

# EFFECTIVENESS OF KINESIOTAPING ALONG WITH CONVENTIONAL THERAPY FOR PATIENTS WITH TENNIS ELBOW – A COMPARATIVE STUDY

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**Abstract: Background:** Tennis elbow is one of the most frequently occurring musculoskeletal conditions affecting lateral aspect of elbow which results from repetitive stress. Various therapeutic interventions are available for the treatment of tennis elbow. This study was an initiative to prove the effectiveness of kinesiotaping along with conventional therapy for patients with tennis elbow.

**Aim of The Study:** The aim of the study is to compare the effectiveness of kinesiotaping along with conventional physiotherapy for patients with tennis elbow.

**Materials and Methods:** A total of 30 patients were chosen with the age group of 20-60 years with tennis elbow from APCOPT and they are equally assigned into two groups. GROUP-A (n=15) were treated with kinesiotaping along with conventional therapy (Ultrasound, Cryotherapy, Stretching Strengthening and Deep transverse friction massage).GROUP-B: (n=15) were treated with conventional therapy alone, based on inclusion and exclusion criteria. Visual analogue scale (VAS) to evaluate pain and Patient rated tennis elbow evaluation questionnaire (PRTEEQ) to evaluate pain and functional disability were used as outcome measures.

**Result:** This study states that Kinesiotaping along with conventional physiotherapy is more effective than conventional physiotherapy alone for patients with tennis elbow.

**Conclusion:** Based on the statistical analysis this study concluded that Kinesiotaping along with conventional therapy shows clinical and statistical significant improvement than Conventional therapy alone on reducing pain and disability in patients with tennis elbow.

**Keywords:** Kinesiotaping, Ultrasound, Conventional therapy, VAS, PRTEEQ.

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## 1. INTRODUCTION

Lateral epicondylitis, also commonly referred to as tennis elbow, describes an overuse injury that occurs secondary to an eccentric overload of the common extensor tendon at the origin of the extensor carpi radialis brevis (ECRB) tendon. Tennis elbow primarily results from the repetitive strain caused by activities that involve loaded and repeated gripping and/or wrist extension<sup>1</sup>.

Kinesiotape has been evolving as a unique treatment tool for trainers, medical practitioners and physical therapists since its creation by chiropractor Dr kenzo kase in early 1970s. It is a thin porous cotton fabric flexible tape with a medical grade acrylic adhesive. It can be stretched upto 140% of original length. It was developed to aid muscle movement and enhance

athletic performance. The basic functions and effects of k taping are improvement of muscle function, pain reduction, support of joint functions, elimination of circulatory impairments<sup>2</sup>.

Stretching: It is the elongation of the pathologically shortened or tightened soft tissue with the help of some therapeutic techniques. It helps to improve flexibility, range of motion and increase the circulation.<sup>3</sup>

Ultrasound: It refers to mechanical vibrations which are essentially the same as sound waves but of a higher frequency (>20,000Hz). Such waves are beyond the range of human hearing (20 – 20,000Hz) and therefore also be called ultrasonic waves.<sup>4</sup>

Cryotherapy: The application of cold for various therapeutic purposes is called cryotherapy. It is commonly used in the treatment of acute trauma and subacute injuries.<sup>4</sup>

Massage: It consists of small, accurately localized deeply penetrating movements performed in a circular on transverse direction. These deep strokes are usually carried out by the finger tip, through the thumb pad or palm can also be used. It is of two types: Transverse, circular.<sup>5</sup>

It is a unique and very effective program designed to restore normal body movement patterns. It restores nerve signals between muscles and brain for optimal function which will be stored in the memory.<sup>6</sup>

#### **OBJECTIVE OF THE STUDY:**

To evaluate the effects of kinesiotaping along with conventional therapy in reducing pain and improving function on patients with tennis elbow.

To determine the effect of conventional therapy alone in reducing pain and improving function on patients with tennis elbow.

To compare the effect of kinesiotaping along with conventional therapy and conventional therapy alone in reducing pain and improving function on patients with tennis elbow.

## **2. REVIEW OF LITERATURE**

1. Halil Krem Akkurt.,(2025) This study suggest that kinesiotaping effectively reduces pain, improve quality of life and achieves high patient satisfaction levels in patients with tennis elbow.
2. K. Yogarajan et al.,(2024) This study concludes that stretching exercise is more beneficial in reducing pain and improving functional activity in patients with tennis elbow.
3. Dongni Luo MD et al., (2022) This study states that ultrasound therapy is helpful to relieve pain in patients with tennis elbow.
4. M. Raja Srinivas et al., (2022) This study shows that strengthening exercise alone shows more effective in reducing pain in patients with tennis elbow.

#### **STUDY DESIGN:**

This study was designed as an Quasi experimental study conducted in the Physiotherapy Outpatient Department of Adhiparasakthi College of Physiotherapy located in Melmaruvathur. A convenient sampling method was employed to select participants. The data collection was carried out over a period of four weeks with sessions three per week.

#### **INCLUSION CRITERIA:**

Individuals aged between 18 and 30 years, including both males and females, with the VAS scoring 4 to 8 and PRTEEQ Scoring 35 to 80. Pain with gripping (Strong grasp test) and Pain with resisted wrist extension (Cozen test) Positive resisted middle finger extension (Maudsley's test) and Mill's test were positive. Local tenderness present over lateral epicondyle area on palpation.

#### **EXCLUSION CRITERIA:**

Patients with allergic reaction to taping and dermatitis and any conditions like Rheumatoid arthritis, Painful shoulder or rotator cuff tendinitis or Any deformity in the affected side of elbow and wrist and Severe cervical spondylitis, Neurological disorder, Cardiovascular disease.

Before initiating physiotherapy interventions, it is crucial to screen for serious underlying conditions that may contraindicate or modify treatment approaches. Red flag conditions such as cervical radiculopathies, malignancy, recent or past trauma, and active infections must be carefully considered. Additionally, systemic issues such as vertigo, myocardial infarction, or chronic heart diseases may present with overlapping symptoms and should be thoroughly evaluated to ensure patient safety and appropriate referral when needed<sup>8</sup>.

### 3. METHODOLOGY

A total of 30 subjects were chosen from APCOPT and assigned to two groups, namely kinesiotaping along with conventional therapy (n=15) and the conventional therapy alone (n=15), based on inclusion and exclusion criteria. Visual analogue scale (VAS)<sup>8</sup> and Patient rated tennis elbow evaluation questionnaire (PRTEEQ)<sup>6</sup> were used as outcome measures.

#### TREATMENT DURATION:

**Group A:** Ultrasound (8mins) kinesiotaping (10mins) **Group B:** Ultrasound (8 mins)

#### TREATMENT TECHNIQUE:

1. Kinesiotaping along with conventional therapy
2. conventional therapy alone

#### 1. KINESIOTAPING TECHNIQUE:

The patient was seated comfortably on a Chair with back support and elbow flexed and stabilized with pillow in midprone, wrist and fingers pointing the floor and the Therapist stands in front of the patient in stride standing position. Procedure: Cut the kinesiotape about 5 cm, then apply with moderate stretch. Duration of the treatment: 2 Session per week.

#### 2. CONVENTIONAL THERAPY:

##### ULTRASOUND THERAPY

The Patient is asked to sit on the couch and a pillow is placed on his / her lap. Their elbow is placed on the pillow with slightly shoulder abducted and elbow flexed to 90 degree forearm pronated and wrist in neutral position and the therapist in walk stance at the sides of the patient. Then ask the patient to relax the treatment area and coupling medium is applied on the treatment area and the Instruction and warnings are given to the patient like keep the part to be relaxed and report the therapist if pain gets increased or any abnormal sensation felt over the treatment area<sup>3</sup>. Method of application was direct contact method with Pulsed mode and the frequency of 1 MHZ with the intensity of 0.3 – 0.8 W/cm square and the duration of 8 mins and the application of Treatment head is placed on the lateral epicondyle and the output is turned on. After turning on the output, the treatment head is continuously moved in circular manner and manual pressure is given over the lateral epicondyle of the patient with the Duration of the treatment of 3 Sessions per week<sup>7</sup>.

##### CRYOTHERAPY:

The patient was seated comfortably on a Chair with the hands rested on the couch / pillow and therapist in a stride standing position and the Method of application is by using a cold pack method the pack is wrapped by using a towel and placed over the painful region with the duration of 10- 15 mins<sup>7</sup>.

##### STRETCHING;

A static stretch should be repeated several times per treatment session although first stretch repetition results in the greatest increase in muscle tendon unit length. Preparation of patient: Explain about the effects, duration of the treatment to the patient. Method of application: In case of tennis elbow, static stretching should be given to Extensor carpi radialis brevis tendon, which is the site most commonly affected by tennis elbow. The patient was seated comfortably on a Chair with the elbow extended, forearm pronated, wrist flexed and ulnar deviated with the hold time of 35 to 45 seconds and the rest time of 15 to 30 seconds (between each repetition).

##### DEEP TRANSVERSE FRICTION MASSAGE:

It is a series of short, deep strokes performed transversely across the fibres of the target tissue<sup>2</sup>. They are performed to the right angle of long axis of the fibres in the involved (I.e. across the fibres). Therapist explains to the patient about the effects and duration of treatment. The skin must be cleaned and should be dried. Ask the patient to sit in a chair with the

hand supported on the couch, shoulder abducted elbow flexed forearm pronated. And the therapist stands in front of the patient in stride standing Procedure: Therapist places the fingers over the elbow region and moves with skin and subcutaneous tissue on the deeper ones. The finger tips and skin surface must move together on the deeper structures.

#### **STRENGTHENING EXERCISE:**

Ask the patient sit on a chair with forearm supported on a table, grasping a weight or elastic resistance that is secured on the floor. The forearm is pronated to resist extension and the therapist stands in front of the patient in stride standing position. Method of application: Ask the patient to grasp the weight and to lift by doing so wrist extensors gets strengthened<sup>4,5</sup>.

#### **OUTCOME MEASURE:**

In this study, the primary outcome measures included the Visual analogue scale (VAS) and Patient rated tennis elbow evaluation questionnaire (PRTEEQ) to evaluate pain and functional disability. The VAS is a widely accepted, valid, and reliable self-report scale used to assess current pain intensity on an 11-point scale (0 = no pain to 10 = worst imaginable pain) and the PRTEEQ is a 15 item questionnaire designed to measure elbow pain and disability of daily living. The PRTEEQ allows patients to rate their levels of elbow pain and disability from 0 to 10, and consists of two subscales. 1. PAIN subscale (0=no pain, 10 worst ever) Pain - 5 items Pain score=sum of the pain 5 items (out of 50) best score=0, worst score=50 2. FUNCTION subscale (0=no difficulty, 10=unable to do) Specific activities -11 items Usual activities -4 items Function score = sum of the function items, divided by 3(out of 50) Best score=0, worst score=50 Total score= sum of pain + function scores - Best score=0, worst score=100. The total PRTEEQ score rates pain and disability equally. Higher score indicates more pain and functional disability.

### **4. RESULT**

Data analysis was performed using statistical software SPSS v26.0 applying paired sample t-tests to compare pre- and post-intervention outcomes within both groups. In Group A (kinesiotaping along with conventional therapy), the visual analogue scale (VAS) showed a significant reduction in pain levels, with a pre-test mean of 6.9 decreasing to 2.33 post-test ( $t = 18.076$ ,  $p = .000$ ), indicating a statistically significant improvement. Similarly, Patient rated tennis elbow evaluation questionnaire (PRTEEQ) improved markedly from a mean of 70.3 pre-test to 37.93 post test ( $t = 21.006$ ,  $p = .000$ ), showing a substantial decrease in functional disability. In Group B (conventional therapy alone), VAS<sup>8</sup> scores also demonstrated statistically significant reduction from 6.86 to 4.46 ( $t = 10.212$ ,  $p = .000$ ), while PRTEEQ<sup>6</sup> from 69.46 to 48.40 ( $t = 18.616$ ,  $p = .000$ ). Although both interventions produced statistically significant reduction in pain and functional disability. Group A exhibited greater post-test improvements in both VAS<sup>8</sup> and PRTEEQ<sup>6</sup>, suggesting that Kinesiotaping along with conventional physiotherapy is more effective than conventional therapy alone for patients with tennis elbow.

### **5. DISCUSSION**

The objective of this study was to compare the efficacy of kinesiotaping along with conventional therapy for patients in reducing pain and disability in individuals with tennis elbow. The results demonstrated that both interventions led to significant improvements in pain reduction and disability limitation, but kinesiotaping along with conventional therapy showed superior outcomes compared to conventional therapy alone.

In this study, the mean value of pain reduction (measured by VAS) and functional disability (measured by PRTEEQ) in group A was significantly higher than that in group B. This suggests that kinesiotaping along with conventional therapy for patients may be more effective in reducing pain associated with tennis elbow.

### **6. CONCLUSION**

This study suggests that both kinesiotaping along with conventional therapy and conventional therapy alone are effective in reducing pain and disability in patients with tennis elbow. However, kinesiotaping along with conventional therapy showed superior outcomes compared to conventional therapy alone.

The main purpose of this study is to compare the effectiveness of Kinesiotaping along with conventional therapy. It is hypothesized that in patients with lateral epicondylitis there would be significant difference between the effect of Kinesiotaping along with conventional therapy. The result of this study accepted this hypothesis.

#### **LIMITATIONS AND SUGGESTIONS:**

##### **LIMITATIONS:**

This study had a small sample size. Duration of study was short. Use of more reliable scale for assessment.

#### SUGGESTIONS:

Use of big sample size for the research purpose. Use of more reliable scale. Increasing the study duration. Increasing the follow up session

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