Original Article

The effect of Kinesio taping on calf's injuries prevention in triathletes during competition. Pilot experience

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ABSTRACT

Merino R, Fernández E, Iglesias P, Mayorga D. The effect of Kinesio taping on calf's injuries prevention in triathletes during competition. Pilot experience. *J. Hum. Sport Exerc.* Vol. 6, No. 2, pp. 305-308, 2011. The aim of the study was to evaluate the subjective perception of the local pain after the competition in triathletes. Before start the warm up the kinesio tape was applied in both legs through "I" technique. After the race triathletes were evaluated about perceived pain and soreness on gastrocnemius and soleos muscle by Borg's scale CR10. During the different competitions in which it was proved, none of the sportsmen suffered contractures or cramps in the musculature of the calves, and according to the scale CR10 the perceived pain was zero or not more than 2. Based on these experimental tests and properties of the kinesio tape, it is possible to recommend its use for triathletes and duathletes for injuries prevention and to avoid contractures or cramps during the competition. **Key words:** DUATHLON, CRAMP, PERCEIVED PAIN, BORG'S SCALE

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INTRODUCTION

Triathlon is a popular sport that combines swimming, cycling and running in a unique event. The correct accomplishment of certain technical skills needs high values of flexibility in certain joints (Cejuela et al., 2007). Ankle's mobility turns out essential, mainly for swimming crawl and to make possible a good reactivity in the impulse when running (Cejuela et al., 2007).

The Kinesio tape (KT) allows an elongation of 130-140 % over its length, and has approximately the same weight and thickness that the skin (Kase et al., 2003; Sijmonsma, 2007). It can be applied theoretically to any muscle or joint of the body, and it can be worn up to 4 days without interfering with the daily hygiene and without been modified its adhesive's properties (Kase et al., 2003).

According to the muscular functions there is thought that KT might improve the sport's performance (Nosaka, 1999). In last years the use of KT has being increased (Kase et al., 2003), it is widely used to prevent injuries in sport (Cools et al., 2002; Halseth et al., 2004). With the KT it is possible to improve the muscular function regulating the muscle tone (Sijmonsma, 2007). KT is an alternative taping technique, based on the functions of the tape, improves range of motion (Sijmonsma, 2007). Only have been found 2 studies with triathletes and KT, but they measure the flexibility (Merino et al., 2010a, 2010b). Research about the perception of the local pain using KT in triathletes after the competition has not been found.

The Borg Scale CR10 is a category-ratio (CR) scale anchored at the number 10, which represents extreme intensities. It is a general intensity scale for most subjective magnitudes that with special anchors can be used to measure exertion and pain. It may be used in many diagnostic situations to help assess symptoms of clinical relevance, estimate working capacity, help people monitor exercise intensities, select or adapt work tasks in manual materials handling, evaluate effects of therapy and rehabilitation, and evaluate intensities of daily life activities in epidemiological health investigations (Borg, 1998).

The KT was applied for relax, to diminish the muscular tone and to avoid contractures and / or cramps during the competition (Figure 1). The aim of the study was to evaluate the subjective perception of the local pain after the competition in triathletes.

Figure 1. *Triathlete during a competition.*

MATERIALS AND METHODS

Six volunteer triathletes (6 men aged 29.40 ± 8.23 years, body mass 69.02 ± 4.61 kg, height 1.74 ± 7.4 cm) participated in this study. They were apparently healthy triathletes of Triathlon Añoreta Team. The study was conducted according to the Helsinki Guidelines (2008).

During year 2010, in regional and national races KT was applied on the calves of 6 triathletes between 1 to 2 hours before the competition. No warm-up was performed by the participants prior to apply the KT in both legs. A 5 cm wide kinesio tape (Kinesiology tape®, Korea) was applied to the calves using the I-shaped taping technique (Kase et al., 2003; Sijmonsma, 2007). The base of the tape was placed without stretching with the subject in a neutral body position, just distal to the insertion of the muscle to obtain a relaxing effect. Then, functional strip was applied on the stretched muscle belly, maintaining the original 10% tape pre-stretching. Then, the anchorage was applied without stretching, just proximal to the insertion of muscle in neutral body position (Sijmonsma, 2007).

Between 5 to 10 minutes after the race triathletes were evaluated about perceived pain and soreness on gastrocnemius and soleos muscle by Borg's scale CR10, and interviewed about contractures or cramps in any other muscle.

RESULTS

During the different competitions in which it was proved, none of the sportsmen suffered contractures or cramps in the musculature of the triceps surae, and according to the scale CR10 (Borg, 1998) the perceived pain reported by the triathletes was zero (nothing at all) or not more than 2 (weak, light). Nevertheless, strong cramps were produced, especially in one Olympic distance race, in other muscle with no KT applied. Two athletes reported strong cramps on the musculature of the quadriceps during the Spanish Championship of Duathlon 2010.

DISCUSSION AND CONCLUSION

After the KT being applied on the calf, the sportsmen were recounting good sensations, more firmness, and absence of pain or soreness when they existed before. It can be useful in decrease of painful processes (Fu et al., 2008). The KT presents undulations on the back that, theoretically, they provoke an elevation of the epidermis and in consequence an improvement of local blood circulation and a decrease of the perceived pain (Sijmonsma, 2007). Probably this improvement of the blood circulation is one of the reasons of its efficiency during the competition.

When the competitions are done in hot environment, is a long distance and the race presents much height difference it is quite common to recount soreness when not contraction or cramp in the calf muscles due to its high solicitation. None of the sportsmen suffered contractures or cramps in the musculature of the triceps surae in any of the different races they took part.

Based on these experimental test and properties of the KT, it is possible to recommend its use for triathletes and duathletes for injuries prevention and to avoid contractures or cramps during the competition. The current research is lacking regarding the use of KT as a viable option for injuries prevention and for decrease perceived pain and exertion during the competition.

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