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The Effect of Kinesio Taping in the Ankle Sprains of Athletes

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ABSTRACT

Objectives. The purpose of this study was the importance of applying Kinesio tape (KT) in relieving the pain in athletes' ankles using Y balance test and star.

Methods. 22 male athletes with average age of 22.33 ± 1.37 were discussed with and without Kinesio tape. At first athletes didn't use kinesiology tape on their deltoid ligament and did the (Y) balance test in 3 directions, then star twirling test (SEBT) in 8 directions that focused on the center of one plexus. These tests were repeated 3 times and all the stages of them were recovered after 24 hours and then the tests done on a pad and on a solid surface.

Results. Athletes in both tests on a soft pad experienced a high pressure on their muscles according to the position of their leg in plantar and dorsiflexion state; and they couldn't finish the test.

Conclusion. The test showed that the Kinesio tape on a soft surface (pad) did have any positive effects on the muscles.

KEY WORDS: *Ankle Instability, Deltoid Ligament, Kinesio Tape, Y Balance Test, Star Excursion Balance Test.*

INTRODUCTION

Ankles sprain is occurred as a result of outer ligaments strain (1). This problem is common between athletes, infants and adults, and its results are chronic and continuum pains in ankle, the pains that strain one or two of outer ligaments of ankle. (talofibular and calcaneofibular ligaments) (2, 3). About 80 percent of ankle twist reasons are as a result of its inversion. Ankles twists are generally occurred in some activities including jumping or the actions that require fast and sudden turning or shifting specially on uneven surfaces (3, 4, and 5). This problem is usually widespread in some sports such as wrestling, gymnastics, basketball, volleyball Reason of this twisting is the ankles inversion and down warding the outer edge of the foot (5). After a high jump the athlete

may not land on the ground properly and his ankle may have a severe inversion and cause a pain and damage in his collateral ligament. Ankles strain is a stubborn illness that can trouble the patient for a long time, so to relieve the pain the Kinesio tape could be used these questions are 1) Dose the Kinesio tape help (6, 7). Kinesio tape was suggested for the first time by a Japanese doctor named Dr Kenzo Kase in mid 1970 who was a physiotherapist and a acupuncturist (8, 9). After a decade of introducing this product in 1980 the Orthopaedists Kairo practitioner an acupuncturists and other doctors in Japan are the main users of these tapes (11, 12). We try to answer to two questions in this study and check the importance of this tape in treating athletes

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Legs treat and improve the hurts of athletes' ankles?

2) If yes, what advantages does this tape have? These tapes have materials that should be stuck in special places to relief the aches of sever exercises in that place and also make the skin and muscles more strength in case of exterior pressure (12, 13). If these tapes are used properly they can improve the muscle fervors in athletes body (13). In general the aim of using these tapes are to protect support vacate of special injuries increasing the joint moving and preventing following injured and damages (14). If these medical tapes are used in a correct way the joints can rest and help to keep the metabolical activity in the arms (15). And protect the following damages in muscles. Powerful flections of ankle can damage one or both proneal ligament (16, 17). Muscles are ankle dynamic abiders and have close relations with lateral ligaments (18). It seems that using these tapes on skin can decrease it (19). The pressure and the ache of positive effects of these tapes is improving the muscle function decreasing the muscle aches and increasing blood flow and help to move under skin liquids because these tapes increase the space of under skin (21, 22). We tried to give exercises to athletes using (Y) Balance test and star test and then analyze their improvement course with this tape and study their exercises (22).

MATERIALS AND METHODS

Participants. 22 male athletes were volunteered of participation in this study. They signed the written consent form and were asked to complete a questionnaire that had some questions about twisting and the level of their aches and so they could give first information to the researcher. Then demographic factors were recorded (age 22.33 ± 1.37 years, weight 70.24 ± 7.2 kg, and height 177.41 ± 2.63 cm). In first step all the volunteers were divided in 2 groups and then were examined.

Study Design. The acquired equipments to measure were sport equipments to exercise such

as bike (Y) And stare test designing and checking the angles these angles showed be 45 the exact measuring of paths and steps in each direction and recording the results and repeating them using elastic tapes or ice compress. The first step in the protocol To perform tests for Y The first group in the first two levels of the Tatami without equipment were up to the bar kinesio And for the tests were classified. To study and analyse active and dynamic balance of the players who had twisted ankles we used (Y) balance test and SEBT star test. In balance test the first group on a soft pad surface without kinesio tape did the test. The second phase of the protocol Afterward in star test eight directions were chosen anterior, anterolateral, lateral, posterolateral, posterior, posteromedial, medial and anteromedial. These directions were on a pad like eight cursors in a star shape that their angles were 45° . The players were located in the center of cursors on their one legs and put their next Leg to ward other direction and finally. They came to normal position they repeated this test 3 times.

Statistical Analysis. The data are presented in mean and SD. To analyze the research data after determining the normality of participants, ANOVA with repeated measures Statistical analysis was performed by software SPSS20at significant level $P < 0.05$.

RESULTS

According to the results apply Kinesio taping in both soft and solid surface showed us significant in test data. The numbers that resulted from ANOVA method the players who passed the test with (KT) in a solid surface didn't experience a severe pressure on their anterior muscles of their ankle. But the players who passed it on a soft pad couldn't do the test even for just one time because there was a high pressure on their muscles.

Table 1. Data obtained in the test YBT

test YBT	Average 3 times without KT Tape	Average 3 times with KT Tape	P-value
Anterior (cm)	67.62 – 68.15 – 68.90	70.22 – 70.41 – 70.90	.006

posterolateral (cm)	70.90 – 71.75 – 71.08	75.26 – 75.69 – 75.17	.000
Posteromedial (cm)	69.87 – 68.96 – 69.99	72.50 – 73.69 – 72.91	.001

Table 2. Data obtained in the SEBT test

test SEBT	Average 3 times without elastic tape	Average 3 times with elastic tape	P-value
Anterior (cm)	64.10 – 64.70 – 65.20	68.03 – 68.44 – 68.46	.000
Anterolateral (cm)	68.22 – 68.44 – 68.40	70.13 – 70.65 – 70.60	.000
Lateral (cm)	71.06 – 70.89 – 70.92	74.22 – 74.37 – 73.90	.000
Posterolateral (cm)	69.11 – 69.30 – 69.23	71.68 – 71.69 – 71.89	.000
Posterior (cm)	72.32 – 72.60 – 72.78	75.21 – 74.97 – 75.25	.000
Posteromedial (cm)	70.66 – 70.77 – 70.73	72.33 – 72.88 – 72.92	.000
Medial (cm)	65.41 – 65.44 – 65.48	67.49 – 67.52 – 67.50	.000
Anteromedial (cm)	63.37 – 62.95 – 63.30	65.87 – 65.77 – 65.83	.000

DISCUSSION

This study bases on study and comparative that compares the leg of injured athletes (1, 3). People who were in the test were injured and then recovered and come back to game so to improve the fast we use Kinesio tape and then we checked the time of treating on both hard soft places to present the importance of this elastic extension (2, 3, 4). For and et.al analyzed the effect of Kinesio tape on athletes function and study its sudden and short time effect on muscles in body three position with tape and after 14 hours without tape. Results showed no differences in power of athletes, muscles (5). Foes results aren't consonant with a good performance so we can't expect measurable changes. This study analyses the effects of Kinesio tape in athletes who are expected to have better performances on tough surfaces (6,7,8). There are different hypothesizes. Slupik et al. suggested that effects of Kinesio tape are as a result of using moving units in muscle. Other researchers like ridding Simoneau et al. suggested that feeling input affect the movement control by changing the level of actuation of neural system (9, 10). So by analyzing all tests on soft and tough surfaces, the reason of Kinesio tapes effect On improving the muscles power could be explained (11). The elastic tape that has skin extension, can increase the mechanical

recipients' actuation and so increase the blood flow in ankle and finally improve athletes ankles (12, 13, 14).

CONCLUSION

At the end of this study that was done on the athletes we found out that although these volunteers have injuries in their ankle but they have a better performance on the tough surfaces using Kinesio tapes. And they could do and pass Y and star test in different directions. And they repeat these tests on a soft surface but there wasn't any significant result. The results showed no meaningful relation between the data of two surfaces.

APPLICABLE REMARKS

- All the athletes of whole fields specially who with a high applying of ankle can use the Kinesio tape before doing exercises or playing sports on the tough surfaces, this tape has a supportive role and help them avoid twisting their ankles.

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