Kinesio Taping in Prevention of Injuries with Badminton Players

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ABSTRACT: Objective: The aim of this study was to investigate kinesio taping in prevention of injuries with badminton players; to investigate whether kinesio taping could reduce the incidence of injuries with badminton players. Methods: 108 sports education students (male: 60, female: 48, age: 19.45±0.85) in School of Physical Education were recruited for this study. All subjects were randomly divided into two groups: kinesio taping group and control group. Unlike kinesio taping group, subjects of control group did not use kinesio taping when play badminton. Finally the number of injuries during one year (12 months) between two group were compared. Results: The number of injuries in kinesio taping group is considerably lower than control group (p<0.05). There is a significant different of the number of injuries between the two groups (p<0.05). Conclusion: The incidence of injuries in kinesio taping group is considerably lower than control group, suggesting kinesio taping may prevent injuries with badminton players.

KEYWORDS: Kinesio taping; Injuries; Badminton players

1 GENERAL INSTRUCTIONS

The purpose of this study was to determine whether kinesio taping could reduce the incidence of injuries with badminton players. Badminton is a very popular game in Asia, including China. In China, most physical education schools are offering courses about badminton. However the injuries of badminton players can not be ignored. Sports-related injuries can have a substantial impact on the long-term health of student-athletes (Zachary et al., 2015). Badminton requires jumps, lunges, quick changes in direction, and rapid arm movements in order to stroke the shuttlecock from a variety of postural positions (Hensley & Paup, 1979). Thus, the physical demands of a competitive game of badminton suggest that injuries to the limbs may be a prevalent ailment (Hensley & Paup, 1979). Blisters, muscle cramps, muscle strains or tears, bruises, sprains or ligament injuries, tendonitis or other tendon injuries, bursitis were reported from badminton players (Miyake 2016, Hensley & Paup 1979). In these cases of injuries in badminton players, the majority are soft tissue sprains/strains (Miyake et al., 2016; Goh et al., 2013). Most injuries occur in the lower limb especially the knees and is followed by back injuries. Alought a systematic injury prevention program for badminton players has not yet been created (Goh et al., 2013). Some programs such as warming up, using the right equipment, cooling down have recently been created as an initiative to address sports injuries including in badminton (Junge et al., 2011, Soligard et al., 2008).

With the development of new technology, a new approach kinesio taping is a proprietary product that purports to offer a range of benefits in the treatment and prevention of various musculoskeletal conditions (Williams et al., 2012, Steven & Nicholas, 2013). Many researches have indicated kinesio taping can reduce the risk of sports injuries and can be used as an important approach of preventing injuries, especially soft tissue sprains/strains (Hong et al., 2016, Fayson et al., 2015, Mostafavifar et al., 2012). However, some studies are against with the conclusion and some researchers are skeptical about it (Cai et al., 2016). To the best of our knowledge, kinesio taping in prevention of injuries with badminton players has not been systematically studied.
2 OBJECTIVES

The aim of this study was to investigate kinesio taping in prevention of injuries with badminton players; to investigate whether kinesio taping could reduce the incidence of injuries with badminton players, especially soft tissue sprains/strains. In order to achieve that objective, methods to establish kinesio taping in prevention of injuries are used with badminton players by grouping randomly.

3 PATIENTS AND METHODS

108 healthy student athletes (60 males and 48 females) age from 18 to 21 years old were recruited in this study from the school of physical education. They were badminton players and completely active with habit of regular exercise before the study. Besides, all subjects should meet the following criteria: 1) Subjects had no history of serious spinal, hip, knee or foot pathology, any neurological impairment or a history of lower limb fractures. 2) Subjects had no severe myocardial infarction, symptomatic left ventricular dysfunction, acute myocarditis, a cute pericarditis and other exercise contraindication. 3) Subjects understood the purpose and the process of the research.

Age, height, weight and other characteristics of subjects were recorded before grouping. All subjects were divided randomly into two group: kinesio taping group and control group, ensuring equal numbers of male and female in each group. Subjects in each group were required to participate in the badminton course was offered by the school of physical education, four time a week, 90 minutes (1.5 hours) each time, forty weeks of a year. Total course time was 240 hours a year. This Course was to match and confrontation exercise. Before each class, all subjects should complete normal injury prevention equipment, cooling down, etc., before each class.

The number of injuries of subjects in the badminton course during one year should be recorded according to anatomical location and types. By comparing the frequency of injuries between the two groups, we determine whether kinesio taping reduced the incidence of injuries with badminton players.

In order to ensure the reliability and stability of research results, some unnecessary outside disruptive factors should to be avoided. 1) All subjects were not allowed to participate in the badminton match, confrontation exercise and other antagonistic sports after class. 2) All subjects should complete each class. 3) To protect the health of the subjects, every subject received a physical examination once every three months by two clinicians.

Statistical analyses were performed using SPSS 13.0. The data were expressed as mean ± SD. Comparison between two groups with age, height and other characteristics was done with One-Way ANOVA analysis. The data were analyzed using the Mann-Whitney U test to reveal whether there was a significant difference between the number of injuries of subjects in kinesio taping group and control group. The significance level is ρ=0.05 for all analyses.

4 RESULTS

Age, height and other characteristics of kinesio taping and control subjects are shown in Table 1. There were no statistically significant differences between the two groups in age, height, weight and BMI (p > 0.05).

The number of injuries of subjects in the badminton course during one year is shown in Table 2, according to anatomical location. In the group with kinesio taping, we noticed total number of injuries to the anatomical locations which were used kinesio taping to protect (ankle, knee, elbow, wrist, rotator and leg) was considerably lower than control group (p < 0.05).

According to types, the number of injuries of subjects in the badminton course during one year are shown in Table 3. In the group with kinesio taping, total number of soft tissue injuries (sprains and strains including muscle cramps, bruises, sprains or ligament injuries, muscle strains or tears, tendonitis or other tendon injuries) was considerably lower than control group(p < 0.05).
The aim of this study was to determine whether using kinesio taping could reduce the incidence of injuries with badminton players. Contrary to control group, our findings show kinesio taping had significant prevented injuries with subjects who participated in kinesio taping group. According to anatomical location, total number of injuries to the anatomical location which were used kinesio taping to protect was considerably lower than control group. In addition total number of soft tissue injuries (sprains and strains including muscle cramps, bruises, sprains or ligament injuries, muscle strains or tears, tendonitis or other tendon injuries) was considerably lower than control group.

Kinesio tape is usually made of soft, breathable, and elastic cotton cloth with acrylic adhesive of water ripple (Thelen et al., 2008). It was designed to mimic the qualities of human skin and can be stretched between 30\% and 40\% of its resting length longitudinally (Thelen et al., 2008). The important feature of kinesio tape is that it can provide a wide range of activities of the trunk and limbs, and can be adhered to the skin for a few days usually 3 to 4 days (Gonzalez-Iglesias et al., 2009). Researchers current have proposed several benefits to explain kinesio tape in prevention of sports injuries: 1) to improve local blood and lymph circulation; 2) to alleviate edema and inflammation; 3) to provide a wide range of activities of the trunk and limbs; 4) to correct irregular arrangement of subcutaneous tissue (such as fascia) (Jaraczewska et al., 2006, Slupik et al., 2007, Bassett et al. 2010). However there is still little quality evidence to support the use of kinesio taping over other types of elastic taping in the management or prevention of sports injuries and studying these effects has revealed conflicting data (Csapo & Alegr, 2016). For example, Simon et al. set an experiment to study the acute effects of kinesio taping on knee extensor peak torque through a single-blind, placebo-controlled crossover trial with 28 healthy volunteers with no history of knee injuries. In the study participants received facilitative kinesio taping treatment, inhibitory kinesio taping treatment, or Hypafix taping of the knee extensor. Final, they found the direction of kinesio taping application over the muscle has specific effects on muscle performance (Simon & Ella, 2016). But, in the studying of Wong OM et al., the results demonstrated the application of kinesio tape did not alter the muscle peak torque generation and total work done but shortened the time to generate peak torque (Wong 2011). Although there is still some controversy in the theory aspect, the incidences of injuries on badminton players with kinesio taping decreased significantly during a one-year comparative study. This result suggests kinesio taping may prevent injuries with badminton players.

5 DISCUSSION

The frequency of injuries in kinesio taping group is considerably lower than control group, suggesting kinesio taping may prevent injuries with badminton players, especially soft tissue injuries.
REFERENCES


