

Original Research Article

## COMPARISON OF EFFECT OF KINESIOTAPING (FASCIAL TAPING) WITH MYOFASCIAL RELEASE & CONVENTIONAL TREATMENT IN PATIENTS WITH KNEE OSTEOARTHRITIS HAVING ILIOTIBIAL BAND TIGHTNESS

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### ABSTRACT-

**AIM-**This study aimed to compare the effectiveness of Kinesio taping fascial techniques with myofascial release and conventional treatment in patients diagnosed with knee osteoarthritis (OA) presenting iliotibial (IT) band tightness.

**METHODOLOGY-** A total of 45 participants with knee OA and IT band tightness were randomly assigned to one of three groups: Kinesio taping fascial, myofascial release, or conventional treatment. Outcome measures included pain intensity, functional status, and IT band tightness assessed at baseline, post-treatment, and follow-up visits.

**RESULT-** Revealed that all three interventions led to significant improvements in pain, functional status, and IT band tightness compared to baseline within each group. However, the Kinesio taping fascial group demonstrated superior outcomes in pain reduction and functional improvement compared to the myofascial release and conventional treatment groups. Furthermore, the Kinesio taping fascial group exhibited sustained improvements at follow-up compared to the other groups.

**CONCLUSION:** These findings suggest that Kinesio taping fascial techniques may be more effective than myofascial release and conventional treatment in managing knee OA with associated IT band tightness.

**Keywords:** Knee joint, osteoarthritis, WOMAC, NPRS, Iliotibial band tightness, kinesiotape

### INTRODUCTION-

Knee osteoarthritis is a very heterogeneous disease resulting in a wide range of clinical presentations and varying rates of progression<sup>1</sup>. Sources of pain in knee osteoarthritis could include body mechanics such as knee alignment, body mass index, and muscle strength, which influence the magnitude or manner of knee loading<sup>2</sup>. Abnormal mechanics are thought to facilitate degradation of tissues and therefore triggers pain.<sup>4</sup> Knee osteoarthritis is one of the most prevalent musculoskeletal complaints worldwide.<sup>1</sup> Moderate to severe osteoarthritis affects more than 22 million American adult between the ages of 25 to 74 year and more than 12% of the population falls within this age range<sup>3</sup>. According to the World Health Organization, about 5.5 million people suffer from osteoarthritis in Egypt, representing about 7% of the population<sup>3</sup>. Wide ranges of periarticular lesions occur around the knee joint, including iliotibial band friction syndrome. Knee osteoarthritis is known to have impaired proprioception compared with age match control and histology of ligament from osteoarthritis knee shows marked reduction in the number of mechanoreceptors<sup>5</sup>. In primary osteoarthritis of the knee varus alignment increases the risk of medial osteoarthritis progression and valgus alignment increases the risk of lateral osteoarthritis progression. The direction of external force and limb orientation

during walking results in an adduction moment that acts around the knee and this parameter is regarded as a surrogate measure of medial knee compression<sup>6</sup>. This external knee adduction moment is primarily caused by medially acting ground reaction force which is present during level walking and other locomotion paradigms such as stair negotiation.

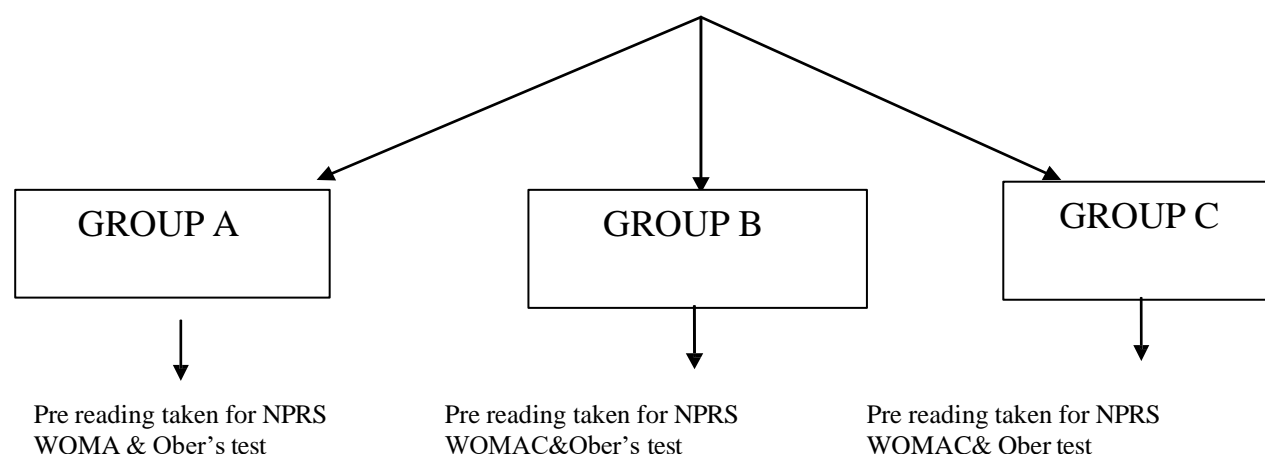
Recommended exercise programs for people with osteoarthritis include strengthening, flexibility, and aerobic fitness. Reduced hip abductor strength has also been shown in people with knee pathology. Muscle strengthening and aerobic exercise are effective in reducing pain and improving physical function in patient with mild to moderate osteoarthritis of the knee. Kenzo Kase in 1996, give the concept of kinesiotape which is a thin, cotton, porous fabric with acrylic adhesive that is non mediated and latex-free. It is proposed that the tapes lift the skin and increase the spaces between the skin and muscle, hence reducing the localized pressure and helping to promote circulation and lymphatic drainage. As a result, it reduces pain, swelling and muscle spasm.<sup>9</sup> Till date there has no study who has find the comparison between Kinesiotaping and MFR as an effective treatment for improving functional status in patient with knee osteoarthritis having iliotibial band tightness. however little attention has ee paid to improving the straight of lower limbs muscle group.

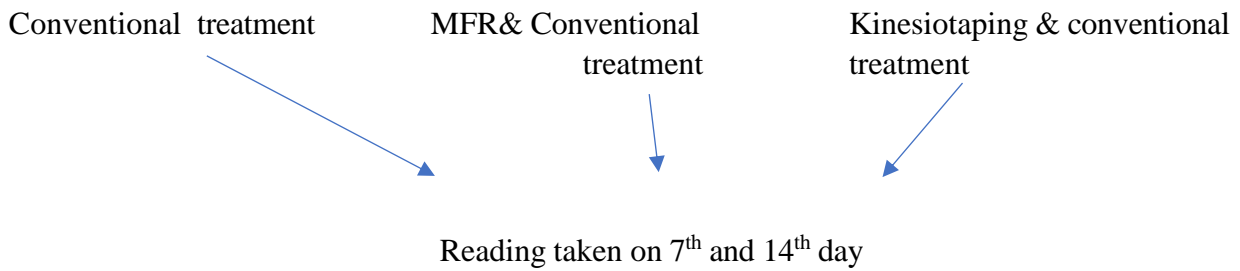
### Methodology-

The present study was an pre and post experimental study with randomized sampling method subjects was selected for the study on the basis of inclusion and exclusion criteria from physiotherapy department, Santosh hospital Ghaziabad and was divided into three groups of 10 each. The inclusion criteria was-1. Positive Ober's test,2.The clinical guidelines of the American College of Rheumatology, the participants should have pain at one or both knees with a daily average of over 40 points on the 0- to-100 numeric rating scale (NPRS) should meet at least 3 of the following 6 conditions: age of 50 to 70 years, stiffness within 30 minutes of waking in the morning, crepitus, 3. WOMAC Score less than 57 and the exclusion criteria was-1.Subject having any deformity of hip and back,2.Any neurological problems,3.Patient with back ache with radiating pain to legs,4.Any history of fracture, trauma to knee joint or muscles,5.Any metallic implant,6. Autoimmune disease (eg. Rheumatoid arthritis, ankylosing spondylitis),7. Tumors of hip, knee or leg region,8.Any spinal deformity,9.Any history of ligament injury.

On the basis of inclusion & exclusion criteria, 45 subjects will be included in the study.

Divided into groups of 15 each





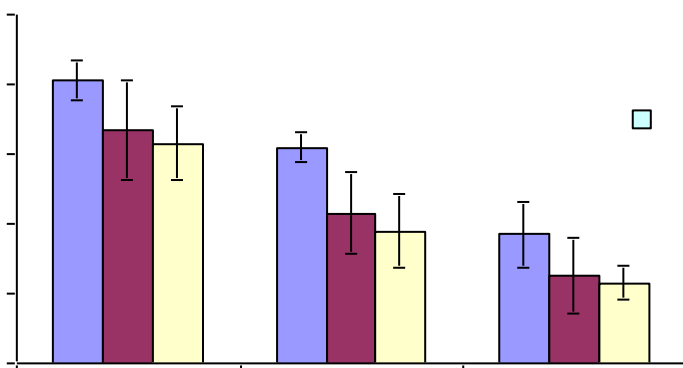
**Fig 1.1** Kinesio-tape application

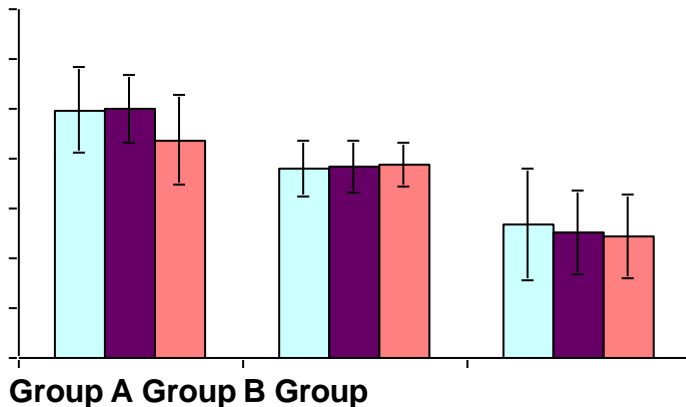
**RESULT-**

The present study compares the effect of Kinesiotaping (fascial taping) with myofascial release (MFR) and conventional treatment in patients with knee osteoarthritis. Total 30 patients either sex were recruited and randomized equally into three groups and treated with conventional treatment (Group A), MFR & conventional (Group B) and Kinesiotaping and conventional (Group C). The outcome measures of the study were NPRS score (cm), WOMAC scale score (%) and Ober’s test score (degree) assessed at pre treatment (0 session) and post treatments (7 session and 14 session).

Group	0 session	7 session	14 session	Net change (%)
Group A	2.12 ± 0.08	1.40 ± 0.10	1.21 ± 0.07	54.3
Group B	2.18 ± 0.03	1.31 ± 0.07	1.14 ± 0.04	62.7
Group C	2.16 ± 0.04	1.26 ± 0.06	1.05 ± 0.07	63.5

NPRS score in all three groups decrease (improve) after the treatments and the decrease was evident similar among the groups. Comparing the effect of groups and sessions on NPRS score, ANOVA revealed significant effect of both groups (F=15.34, p<0.001) and sessions (F=305.08, p<0.001) on NPRS score.





### Discussion

In the current study 30 patients were selected from Physiotherapy department, Santosh hospital with knee osteoarthritis having iliotibial band tightness. On grouping the three group with each group given a specific set of treatment i.e. group A- Conventional, B- conventional mayofascial release C- conventional Kinesiotaping (fascial taping). The result of the study show significant effect of Kinesiotaping (fascial taping) on NPRS whereas no significant difference was found on WOMAC and Ober's Test. The decrease in NPRS due to application of Kinesiotaping can be attributed to the fact it allows a partial to full range of motion for the applied muscles and joints with different pulling forces to the skin. It is proposed that the tapes lift the skin and increase the spaces between the skin and muscle, hence reducing the localized pressure and helping to promote circulation and lymphatic drainage. As a result, it reduces pain, swelling and muscle spasm. Although Kinesiotaping research is limited and the results are inconsistent, several studies have supported the efficacy of this treatment technique for acute injury inflammation, a faster return to activity, proprioception training pain, post-injury neurological function, and muscle imbalances. It appears that the Kinesiotaping application can elevate the subcutaneous space and then increase the blood circulation and lymph fluid drainage to reduce the chemical factors around the MTrP region. Therefore, it is suggested that Kinesiotaping method can be used as a regular treatment or added to the previous treatment for myofascial pain. When Kinesio tape is applied on the skin, the elastic material of the tape pulls and stretches the skin and stimulates the mech- anoreceptors to sense the alteration of message concerning changes in stretch, load, pressure, and shear force. It has been stated by other researchers that skin and fascia might play a role in detecting the feedback of force production . Those deformation messages are passed to the brain, where they are modulated and integrated before being passed down the command line to alter the tension of muscles .

he wrinkles of the skin formed after the application of kinesiotape in combination with the direction of the tape, pulls the insertion of the muscle towards the direction of the contraction and increases the muscle tone.

Kinesiotape was applied to the skin in order to provide tactile stimulation. This tactile stimulation seems to interact with the kinetic control at the central nervous system. Furthermore, fascia plays an important role as force transmitter in human posture and movement regulation. Fascia is usually seen as having a passive role, transmitting mechanical tension which is generated by muscle activity or external forces. However, there is some evidence to suggest that fascia maybe able to actively contract in a smooth muscle-like manner and consequently influence musculoskeletal dynamic

### References

1. Brooks A, Llaca R, Rosenburg D, Smock M. The Effects Of Graston Soft Tissue Therapy On Iliotibial Band Tightness. Logan College Of Chiropractic, Senior Research, 2009;
2. . NB, Bandy WD. Use Of An Inclinator To Measure Flexibility Of The Iliotibial Band Using The Ober Test And The Modified Ober Test: Differences In Magnitude And Reliability Of

- Measurements. *J Orthop Sports Phys Ther.* 2003; 33(6): 326-330.
3. Beers A, Ryan M, Kasubuchi Z, Fraser S, Taunton JE. Effects Of Multi-Modal Physiotherapy, Including Hip Abductor Strengthening, In Patients With Iliotibial Band Friction Syndrome. *Physiother Can.* 2008; 60(2): 180-188.
  4. Karageanes SJ. *Principles Of Manual Sports Medicine.* Philadelphia :Lippincott Williams And Wilkins; 2005: 33-36.
  5. George JW, Tunstall AC, Tepe RE, Skaggs CD. The Effects Of Active Release Technique On Hamstring Flexibility: A Pilot Study. *Journal Of Manipulative And Physiological Therapeutics.* 2006; 29(3): 224-227. McClellan EC, Padua DA, Guskiewicz KM, Prentice WE, Hirth C. Effect Of Myofascial Release And Static Stretching On Active Range Of Motion And Muscle Activity. *J Athl Train.* 2004; 39: 98-105.
  6. Corbin. CB, Noble L. Flexibility: A Major Component Of Physical Fitness. *J Phys Educ Recreat Dance.* 1980; 51:57- 60.
  7. Prentice WE. *Arnheim S Prinicpal Of Athletic Training.* Madison, WI: Mcgraw- Hill; 2003:85-90.3. Brodowicz GR, Welsh R, Wallis J. Comparison Of Stretching With Ice, Stretching With Heat, Or Stretching Alone On
  8. Vicenzino. Lateral Epicondylalgia: A Muscu- Loskeletal Physiotherapy Perspective Masterclass. *Man Ther.* 2003;8(2):66–79.
  9. Coombes BK, Bisset L, Vicenzino B. A New Integrative Model Of Lateral Epicondylalgia. *Br J Sports Med.* 2009;43:252–258.
  10. Sullivan D, Stephen P. Utilization Of Kinesio Taping For Fascia Unloading. *Int J Athl Ther Train.* 2011;16(4),21-27.
  11. Coombes BK, Bisset L, Vicenzino B. A New Integrative Model Of Lateral Epicondylalgia. *Br J Sports Med.* 2009;43:252–258.
  12. L Bisset, A Paungmali, B Vicenzino Et Al. A Systematic Review And Meta- Analysis Of Clinical Trials On Physical Interventions For Lateral Epicondylalgia. *Br J Sports Med.* 2005; 39:411–422.
  13. J. Of The Rolf Institute, 32(4), 4-10. KTAI. (2011). *Fundamental Concepts Of The Kinesio Taping Method.* Kinesio Taping Association International. KTAI. (2011). *Advanced Concepts And Corrective Techniques Of The Kinesio Taping Method.* Kinesio Taping Association International. Schleip, R. (2003). *Fascial Plasticity - A New Neurobiological Explanation.* *J. Of Bodywork And Movement Therapy,* 7, 104-116.
  15. Bucher, B.M., 1993. Myofascial Manipulative Release Of Carpal Tunnel Syndrome: Documentation With Magnetic Resonance Imaging. *Journal Of The American Osteopathic Association* 93 (12), 1273e1278.
  16. Bucher, B.M., 1994. Myofascial Release Of Carpal Tunnel Syndrome. *Journal Of The American Osteopathic Association* 93 (1), 92e94. 100e101. 19, Cantu, R., Grodin, A., 1992. *Myofascial Manipulation Theory And Clinical Application.* Aspen Publishers, Gaithersburg, MD.
  20. Hanten, W.P., 1994. The Effects Of Myofascial Release Leg Pull And Sagittal Plane Isometric Contract Relax Techniques On Passive Straight Leg Raise Angle. *Journal Of Orthopedic And Sports Physical Therapy* 20 (3), 138e144.
  21. Tanvi A, Amrita R, Deepak R, Kopal P. Comparison of effect of hip joint mobilization and hip strengthening exercises with knee osteoarthritis. *Scientific Research J India.* 2014;15:1-3.
  22. Deepak R , Vishal to compare the effectiveness between pre exercise taping and post taping in improving pain and functional outcomes in knee OA *Scientific research journal of india* 2014