

Application of Kinesio Taping® for Treatment of Sports Injuries

Author's Contribution

A – Study Design
 B – Data Collection
 C – Statistical Analysis
 D – Data Interpretation
 E – Manuscript Preparation
 F – Literature Search
 G – Funds Collection

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Background:

Injuries and straining of the motor system as a result of professional or recreational sports activity constitute an important problem for both the sufferer and medical personnel involved in treatment. The most common injuries involve traumas of joints and muscles as well as straining of the motor system. Modern competitive sports force the sportsmen and sportswomen who were injured to return to the contest arena as quickly as possible.

Material and methods:

The aim of this article is the presentation of the method enhancing the therapy applied in sports medicine and known as Kinesio Taping®. This treatment method using cotton tapes of large elasticity (Kinesio Tex®) is used for the injuries of the upper and lower limbs as well as strains of the motor system. The method suggested by Dr Kenzo Kase, enhancing the rehabilitation process regulates blood and lymph circulation and decreases their concentration in the region of tissues deformed as a result of an injury or straining. This paper presents application Kinesio Text® for treatment in ankle sprain, epicondylalgia of brachial biceps muscle, inflammatory condition of long head of brachial biceps muscle, syndrome of tightness of the tibia front and lateral fascial compartment and inflammation of the plantar aponeurosis.

Results:

Clinical observations after the application of KT® have indicated that in all injured persons pain decreased and visible oedema resorption occurred. Tapes were well tolerated and no allergic reactions were observed.

Conclusions:

The results from published papers confirm the author's observations that the application of KT® tapes: 1. reduces the levels of pain suffered, 2. increases the functional capabilities of the patient, 3. constitutes a good method supplementing a regular physiotherapeutic treatment.

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Background

Sports injuries occur very often. They may be caused either during a competitive, recreational or obligatory (physical education) sports activity. The most frequent injuries include: talotibial (ankle) joint sprain, injury of knee ligament, shoulder sprain, injury of Achilles tendon, tissues traumas, spinal straining and bone fractures [1-3]. Injuries of the kinetic system are accompanied by severe pain, oedema and haematoma, which directly lead to functional disturbances. Injuries require rehabilitation and quite frequently an orthopaedic intervention. Depending on the kind of injury, the rehabilitation process lasts from a few or several weeks to several months. One of the methods supplementing the therapy of an injury and straining is Kinesio Taping® (KT) – a non-invasive therapy worked out by Dr Kenzo Kase and propagated in the world since 1963. At first it was chiefly used in the sports medicine. At present it is widely used in other clinical specialties, especially in orthopaedics, traumatology, surgery of the motor system, neurology, oncology and paediatrics.

This method involves the application of special tapes called KINESIO TEX® which are stuck directly to the bare skin. These adhesive tapes are made of cotton and can be stretched to 140% of their original length. They are of variable width and length and neither inhibit joint mobility nor irritate the skin. Thanks to water-proof abilities they may be used for repetitive days and do not disturb the hydrotherapeutic treatment. Due to the injury within the region of the motor system, swelling occurs which inhibits (or slows down) the flow of blood and lymph and causes concentration of organic liquids in the subcutaneous layer. The application of KT® to the skin in the area of an injury raises and folds the layers of the epidermis including the papillary layer of the dermis. This subsequently leads to an increased blood flow capacity in the region of the subpapillary network of vessels and skin deep vessels and to the enhancement of lymph transportation from the lymph capillaries of the papillae to the subpapillary network of blood vessels. Thanks to this, more advantageous conditions for regeneration of injured tissues are created. As a result, the normalization of fasciae tension occurs, blood and lymph flow is activated, pain decreases and functions are rectified [4].

The aim of this paper is to show the supportive method of the recovery process and present the application of Kinesio Tex® tapes on the example of selected injuries and strains of the motor system.

Material and methods

Experimental material was constituted by persons who have been either recently injured or who suffered from chronic pain due to strains of the motor system resulting from the forceful and strenuous sports activity or training.

Applications of KT® in the injuries and strains of the motor system for the early and chronic therapies:

1. Ankle sprain (distorsio) distortion of foot is one of the most frequently suffered sports injuries. Pain, discomfort, oedema, and haematoma (bruising) of variable intensity depending on the size of the injury mean a several-week long inconvenience which practically means taking a break from training exercises. KT® has been used as an auxiliary therapeutic rehabilitation method in cases where there was no rupture of ligaments and no complete joint stability loss.

Tapes were applied to decrease a post-traumatic oedema and relieve pain. Tapes were changed every 4-5 days for the period of 1-2 weeks until deformities subsided (Fig. 1).

2. Tennis elbow – symptoms referring mainly to the region of lateral epicondylus of the humerus. Discomfort occurs in case of the aggregate strains resulting from prolonged physical exercise or work with routinely repeated movements engaging the group of extensors and rotators of the forearm. Pain intensifies due to extending and folding movements of the elbow joint and wrist as well as static straining resulting from an extending movement.

KT® applications were used until pain subsided. Modifications of taping depend on the changeable clinical picture. Two methods of taping were used. The first method supported forearm supinating muscles, the second one relieved painful regions (Fig. 2).

3. Inflammation of the long head of brachial biceps muscle is the result of repeated micro-injuries and strains during sports training, mainly in strength-requiring disciplines and team games. Painful regions are localized on the front surface of the forearm and pain intensifies at bending or abducting. Two KT® applications were used: analgesic and fascial to support a humeral joint. Applications were repeated every 4 – 6 days for 6 weeks till the complaint subsided (Fig. 3).

4. Syndrome of the tightness of the front and lateral tibia fascial compartment. Due to increased pressure in the region of the anatomical compartment of the limb, blood circulation is obstructed and subsequent disturbances in muscle innervation and activity occur. An acute phase is characterised by sharp pain, swelling, pallid skin and decreased temperature in the region of an affected limb. In the chronic stage increased tension of muscles, muscular tenderness and increasing of discomfort and pain after running occur. Taping in the chronic stage of this condition has got predominantly pain-relieving and oedema-reducing action (Fig. 4).
In the chronic stage taping should be repeated until swelling and pain subside.
5. Inflammation of the plantar aponeurosis. Chronic pain in the plantar surface of the foot occurs rather frequently (5-7% patients of the sports facilities clinics suffer from this condition) [4]. Discomfort is usually localised in the region of the calcanean tuber and is accompanied by the morning stiffness of the foot. Application of KT® is to lessen the discomfort; it has anti-inflammatory action and strengthens the stabilisation of muscles in the arch of the foot. Applications were repeated several times for the period of 6 weeks (Fig. 5).



Fig. 1. KT® Application – an early phase after ankle sprain

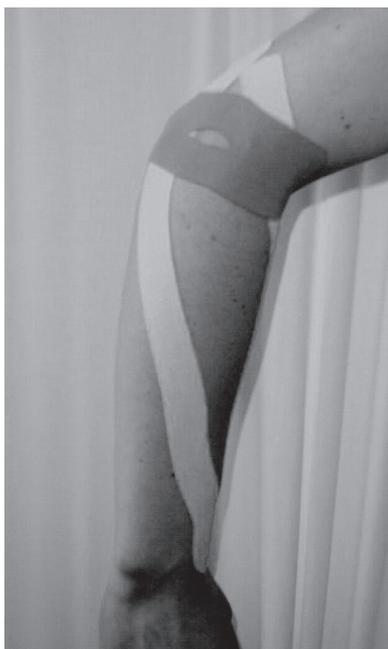


Fig. 2. KT® in epicondylalgia in the region of brachial biceps muscle



Fig. 3. KT® in the inflammatory condition of the long head of brachial biceps muscle

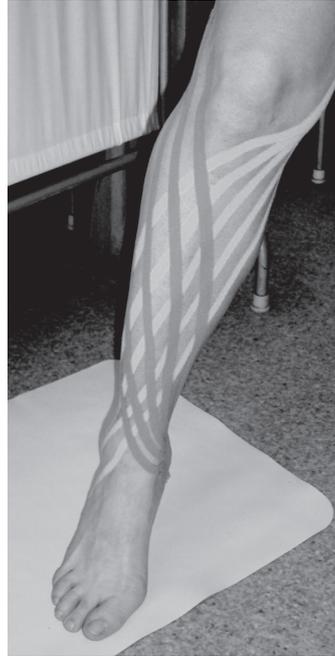


Fig. 4. KT® application in the syndrome of tightness of the tibia front and lateral facial compartment



Fig. 5. KT® application in the inflammation of the plantar aponeurosis

Results

Clinical observations after the application of KT® have indicated that in all injured persons pain decreased and visible oedema resorption occurred. Tapes were well tolerated and no allergic reactions were observed.

Discussion

In sports medicine KT® and sports taping methods are used equally often. Sports taping is mainly used for the purposes of immobilisation in early joint post-traumatic stages [6, 7]. Kinesio Taping® has got a wider application: it can be used for both early stages of the injury and chronic stages, and its function is to augment trophicity of the injured or strained tissues. Moreover, it loosens the muscular fasciae, which brings about pain reduction.

In spite of the fact that the KT® method has been applied for many years now, there are but few papers confirming positive effects of its application.

In this paper the authors presented the method of therapeutic treatment and their experience from using sports tapes Kinesio Tex. KT® was applied as an auxiliary physiotherapeutic rehabilitation program of selected clinical cases.

Decreasing of the pain level after the application of KT® has been confirmed by tests of Herbert from Australian University of Sydney [8] and tests carried out by English researchers who were able to present statistically important results of using KT® for the period of 10 – 12 weeks, confirming pain relief after a knee injury. Similar results were presented by Salish et al. [9]. Researchers from the University of Florida on the basis of pedobarographic and EMG examinations found out that stability of the knee joint increased after the application of KT® [10]. Other American researchers investigated the influence of the application of the tape to the region of the ankle on the increase in the proprioceptive neuromuscular facilitation. However, the experiment which was carried on a group of healthy individuals did not confirm their scientific hypothesis [11]. Results were adverse to those included in Murray's paper, who suggested the enhancement of proprioception in the early phase of therapeutic rehabilitation after an ankle injury [12].

Conclusions

The results from published papers confirm the author's observations that the application of KT® tapes:

1. reduces the levels of pain suffered,
2. increases the functional capabilities of the patient,
3. constitutes a good method supplementing a regular physiotherapeutic treatment.

However, further studies and observations of a larger group of patients are advised, which will allow verifying the efficiency and effectiveness of the Kinesio Taping® method in the treatment of sports injuries.

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