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Effects of kinesio taping on ankle joint flexibility and electromyography

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Abstract

This study was intended to find 1) effects of kinesio taping on ankle joint flexibility and electromyography in lower leg muscles 2) It was also intended to compare the effect of kinesio taping on ankle joint flexibility jumping ability and electromyography in lower leg muscles. The subject were 12 healthy males age between 19-21 years old were completed range of motion for ankle joint flexibility test vertical jump test and electromyogram test on three conditions 1) kinesio tape 2) sport tape 3) non-tape on akle joint. Results showed that ankle flexibility test in plantar flexion the Kinesio tape was higher than (P < .05) sport tape and non-tape higher than (P < .05) non tape. There was no difference in ankle flexibility test in dorsi flexion, vertical jump test and EMG test between kinesio tape sport tape and non tape. Therefore, performing the kinesio taping not decrease range of motion of ankle joint also not improve jumping ability and forece of EMG test.

Keywords: Kinesio tape, Ankle, Flexibility, General tape, Vertical Jump, Electromyogram

Introduction

The jump is an important basic motor skills such as use in everyday life or sports activity. The jump is to the body floating off the ground into the air. Which must be exerted to overcome the resistance of the body resistance of the air and gravity. Jumping divided into three phases: Phase one is jump from the ground to float up into the air (Take-off) Phase two is body floating in the air (Flight) and Phase three is landing. Jumping ability are requires the movement of the ankle than other joints in the body movement of the ankle were associated with movement skills in many sports. And daily living such as walking, running and jumping, which is a basic movement. The ankle are a risk of injury from playing sports. The structures of the ankle can move multiple directions so injuries that occur at the ankle can be done many ways. However the sport. The tape is a method that is commonly used. Morehousekine and Cooper. 1956, Currently, cloth tape used in a wide variety of fabrics such as tapes, general and kinesio tape which kinesio tape has been used in this way. more sports and is becoming widely popular

In 1996, Dr.Kenso Kase (Chiropractic), the Japanese discovered and invented Kinesio

Tape is made of cotton and elastic fibers are mixed with a weight similar to the skin to feel the freedom and extra features can be stretched to 20-.40 percent of normal size length horizontal. Which is different from the typical tape kinesio tape contains no latex adhesive is a mixture of chemicals and drugs. The lines of fabric similar to a fingerprint tape serves to increase tension on the skin to increase circulation of blood and lymph, efficiency in ventilation, while the skin. The kinesio tape also helps to elevate the skin to increase circulation of blood and lymph systems. The treatment of the muscle better enhancement of muscle and nerve, and reduce pain Kase and Tasuya, 1996: 35-36.

Therefore, researchers are interested to study that, effects of kinesio taping on ankle joint flexibility and electromyography in lower leg muscles.

The objective of this research.

- 1. To study the effect of kinesio taping on ankle joint flexibility and electromyography in lower leg muscles
- 2. To compare the effect of kinesio taping on ankle joint flexibility and electromyography

in lower leg muscles.

Equipment and methods. Study design and participants

The present study was conducted as a crossover design repeated measures with singly group. Twelve healthy subjects were screen using a questionnaire, which asked for details on medical history and ankle injury or surgery. The age range of subjects was between 19-21 years (average age: 20.21± 1.04 years; average height: 172.5 ± 3.60 cm; average weight: 65.43 ± 7.35 kg). All subjects understood the details of the study procedure and signed an informed consent prior to participation in the study. The researcher have completed their training in the Kinesio Tape KT1 and KT2 and using the tape evenly over three months ago. Before starting the research to collect data.

Taping techniques.

All subjects were taped for a lateral ankle sprain in accordance to Kenzo Kase's Kinesio taping manual (Kase et al., 1996) Taping procedures were applied by the principal investigator to en sure consistency throughout the study.

For taping, each subject's foot was placed in relaxed position while they sat on a taping table with the ankle in slight plantar flexion. The first strip of tape was placed from the anterior midfoot, stretched approximately to 115-120 percents of its maximal length and attached just below the anterior muscle. The second strip began just above medial malleolus and wrap around the heel like a stirrup, attaching just lateral to the first strip of tape. The third strip stretched across the anterior ankle, covering both the medial and lateral malleolus. Finally, the fourth originated at the arch and stretched slightly, measuring 4-6 inches above both the medial and lateral malleolus.

Variables used in research.

Independent variables are type of tape 1. Kinesio tape 2. General tape 3. Non tape Dependent variable including Ankle flexibility Vertical jump test and EMG test.

Test protocol.

Twelve subjects to the laboratory at 10.00

am - 12.00 pm to find weight and height measurements, Prior data collections participants were given instructions each test protocols. Crossover design, was used to subjects each of the three conditions with a 1.Non tape, 2. General tape and 3. Kinesio tape on the ankle. Then compare ankle flexibility test, vertical jump test and EMG.

1. Ankle flexibility test

Dorsiflexion test. Ask the subjects to bend the ankle and point their toes up towards the ceiling

Starting Position: Subjects sitting with legs off the table.

- The fulcrum is aligned with the lateral malleolus.
- The stationary arm is in line with the midline of the lower leg; use the head of the fibula for reference. Moving arm is parallel to the fifth metatarsal

Plantarflexion test.

Ask the subjects to point their foot down toward the ground.

- SubjectsS is sitting with legs off table.
- Goniometer alignment is the same as for dorsiflexion.

2. Vertical jump test

The subjects stands side on to a wall and reaches up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. Subjects then stands away from the wall, and leaps vertically as high as possible using both arms and legs to assist in projecting the body upwards. The jumping technique can or cannot use a countermovement

3. Electromyography test.

The electromyography (EMG) using a EMG Analysis, Muscle Tester Me3000P Version 1.2 activity reflects the signal of active muscle fibers. It was used to record from the medial gastrocnemius (MG), lateral gastrocnemius (LG), tibialis anterior (TA), muscles using AgAgCl electrodes at a sampling rate of 1000 Hz during the whole jump task on three conditions.

Statistical analysis

The independent variables in this study were the taping conditions (KT, ST, and WT) and dependent variables were the ankle flexibility test (plantar flexion and dorsi flexion).

Vertical jump test and EMG (Gastrocnemius medialis, Gastrocnemius lateralis, and tibialis anterior)

Results

There were found statistically significant difference in the ankle flexibility test on plantar flexion movement KT (154.40 \pm 6.2) ST (145.56 \pm 6.5) and WT (155.45 \pm 5.4). No sigfinicant difference were found in the dorsi flexion between KT (98.0 \pm 7) ST (98.6 \pm 6) and WT (97.16 \pm 7) (Fig. 2). No significant difference were found in the vertical jump test between KT (49.33 \pm 13.60) ST (47.25 \pm 13.95) and WT (47.53 \pm 14.04). (Fig. 3). And also no found significant in the EMG test gastrocnemius medialis between KT (109.5 \pm 44.64) ST (102.5 \pm 29) and WT (101 \pm 27.49)

Gastrocnemius lateralis between KT (112.8 \pm 19.49) ST (104.83 \pm 16.29) and WT (107.16 \pm 15.57), tibialis anterior between KT (112.8 \pm 19.49) ST (104.83 \pm 16.29) and WT (107.16 \pm 15.57) (Fig.4.)

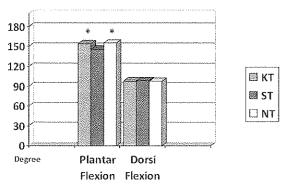


Fig. 2. The difference of results in ankle flexibility test. *significant difference between two groups.

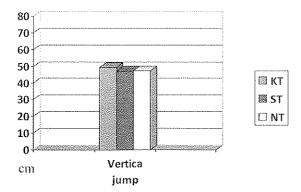


Fig. 3. The results in vertical jump test on KT, ST, and WT conditions.

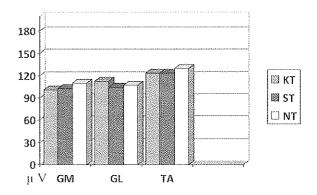


Fig. 4. The results in EMG test on lower leg muscles GM (gastrocnemius medialis), GL (gastrocnemius lateralis), TA (tibialis anterior)

The results of the present study was found effects of kinesio tape does not inhibit ankle flexibility in plantar flexion action, but no significant difference in dorsi flexion compared to the general tape and non tape. This is consistent with the research of Chen-Yu Huang, et al. 2011 studied the effect of kinesio tape and general tape on ankle and lower leg muscles on the high jump in healthy individuals. Found that the general tape are affecting on the stability of the ankle more than kinesio tape. This could be the result of the features of the general tape that can not be flexible. Therefore, it is appropriate to lock and restrict the movement of the joints to prevent movement, thus causing a decrease ankle flexibility. Consistent with Ayako Yoshida and Leamor Kahanov: 2007 was studied the effect of kinesio taping on torso flexibility, found that results in torso flexibility can bend forward more than general taping. And the results of torso flexibility test also found kinesio taping did not reduce torso flexibility, Which may be caused by the features of kinesio tape that it can be stretched to 20-40 percents of its original length longtitudinally that cause result of the torso flexibility still the closest to the test with non taping.

There were no significant in dorsi flexion test. However, flexibility of the ankle dorsi flexion test between kinesio taping and non taping was higher when compared to the general taping. Although ankle flexibility test the results no significant Kristin, B.; et al. 2011 tested the stability of the ankle on star excursion balance test found that the general taping on ankle more

balance of the body than kinesio taping. So general tape reduce movement of the ankle than kinesio tape. For the results of dorsi flexion may have caused of kinesio tape features is designed to help the muscles and joint without compromising the flexibility of movement and taping method.

There were no significant on vertical jump test. However the average of the results in general tape condition slightly lower compared to kinesio tape condition. Hsiao-Hui Chiu, & Lin-Hwa Wang. 2011 has studied the results of the tape on reaction force while landing to the ground from a jump test. Found that kinesio tape and general tape contributed to increase the stability of the ankle and reduce reaction force on landing. There were no differences between the experimental group and the control group. Consistent with Jakob, K.; et al. 2011 studied the effect of kinesio taping on the knee joint in the standing long jump test. The results showed that there was no significant difference between the treatment and control groups by measuring the force exerted on the ground (AMTI-Force Plate) in the standing long jump test. That be similar Kenny, IC; et al. 2011 has studied the effects of kinesio tape and general tape on balance movement. Found that both conditons taping on the ankle by Close Basket method does not affect to balance movement. Therefore, the study has shown the general tape and kinesio tape did not improve the jumping ability.

There were no significant in EMG tested of lower leg muscles, gastrocnimeus medialis,

gastrocnimeus lateralis and tibialis antirior on three conditions taping. Just found average force muscle legs in kinesio taping condition increased slightly when compared to general taping and non taping conditions consistent with Cerdenia, JT; et al. 200 was studied the effect of kinesio taping on glutelmuscle butt effect, stride length and running speed of 100 m found that the average force of muscles studied increased only slightly and did not find effect to increased speed. And Umberger. 1998 was studied and analysis of biomechanic the high jump movement. Found that the energy used to stretch all the muscles of the knee has been transferred from the Hip joint by about 21% of rectus femoris and the amount of force used to stretch all the muscles of the ankle. Have been taken from the ankle through the link, gastrocnemius 25% as a result of the tape to the muscles may not result in contraction of the muscle increases.

Suggestion

Research has shown that the effect of Kinesio taping the movement of the ankle, but the difference with the general tape test high jump and EMG test showed no significant difference. Demonstrated that the use of Kinesio taping is the movement of the joints, rather than optimizing the jump. The tape should be selected to be appropriate because the Kinesio taping is expensive, it can be seen that the tapes are suitable for restricted joints to improve stability and to prevent injury to occur.

Bibliography

- Ayako, Y. & Leamor, K. (2007). The Effect of Kinesio Taping on Lower Trunk Range of Motions. Research in Sport Medicine. 15: 103-122.
- Basmajian, J.V; & Deluca, C.J.(1985). *Muscle Alive: Their Function Revealed by Electromyography*. Baltimore: Williams and Wilkins.
- Cerdenia, JT, et al. (2006). Gluteal Taping on Running Performance of Healthy Young Adults. Philippine Journal of Allied Healthy Sciences.
- De Luca, C.J. (1997). The Use of Surface Electromyography in Biomechanics. Biomech.
- Gandevia, S.; & McCloskey, L. (1976). Joint sense muscle sense and their combination as position sense measured at the distal interphalabgeal joint of the middle finger. *Journal of physiology*.260:387-407.
- Hisao-Hui, C.; & LinHwa, W. (2011). Biomechanical Effect of Ankle Kinesio Taping on the Ground Impact during the Vertical Jump Landing. (Online). Available: UMI Proquest Digital.
- Kase, K.; Wallis, J.; & Kase, T. (2003). *Clinical therapeutic applications of the kinesio taping method.*Albuquerque, NM:Kinesio Taping Association.
- Kase, K.; Tatsuyuki, H. & Tomoki, O. (1996). Development of Kinesio tape Kinesio Taping Perfect Manual. Kinesio Taping Association. 6-10: 117-118.
- Kenny, I.C. et al. (2011). Influence of Ankle Taping on Dynamic Balance Performance. *Portuguese Journal of Sport Sciences*.
- Kristin, B. (2011). Effect of Kinesio Tape Compare With Nonelastic Sports Tape and the Untaped Ankle During a Sudden Inversion Pertubation in Male Athletes, (Online). Available: UMI Proquest Digital.
- Kummel, J.; Danica, M.; & Florian, B. (2011). *Effect of Kinesio Taping on Performance in Counter-Movement Jump*. Portuguese Journal of Sport Sciences.
- Perrin, D.H.(1995). Athletic taping and bracing. Champaign: Human Kinetics.
- Umberger, R. (1998). Mechanics of vertical jump and two joints muscles: Implication for training.

 Nation Strength and Conditioning Association Journal. October: 70-74.
- Weineck, J. (1990). Functional anatomy in sport. 2^{ed}. St. Luis: Mosby Year Book.
- Wilmore, J.H; & Costill, D.L. (2004). Physiology of sport and exercise. Illinois: Human Kinetics.

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