint, muscle, and tendon inflammation causing thenar eminence pain. Further there is tightness and then stiffness of thumb with an overall or specific pain. The functions of the thumb become slow and weak. As the inflammation progresses, the joint changes its shape and moves outwards. There is the presence of a nodule on the middle knuckle. The minor pain may progress to constant ache. Due to thumb weakness, there is a problem in gripping of things. The over-activity of thenar eminence and lack of treatment leads to rigidity of thumb and will restrict its movement completely. Kase et al., claimed that Kinesio Tapping can be used to reduce pain, swelling and muscle spasms, as well as to prevent sport injury. Kinesio Taping can be used to manage muscle strength, and its cutaneous afferent stimulation is said to be correlated with motor unit firing. It is a method that can be easily used to improve proprioception by increasing stimulation of mechanoreceptors of the skin, relieve pain and recover...
muscle functions to a normal level by strengthening the weakened muscle. According to Katie P. Wu, kinesio tape is designed to mimic the qualities of human skin through its specific thickness and high elasticity. Numerous different effects are hypothesized, which include effects on strength, control, and performance of circulation and healing. Kase et al., proposed the following mechanism for the effect of kinesio tape: increasing proprioception, correcting muscle function by strengthening weakened muscles, improving circulation of blood and decreasing pain through neurological suppression. In addition Kinesio Taping is said to be capable of affecting the fascia and lymph fluid flows, and thus it can be applied as the only method of relieving pain and promoting healing. Tieh-Cheng Fu et al., documented the proprioceptive effect of kinesio taping using joint angle replication. This study compares the effectiveness of kinesio tapping and manual trigger release in subjects with thenar eminence pain. It was concluded that there was significant difference (p<0.05) in the groups in terms of pain intensity by comparing the pre and post-test values of the study. Significant improvement prevailed in Group-A than Group-B and Group-C. These data shows that tapping is more beneficial and gives instant relief to finish the daily routine in gym. Regarding gym activities, Thenar eminence pain seems to be slightly more common in those lifting heavy weights than those of light weights. In this study, pain was relieved after Kinesio Tape was applied to Thenar eminence. Application of Kinesio Tape applied to thenar eminence resulting from continued overuse, such as gripping, is thought to have increased stimulation of the mechanoreceptors on the skin to improve proprioception and recover muscle functions to a normal level by strengthening the muscle weakened due to continued overuse, thereby reducing the muscle tension or stress and relieves pain.

CONCLUSION

The present study concludes that treatment of Kinesio Taping had decreased the pain through reduction of muscle tension and strengthening of the weakened muscles of subjects with Thenar eminence pain. It is also concluded that Kinesio Taping is more effective with thenar eminence pain.

AUTHORS CONTRIBUTION STATEMENT

P.Sravanbabu and prof T.N suresh devised the project, designed the model, computational framework and analysed the data and the main conceptual ideas and proof outline. P.Sravanbabu performed the numerical calculations for the suggested experiment and evaluated the results and drafted the manuscript also reviewed the manuscript. All authors discussed the results and commented on the manuscript. T.N.suresh drafted the manuscript and also reviewed the manuscript.

CONFLICT OF INTEREST

Conflict of interest declared none.


