

ORIGINAL ARTICLE

EFFECTIVENESS OF TAPING ON DYNAMIC POSTURAL STABILITY IN ATHLETES WITH CHRONIC LATERAL ANKLE SPRAIN: A RANDOMIZED CLINICAL TRIAL

Atif Dustgir¹, Farooq Islam², Muhammad Kashif³, Shiza Zaidi³, Anam Ashraf³, Akhtar Rasul⁴

ABSTRACT

Introduction: The lateral ankle sprain (LAS) is a common injury sustained by athletes. The majority of individuals who undergo LAS develop chronic ankle instability (CAI) as a result of long-term symptoms. The ankle joint can be protected and strengthened with ankle taping to prevent further musculoskeletal issues. This study aimed to investigate effectiveness of taping on dynamic stability in athletes with chronic lateral ankle sprain.

Material & Methods: Sixty-four participants 64 participants into two groups based on a computer-generated random method. Fibular repositioning taping (FRT) was applied in group A, whereas Kinesio Tape (KT) was applied in group B. Pre-tape assessment used as baseline measurement and taken immediately before tape application. Post taping assessment done after 1 hour & 24 hours while tape still in place. Star Excursion Balance Test (SEBT), Cumberland Ankle Instability Tool (CAIT) and Foot & Ankle disability Index (FADI) were used to evaluate dynamic stability and functional instability respectively. In each direction 3 practice trials were performed by each participant before taking test measurement.

Results: No improvements in postural control were noted with fibular re-positional tape with either rigid or elastic application. Both non elastic and KT tape improved perceived stability but rigid tape served better than KT.

Conclusion: This study concluded that both fibular re-positional tape with rigid and Kinesio application did not immediately improve postural control in CAI participants. However fibular re-positional rigid tape improves perceived stability more than Kinesio tape over 24 hours.

Key Words: Dynamic stability, Functional instability, Lateral ankle strain, Postural control, Tapping

Authors' Declaration: The authors declared no conflict of interest and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors contributed substantially to the planning of research, question designing, data collection, data analysis and write-up of the article.

Authors' Affiliation

¹Associate Professor, Multan Medical and Dental College, Multan, Pakistan

² Assistant Professor, University of Chenab, Gujrat, Pakistan

³ Professor, Riphah International University, Islamabad, Pakistan

³ Lecturer, Riphah International University, Islamabad, Pakistan

³ Postgraduate student, Riphah International University, Islamabad, Pakistan

⁴ Assistant Professor, University of Sargodha, Sargodha, Pakistan

Corresponding Author

Muhammad Kashif

Professor, Riphah International University, Islamabad, Pakistan

Email: kashif.shaffi@gmail.com

This article may be cited as: Dustgir A, Islam F, Kashif M, Zaidi S, Ashraf A, Rasul A. Effectiveness of taping on dynamic postural stability in athletes with chronic lateral ankle sprain: a randomized clinical trial. *Rehman J Health Sci.* 2023;5(2). 192-199

Submitted: Aug 27, 2023 Revisions Submitted: Nov 17, 2023 Accepted: Dec 29, 2023

INTRODUCTION

The incidence of Lateral ankle sprains is high prevalent in athletes. The clinical presentation of ankle sprain can be acute or chronic though most common cause of acute diagnosis is ligamentous injury. Chronic presentation is

often associated with previous injury or sprain or overuse syndromes. Instinctively, ankle sprains mostly occur in sports which require activities with high frequency of jumping and running. Ankle ligament injuries constitute 4 to

20 percent of musculoskeletal problems that can incur in an individual sport. In running and jumping sports the prevalence ranges 10 to 28 percent.¹

Most acute ankle injuries occur in adolescent to adult, although injuries in the youngest and older age groups are likely to be more severe. The incidence rate of lateral ankle sprains among men and women is approximately the same; however, few studies showed young female athletes (Basketball, Runners) have about 25% more risk of suffering ankle sprains (grade I) than males athletes of same age group(1). An ankle sprain with history of at least one incidence is most common predisposing factor for developing recurrent injuries. Recurrent Injury rates have been reported to 70% in basketball players.² More than 40% of acute sprains can advance into chronic presentations. The prevalence of ankle instability after lateral ankle sprain is about 20% among young athletes (teen age group)³ while up to 75% in young dancers.⁴

Chronic lateral ankle sprain manifests by persistent complaints with pain, tenderness on palpation, and mild to moderate bruising over the lateral ligaments. About 30 percent patients may be symptom free between the recurrent events. Others patient group may present with chronic history of lateral ankle pain with tenderness on palpation followed by localized swelling and immense difficulties during sports performance and daily activities.⁵ While making diagnosis of recurrent ankle sprain history of sense of insecurity and instability with giving way is much more significant.⁶ After recurrent lateral ankle sprain common outcome is instability named as Chronic Ankle Instability (CAI). It is calculated that about 40%, ankle sprains progress into this longstanding ankle dysfunctional condition. Clinically it manifest as subjective complaint of giving way with feeling of instability and is considered as recurrent ankle sprains, residual sensorimotor deficits and repetitive sensations of instability.⁷

Fibular reposition taping (FRT) has been proposed in the literature as a way to correct fibular positioning faults and increase postural control in CAI patients. Mechanical realignment of the fibula is the underpinning mechanism, which aids in the restoration of pre-injury arthro-kinematics. As a result, FRT may become a valuable tool for clinicians in the care of CAI patients, resulting in less symptoms

and better results during physical activity.⁸ Recently, Injury prevention has become a significant hub of practice in rehabilitation, particularly the ankle joint. One evidence based method to control the frequency of ankle joint injury is to use external supports in the form of non-elastic tape or brace to the ankle.^{9,10} External supports (e.g. taping and bracing) along with balance training reduce the risk of recurrent injuries.¹¹ Although primarily external support is used to stabilize ankle joint, it is hypothesized that recurrent sprains can be prevented as well because of enhanced proprioception.¹²⁻¹⁴

There is empirical evidence on impacts of tape application in decreasing the occurrence of ankle injuries and its associated risk of instability. Since previous literature has explored the effects of FRT and Kinesio Tape (KT) mechanical application on postural control in subjects with chronic lateral ankle sprain.

When compared to traditional tape techniques, Kinesio-Tape uses an elastic tape instead of a non-elastic tape. In contrast to non-elastic tape, kinesio-tape mimics the elasticity properties of the skin rather than supporting musculoskeletal structures. As described by McConnell, non-elastic tape is used these days in a variety of applications. Skin is stretched 30-40% lengthwise with Kinesio-Tape. Wearing it for 3-4 days is possible because it is water-resistant. There is preliminary evidence that Kinesio-Tape may be beneficial for treating cervical, shoulder, and trunk dysfunctions.¹⁵ To the best of the authors' knowledge no randomized controlled trials have investigated the effect fibular repositioning using non elastic rigid and elastic kinesio-tapping as a more superior therapeutic intervention in patients with CAI. Thus, this study investigated the effect of tapping on dynamic postural stability in athletes with chronic lateral ankle sprains. It was hypothesized that fibular head repositioning with rigid tape would be more significant than kinesio-tape on dynamic postural stability in athletes with chronic lateral ankle sprain.

MATERIAL AND METHODS

This single blinded (assessor was kept blind) randomized clinical trial was conducted at Sports & Spine Professionals & PT CARE (Physical Therapy Centre for Arthritis & Rehabilitation Excellence). Sample size was computed using data previously published by

Hale et al¹⁶ who showed large effect sizes (0.75) for reach differences in an uninjured group and a Chronic Ankle Instability group. Using an alpha of .05 and a power of 0.8 we computed a sample size of 29 subjects in each group. Thus, a total of 58 subjects were required in this study. Considering 10% attrition rate total 64 subjects were recruited. Consecutive Sampling was used to include subjects in the study while random allocation was done to assign treatment group.

Study participants: All participants met the operational definition of CAI as per recommendation of International Ankle Consortium¹⁷ Participants with Chronic history of recurrent lateral ankle sprain (2 or more incidence to same joint in past 6 months or more), Subjective perception of ankle instability during running or sport participation, Episodic subjective complaint of ankle joint giving way during running or walking and Cumberland Ankle Instability Tool (CAIT) score of 24 or lower were included in the study. Participants with Clinical Signs of Acute injury/inflammation at the ankle joint and Eversion ankle sprain were excluded from study. Recording was taken into account by assessor a third person who was blinded in the study.

Patient assessment: Potentially interested subjects were interviewed about history of their ankle joint injury and to complete the CAIT for both ankle joints was the requisite along with meeting other inclusion criteria. The evaluation of all participants to include in study was done by principal investigator who has 14 years of clinical experience working as physiotherapist. Recording was taken into account by assessor a third person who was blinded in the study.

Interventions: Two treatment groups were formed and fibular repositional with rigid tape was done in Group A while fibular repositional with Kinesio tape was applied in Group B. Skin was shaved and properly clean before each application in both groups to ensure proper tape adhesion.

Experimental Group A: Fibular repositioning taping was applied in Experimental group. While applying this taping, patient was supine on the plinth with the ankle in neutral position. The aim of taping was to glide the fibula in posteriosuperior direction. The tape application started anteriolaterally over the distal end of the fibula and lies obliquely. After that tape was directed in posteriosuperior direction, making

sure it is over the Achilles and ends anteriomedially on the tibia. Smooth pull was ensured throughout the strap application.

Active Group B: Kinesio tape application was done for subjects in "Group B". While applying this taping, patient was supine on the plinth with the ankle in neutral position. The aim of taping was to glide the fibula in posteriosuperior direction. The tape application started anteriolaterally over the distal end of the fibula and lies obliquely. After that tape was directed in posteriosuperior direction, making sure it is over the Achilles and ends anteriomedially on the tibia. The tape anchors affixed without tension while 75% pull was applied in therapeutic zone of tape.

Baseline Treatment: Mobilization with movement (MWM) technique indicated following lateral ankle sprain involving tibiofibular Joint. 3 sets of 10 repetitions each were performed.¹⁸ Subject recruitment was undertaken from patient population at Sports & Spine Professionals & PT CARE (Physical Therapy Centre for Arthritis & Rehabilitation Excellence). Information leaflets about study were displayed at notice board in the different university & school level sports center. Different sports club and organizations (National Cricket Academy, Punjab Sports Board, Pakistan Rugby Union, and Dar Hockey Academy) were also contacted through their physical therapists for screening of potential candidates. All volunteer participants agreed to be part of study undergone screening done by principal investigator to meet all study criteria. Only those participants who met criteria were included to be part of study. Detailed information (Verbal and written) regarding the study procedure was provided to the patients. After signing consent, patients were allocated into 02 groups using computer generated random number table. Pre tape assessment used as baseline measurement and taken immediately before tape application. Post taping assessment done after 1 hour & 24 hours while tape still in place. Star Excursion Balance Test (SEBT) and Foot & Ankle disability Index (FADI) were used to evaluate dynamic stability and functional instability. Reach distances in the three directions on SEBT (anterior, posteromedial, and posteriolateral) were the main measurements. In each direction, 3 practice trials were performed by each participant before taking test measurement.

Statistical Analysis: The data was managed and analyzed using SPSS software version 21. The summary of group measurements measured over time was shown thorough frequency tables, pie charts, and bar charts using descriptive statistics. A non-parametric Mann Whitney U test was used after a normality test based on the Shapiro-Wilk test. The Wilcoxon test was used to calculate the difference between groups over time. Normality test based on Shapiro-Wilk test was applied on a variables SEBT anterior, SEBT post. Lateral, SEBT post medial and FADI. Data is considered non-parametric if $p < 0.05$. Man, Whitney u and Wilcoxon test are applied for variable evaluation before and after the treatment, between 2 group and within the group.

RESULTS

In group A (RT), the mean age was 24.74 ± 3.64 , while in group B, it was $.78 \pm 3.16$. In group A (RT) there were total 32 participant, 8 from cricket, 5 from hockey, 4 from basketball, 4 from rugby, 6 from kabaddi and 2 were from others. In group B (KT) of participant were also 32, 7 from cricket, 6 from hockey, foot, and rugby, 2 from basketball and 1 from other. In group A (rigid tape) 29 were males and 3 were females while in group B (Kinesio tape) 30 were males and 2 were females. **(Table 1)**

Mann Whitney U test SEBT Anterior Reach Distance shows that pretreatment means of group A 74.83 and group B was 75.89 with $p\text{-value} > 0.05$, after 1 hour mean in group A was 80.01 and group B it was 78.56 with $p\text{-value} > 0.05$, after 24 hours in group A it was 93.68 and in group B it was 84.00 and $p\text{-value} < 0.05$. $p\text{-value} < 0.05$ shows that both techniques were effective, but RT show more significant result as compared to KT. Man, Whitney U test of SEBT Posterolateral Reach Distance shows that pretreatment means of group A 86.25 and group B was 85.59 with $p\text{-value} > 0.05$, after 1 hour mean in group A was 96.33 and group B it was 90.67 with $p\text{-value} < 0.05$, after 24 hours in group A it was 107.35 and in group B it was 96.31 and $p\text{-value} < 0.05$. $p\text{-value} < 0.05$ shows that RT show more significant result as compared to KT. Thus, alternative hypothesis was accepted. Mann Whitney U test of SEBT Posterolateral Reach Distance shows that pretreatment means of group A 83.15 and group B was 84.56 with $p\text{-value} > 0.05$, after 1 hour mean in group A was 90.11 and group B it was 88.32 with $p\text{-value} > 0.05$, after 24 hours in

group A it was 99.46 and in group B it was 92.49 and $p\text{-value} < 0.05$. $p\text{-value} < 0.05$ shows that both techniques were effective, but RT show more significant result as compared to KT. So, our alternative hypothesis is accepted, and null is rejected. **(Table 2)**

Mann Whitney U test of Man Whitney u test FADI shows that pretreatment means of group A 64.11 and group B was 65.32 with $p\text{-value} > 0.05$, after 1 hour mean in group A was 66.3 and group B it was 68.05 with $p\text{-value} > 0.05$, after 24 hours in group A it was 93.68 and in group B it was 84.00 and $p\text{-value} < 0.05$. $P\text{-value} < 0.05$ shows that RT show more significant result as compared to KT. **(Table 3)**

Wilcoxon Sign test applied in group A shows that pretreatment means of SEBT ant was 73.81, after 1 hour it was 80.01 and after 24 hour it was 93.68. In SEBT post Medial pretreatment it was 86.25, after 1 hour it was 96.33 and after 24 hour it was 107.35. In SEBT post Lateral pretreatment it was 83.15, after 1 hour it was 90.11 and after 24 hour it was 99.46. In FADI pretreatment it was 64.11, after 1 hour it was 66.3 and after 24 hour it was 93.68. $P\text{-value} < 0.001$ shows that RT show RT is effective for stability and dynamic postural control. Wilcoxon Sign test shows applied in group B that pretreatment means of SEBT ant was 75.89, after 1 hour it was 78.56 and after 24 hours it was 84.00. In SEBT post Medial pretreatment it was 84.56, after 1 hour it was 88.32 and after 24 hours it was 92.49. In SEBT post Lateral pretreatment it was 85.29, after 1 hours it was 90.69 and after 24 hours it was 96.31. In FADI pretreatment it was 65.32, after 1 hours it was 68.05 and after 24 hours it was 84.00. $P\text{-value} < 0.001$ shows that RT is effective for stability and dynamic postural control. **(Figure 2)**

DISCUSSION

The application of taping is often combined with exercises to improve strength, flexibility, and proprioception. Taping combined with targeted exercises may result in better dynamic postural stability than taping alone. Following a lateral ankle sprain, the occurrence of Chronic ankle instability (CAI) is normal. Anyone actively participating in sports especially those involving running can be the victim of acute lateral ankle sprain. Lack of proper rehabilitation strategy can lead to Chronic presentation.¹⁹ The aim of this study was to determine if repositioning the fibula with

Kinesio Tape improves balance performance in patients with chronic ankle instability.

A study reported that the FRT group had significantly greater reach distance in the posteriolateral direction for mSEBT than the control group ($p = 0.03$). In people with Chronic ankle instability, applying FRT for two weeks had no effect on static or dynamic balance tests. In the single-leg stance test, none of the three groups (control, sham taping, and FRT) improved, and no differences were observed between groups in the anterior and posteromedial directions of the mSEBT.²⁰

A study compared effects of athletic taping and Kinesio taping on postural control in healthy population under two conditions (1) immediately after application (2) after 20-minute period of running. 6 females and 9 males with age 19.8 ± 2.67 years attended two sessions within seven days interval. Measurements of body sway were taken in all assessments. The results showed no significant main effect in both conditions either before ($F(2, 28) = 1.47, p > 0.05$) or after running ($F(1, 14) \leq 2.07, p > 0.05$) for center of pressure (COP) area, distance, and velocity. The study concluded that Athletic taping and Kinesio taping do not seem to improve postural control of healthy young individuals immediately after being applied.²¹

Our study was supported by above literature. SEBT anterior results shows that pretreatment means of group A 74.83 and group B was 75.89, after 1 hour mean in group A was 80.01 and group B it was 78.56, after 24 hours in group A it was 93.68 and in group B it was 84.00. SEBT post. Lateral result shows that pretreatment means of group A 86.25 and group B was 85.59, after 1 hour mean in group A was 96.33 and group B it was 90.67, after 24 hours in group A it was 107.35 and in group B it was 96.31. SEBT post. Medial result shows that pretreatment means of group A 83.15 and group B was 84.56, after 1 hour mean in group A was 90.11 and group B it was 88.32, after 24 hours in group A it was 99.46 and in group B it was 92.49. FADI results shows that pretreatment means of group A 64.11 and group B was 65.32, after 1 hour mean in group A was 66.3 and group B it was 68.05, after 24 hours in group A it was 93.68 and in group B it was 84.00. P-value < 0.05 shows that RT with FRT show more significant result statistical and clinically as compared to KT with FRT.

Another research backs up our findings. The aim of this single blinded randomized crossover study was to see how fibular taping affected ankle dorsiflexion range of motion (ROM) and dynamic balance. Twenty-three individuals with Chronic ankle instability (CAI) (age = 23.4 ± 2.5 years, height = 171.6 ± 12.4 cm, mass = 71.5 ± 13.1 kg) Participants in the study were randomly assigned to either a fibular taping or a placebo taping intervention. The SEBT (Star Excursion Balance Test) was used. When comparing the taping strategies, there was no substantial difference in ankle dorsiflexion ROM.²²

Tapping mediates its effect thorough mechanical, neuromuscular facilitation. The effectiveness of tapping also attributed to increased level of confidence and stability that individual experiences while performing dynamic balance activities after applying ankle taping. Taping control lower limb loading behavior and work as psychological reminder.²³ In the recent study, star excursion balance test (SEBT) and chronic ankle instability test (CAIT) had been used in athletes from various sports. Such sports were cricket, football, rugby, hockey and kabaddi. The participants were professional or elite players. The mechanism underlying the increase perceived stability is still questionable the most reasonable explanation is because of a lack in proprioceptive sense neuromuscular control is lost which is primary contributing factor of FAI. Taping promotes the position sense thorough an increase in the afferent sensory feedback from skin receptors, which would explain the gains observed in outcomes. Further it is important to note that while performing SEBT increase postural control in posteriolateral direction can be attributed to close chain supination mechanism of foot rather than tape alone. It would be more appropriate to say that tape assists close chain supination mechanism of foot in stabilizing and enhancing postural control in particularly postro-lateral direction while performing on Star excursion balance test.

The study's drawbacks include the small number of female athletes, which prohibits generalization of the findings. Furthermore, the current study's findings are focused on a professional sporting population, and more research is required to see whether similar effects can be seen in non-professional athletes or the general population. According to the

findings of the current study, FRT may not be an appropriate management strategy for athletes suffering from deficits as a result of CAI in events that require consistency and balance. Still, compared to conventional taping procedures, FRT can give the benefit of fast and easy self-application and the use of substantially less tape. Further research in population with flat footed health individuals is needed to see impact of fibular re-positional tape on enhanced supination and stability of foot. The underlying mechanism of the enhanced perception of stability and benefits of applying various tape applications for extended periods of time would require more study. The use of ankle taping is often determined by the individual needs and preferences of the patient. It is also necessary to consider the practicality of using taping in sports settings as well as the athlete's compliance with taping protocols.

CONCLUSION

No immediate improvements in postural control were noted in either taping condition. Both FRT with rigid and Kinesio tape improved perceived stability after 24 hours. In conclusion, both fibular repositioned tape conditions with rigid and Kinesio application did not immediately improve postural control in CAI participants. However fibular re-positional rigid tape improves perceived stability more than Kinesio tape over 24 hours.

REFERENCES

- Hosea TM, Carey CC, Harrer MF. The gender issue: epidemiology of ankle injuries in athletes who participate in basketball. *Clinical Orthopaedics and Related Research*. 2000;372:45-9.
- McKay GD, Goldie P, Payne WR, Oakes B. Ankle injuries in basketball: injury rate and risk factors. *British journal of sports medicine*. 2001;35(2):103-8.
- De Ridder R, Willems T, Vanrenterghem J, Roosen P. Effect of tape on dynamic postural stability in subjects with chronic ankle instability. *Int J Sports Med*. 2015;36(04):321-6.
- Simon J, Hall E, Docherty C. Prevalence of chronic ankle instability and associated symptoms in university dance majors: an exploratory study. *Journal of Dance Medicine & Science*. 2014;18(4):178-84.
- De Vries J, Kingma I, Blankevoort L, Van Dijk C. Difference in balance measures between patients with chronic ankle instability and patients after an acute ankle inversion

trauma. *Knee Surgery, Sports Traumatology, Arthroscopy*. 2010;18(5):601-6.

- Verhagen E, Bay K. Optimising ankle sprain prevention: a critical review and practical appraisal of the literature. *British journal of sports medicine*. 2010;44(15):1082-8.
- Gribble PA, Bleakley CM, Caulfield BM, Docherty CL, Fouchet F, Fong DT-P, et al. 2016 consensus statement of the International Ankle Consortium: prevalence, impact and long-term consequences of lateral ankle sprains. *Br J Sports Med*. 2016;bjssports-2016-096188.
- Jackson BC, Medina RT, Clines SH, Cavallario JM, Hoch MC. The Effect of Fibular Reposition Taping on Postural Control in Individuals With Chronic Ankle Instability: A Critically Appraised Topic. *Journal of sport rehabilitation*. 2019;28(2):205-10.
- Trégouët P, Merland F, Horodyski M. A comparison of the effects of ankle taping styles on biomechanics during ankle inversion. *Annals of physical and rehabilitation medicine*. 2013;56(2):113-22.
- Janssen KW, van Mechelen W, Verhagen EA. Bracing superior to neuromuscular training for the prevention of self-reported recurrent ankle sprains: a three-arm randomised controlled trial. *British journal of sports medicine*. 2014;48(16):1235-9.
- McGuine TA, Keene JS. The effect of a balance training program on the risk of ankle sprains in high school athletes. *The American journal of sports medicine*. 2006;34(7):1103-11.
- Refshauge KM, Kilbreath SL, Raymond J. The effect of recurrent ankle inversion sprain and taping on proprioception at the ankle. *Medicine and science in sports and exercise*. 2000;32(1):10-5.
- Wilkerson GB. Biomechanical and neuromuscular effects of ankle taping and bracing. *Journal of Athletic training*. 2002;37(4):436.
- Richie DH. Functional instability of the ankle and the role of neuromuscular control: a comprehensive review. *The journal of foot and ankle surgery*. 2001;40(4):240-51.
- Rehman N, Kashif M, Sajjad A, Hassan HMJ, Iram H. Immediate Effects of Kinesio Taping on pain in Athletes with Patellofemoral Pain Syndrome. *Phys Med Rehabil Kurortmed*. 2020;30(06):344-9.
- Hale SA, Hertel J, Olmsted-Kramer LC. The effect of a 4-week comprehensive

rehabilitation program on postural control and lower extremity function in individuals with chronic ankle instability. Journal of Orthopaedic & Sports Physical Therapy. 2007;37(6):303-11.

17. Gribble PA, Delahunt E, Bleakley C, Caulfield B, Docherty C, Fourchet F, et al. Selection criteria for patients with chronic ankle instability in controlled research: a position statement of the International Ankle Consortium. JOSP, Inc. JOSP, 1033 North Fairfax Street, Suite 304, Alexandria, VA 22134-1540; 2013.

18. Hing W, Hall T, Rivett DA, Vicenzino B, Mulligan B. The Mulligan Concept of Manual Therapy-eBook: Textbook of Techniques: Elsevier Health Sciences; 2015.

19. Herzog MM, Kerr ZY, Marshall SW, Wikstrom EA. Epidemiology of ankle sprains and chronic ankle instability. Journal of athletic training. 2019;54(6):603-10.

20. Hadadi M, Haghghat F, Sobhani S. Can fibular reposition taping improve balance

performance in individuals with chronic ankle instability? A randomized controlled trial. Musculoskeletal Science and Practice. 2020;46:102128.

21. Silva AG, Cruz A, Ganesan M. A comparison of the effects of white athletic tape and kinesiotape on postural control in healthy individuals. International Journal of Therapy And Rehabilitation. 2015;22(4):160-5.

22. Wheeler TJ, Basnett CR, Hanish MJ, Miriovsky DJ, Danielson EL, Barr J, et al. Fibular taping does not influence ankle dorsiflexion range of motion or balance measures in individuals with chronic ankle instability. Journal of science and medicine in sport. 2013;16(6):488-92.

23. Simon J, Garcia W, Docherty CL. The effect of kinesio tape on force sense in people with functional ankle instability. Clinical Journal of Sport Medicine. 2014;24(4):289-94.

Table 1: Demographic information of the participants

| Variables | Rigid Tape (RT) group | KT Tape (KT) group |
|------------|-----------------------|--------------------|
| Mean age | 24.74 ± 3.64 | 23.78 ± 3.16 |
| Gender | | |
| Male | 29 (90.6) | 30 (93.8) |
| Female | 3 (9.4) | 2 (6.3) |
| Sports | | |
| Cricket | 8 (25.0) | 7 (21.9) |
| Hockey | 5 (15.6) | 6 (18.8) |
| Football | 4 (12.5) | 6 (18.8) |
| Basketball | 3 (9.4) | 2 (6.3) |
| Rugby | 4 (12.5) | 6 (18.8) |
| Kabadi | 6 (18.8) | 4 (12.5) |
| Others | 2 (6.3) | 1 (3.1) |
| Total | 32 (100) | 32 (100) |

Table 2: Between group comparison (Star Excursion Balance Test Anterior, Posterolateral and Post. Medial Reach Distance)

| SEBT Anterior Reach Distance | | | | |
|------------------------------------|---------------|-------------------|-----------------|---------|
| Variable | RT Mean ± SD | KT Tape Mean ± SD | Mean Difference | P value |
| Pre-Treatment | 74.83 ± 9.56 | 75.89 ± 10.11 | 1.06 | >0.05 |
| After 1 hr. | 80.01 ± 7.56 | 78.56 ± 7.63 | 1.45 | > 0.05 |
| Post treatment after 24 hrs. | 93.68 ± 11.11 | 84.00 ± 12.25 | 9.68 | <0.05 |
| SEBT Posterolateral Reach Distance | | | | |
| Pre-Treatment | 86.25 ± 8.25 | 85.29 ± 5.23 | 0.96 | > 0.05 |
| After 1 hr. | 96.33 ± 11.58 | 90.67 ± 10.23 | 5.66 | < 0.05 |
| Post treatment after 24 hrs. | 107.35 ± 9.96 | 96.31 ± 8.89 | 11.04 | < 0.05 |
| SEBT Post. Medial Reach Distance | | | | |
| Pre-Treatment | 83.15 ± 11.79 | 84.56 ± 10.56 | 1.41 | > 0.05 |
| After 1 hr. | 90.11 ± 8.62 | 88.32 ± 7.10 | 1.79 | > 0.05 |
| Post treatment after 24 hrs. | 99.46 ± 8.56 | 92.49 ± 8.90 | 6.97 | < 0.05 |

RT: rigid taping; KT: Kinesio-tapping

Table 3: Between group comparison Foot Ankle Disability Index

| Variable | Rigid Tape (Mean ± SD) | KT Tape (Mean ± SD) | Mean Difference | P value |
|------------------------------|---------------------------|------------------------|-----------------|---------|
| Pre-Treatment | 64.11 ± 5.69 | 65.32 ± 5.89 | 1.21 | > 0.05 |
| After 1 hr. | 66.30 ± 6.00 | 68.05 ± 7.01 | 1.75 | > 0.05 |
| Post-Treatment after 24 hrs. | 93.68 ± 11.11 | 84.00 ± 12.25 | 9.68 | <0.05 |

RT: rigid taping; KT: Kinesio-tapping

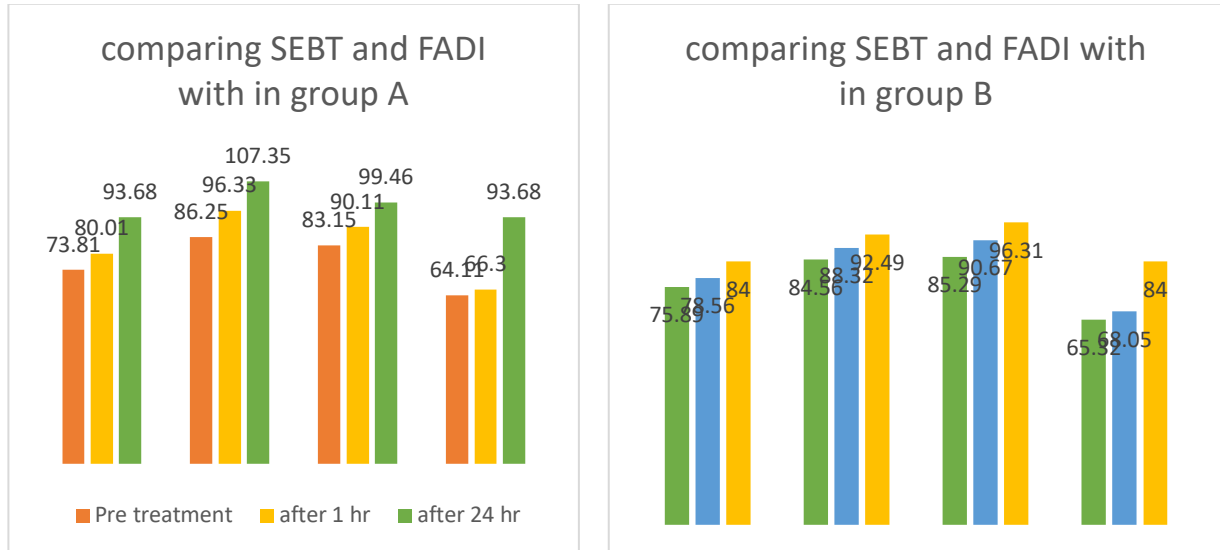


Figure 1: Within group comparison of outcome measure SEBT and FADI

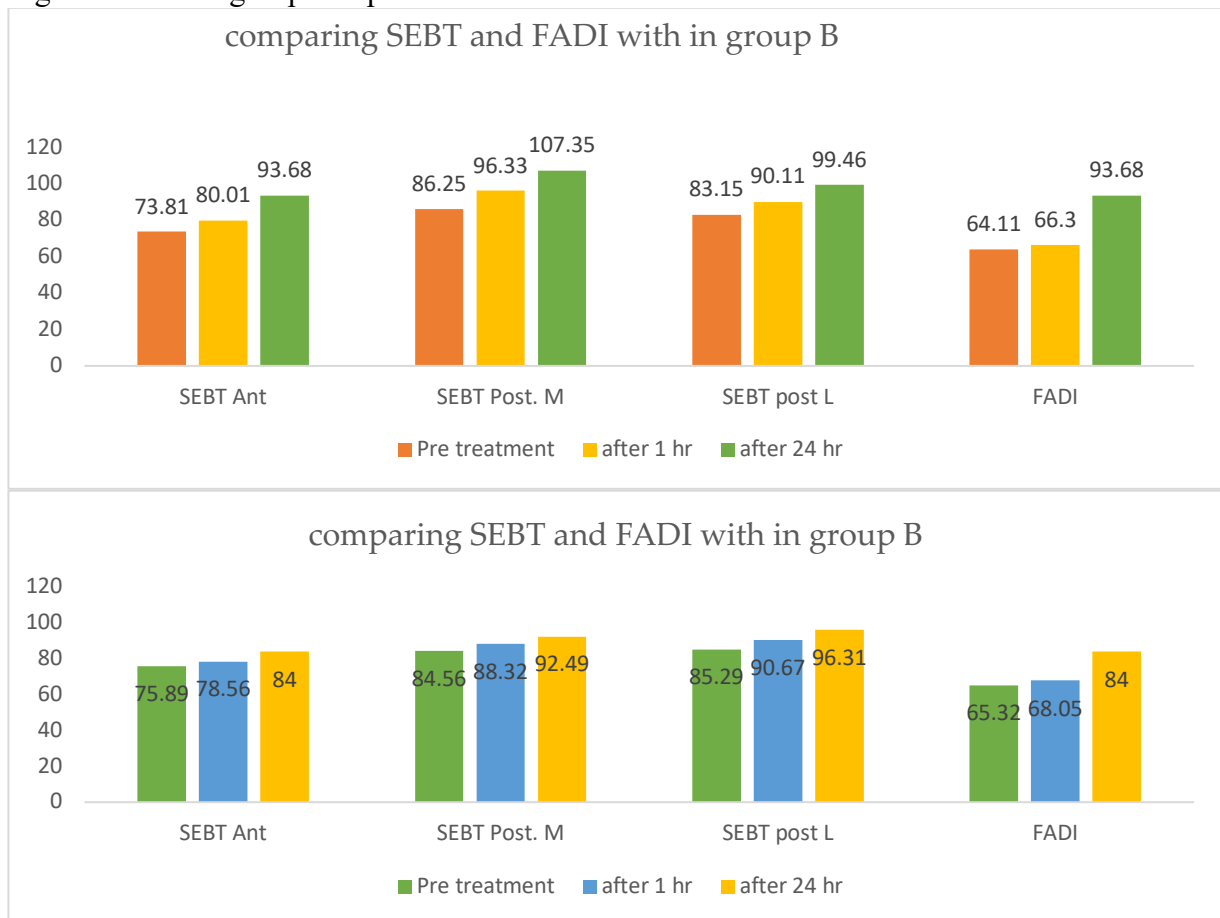


Figure 2: Within group Comparison of SEBT and FADI with in group A & B