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Mini Review

Kinesiotaping: Fact or Myth? A Personal Opinion Review

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Abstract

Kinesiotaping is a brand of kinaesthetic tape whose material is latex free and quick drying tape so that it mimics the qualities of human skin through its thickness and flexibility. It has become increasingly popular among both patients and sportsman. In this personal opinion review it is aimed to discuss kinesiotaping and its effectiveness regarding the current literature.

Introduction

Kinesiotaping, also known as Kinesiology Taping (KT), is a brand of kinaesthetic tape whose material is latex free and quick drying tape so that it mimics the qualities of human skin through its thickness and flexibility. By means of this, it can help the muscles and lymphatic systems. Mikolojewska defined KT as an efficient, simple, cheap technique in the consuming area. This definition also gives us the reasons of why it is used widely but first of all, try to talk about a bit of history and the process of becoming popular of this technique [1]. However conventional taping techniques support joint and muscle structures, they can lead to restrictions of range of motion and functional activities. In addition, these methods usually do not support deep tissue such as fascia and they can reduce tissue healing because of their compressive force to applied area. The aim of invention of KT was to produce a tape whose structural feature and flexibility is similar to human body. Dr. Kase, who is a Japanese chiropractor and acupuncturist, began to research in 1970s and developed this tape and its applications in different body areas [2].

The first original tape was named Kinesio Text Gold® which is currently the most widely used type. The sticky side of this tape has a sinusoidal wave and the areas between waves provide opportunity to pass air and sweat from tape so it was aimed to produce a hypoallergenic material. Although it has been used for 25 years, it was recognized at an international level due to the using KT by many athletes in different branches during 2008 Beijing Summer Olympics and then again using it by many famous and elite professional athletes during the games contribute its popularity [3]. People have seen it plastered over the bodies of sports stars on TV. For instance, Gareth Bale and Serena Williams are among the many high profile advocates. It is now rare to see sport on TV without KT on parts of players' bodies. As a result of these, KT has been very popular among the people and physiotherapists.

KT has been developed to reflect the properties of the skin such as its elasticity is similar to the elastic properties of human skin and its thickness is similar to layers of epidermis. The tape is also water resistant and withstands high moisture environments in addition to sweating. Although it stretches up to 140-160 % in the longitudinal direction, it does not stretch in the transversal direction. The tape can be worn from 3 to 5 days that means per roll allows us approximately 8 to10 applications [4]. There are several different colors of KT; however there is no physical or chemical difference between colors. The colors were developed to be compatible with color therapy in Japan. According to color therapy, darker color in the light spectrum and thus it will absorb more light, slightly increasing the temperature under the tape strip applied to the skin whereas a lighter color in the light spectrum and it will reflect more light, slightly decreasing the temperature under the tape strip applied to the skin. Therefore, they use light colors such as blue or green for acute injuries to get vasoconstriction and dark colors such as red and yellow for chronic cases to increase blood circulation [5].

The Effect Mechanism of KT

Dr. Kase, who is inventor of KT, stated that muscular dysfunction or imbalance is one of the remarkable reasons of the musculoskeletal problems. He also claimed that taping is more effective method than immobilization of muscle. It is known that after injuries or overusing, elasticity of muscles is impaired. As the painful and inflamed muscles located in the region narrow the field due to edema, these elastic tapes, KT increase blood circulation and movement because it lifts the skin and increases subcutaneous interstitial space. Increased circulation decrease inflammation

and improve the movement. Besides, KT might reduce pain, improve performance, re-educate of neuromuscular system, prevent injuries, accelerate tissue healing and blood circulation [6]. As for pain management mechanism, KT reduces pain secondary with reduction of edema and inflammation. In addition that, it is clear that pain relief can explain via gait control theory, since it activates descending inhibitory mechanism via sensory inputs. However, there are few studies which found that KT is not an effective method for pain management in the long term [7-8]. Thelen et al. compared with sham taping application in patients with shoulder impingement syndrome and they found that the analgesic effect in acute shoulder pain lasted 24 hours [7]. Another similar study was conducted by Gonzalez-Iglesias et al. and they found that pain relief was limited to three days patients with acute whiplash injuries [8].

KT does get immediate results as far as increased ROM and decreased pain, but these results are not significant compared with the control group over the long term. That makes the clinicians a bit suspicious about KT regarding pain relief because of two robust randomized placebo-controlled trials. In addition, it is known that the vast majority of acute pain conditions will feel better no matter what tool you choose to fix it, even if it's sham modalities.

What Do Researchers Say about Effectiveness of KT?

Bassett et al. conducted a systematic review of three randomized controlled trials which focused on the efficiency of KT for shoulder impingement syndromes and acute whiplash associated disorders. According their studies, KT showed no significant clinical effects on patients with musculoskeletal disorders in comparison with sham taping methods [9]. Another systematic review on the clinical effectiveness of KT conducted in 2012 attempted to find out clinical effectiveness of KT in patients with various musculoskeletal conditions, breast-cancer-related lymphedema and stroke with muscle spasticity. The authors found that KT is no more clinically effective than placebo taping techniques [10]. Another systematic review included 12 randomized controlled trials found that KT has no benefit over sham taping/placebo and active comparison therapies in musculoskeletal conditions, They also stated that the benefits of KT are too small to be clinically worthwhile, or the trials were of low quality. Therefore, current evidence does not support the use of KT in patients with musculoskeletal disorders [11]. The current systematic review aimed to assess the effects of KT on patients with knee osteoarthritis. According to their results, there is underpowered evidence to suggest that KT is effective in the treatment of knee osteoarthritis and large, well-designed randomized controlled trials with better designs are needed [12].

Another systematic review was aimed to evaluate whether KT applications might facilitate contraction and increase muscle strength in healthy adults. According to total of 19 studies, although the KT may have some therapeutic benefits, the application of KT does not promote strength gains in healthy adults [13].

Similarly, Drouin et al. stated that there is lack of evidence to support the application of KT as a successful method for improving athletic-based performance outcomes in healthy adults [14].

There are various kinesiotaping techniques in use to improve symptoms such as no tension for fascial correction, mild tension for muscle facilitation, or full stretch for ligament correction, etc. (Table 1). These differences in application might influence the results of outcomes in the researches. According to a recent review, excessive tension might diminish the pain relieving effects of KT [15]. They also stated that variation of techniques might influence the outcome measures, since a muscle facilitator or inhibitor techniques would be elicited depending on the taping direction [15]. Besides, the amount of duration of applied tape left in situ may influence the effect for pain reduction. Further studies should clarify the possible effects of these differences and try to set a standard application protocol for specific diseases.

The Author Comments and Conclusions about KT

- However taping is not a miracle treatment method, the clinicians can combine taping with other treatment especially with manual therapy in order to sustain gains through manual therapy as an adjunct therapy.
- There is lack of evidence to claim the KT is effective method for both improving symptoms in patients and increase performance in healthy adults and sportsman.
- In the literature, there is no standard protocol about taping techniques and these differences might affect the results of studies.
- The author realized that researches about taping are really conflicting so there is need further studies, which are more homogenous and consists of real control groups to find out clinical effectiveness of taping.
- Possible action mechanism of KT to decrease pain and improve functions is not clear. Many studies in this area stated placebo effects of KT. Placebo effects should be clarified in the primary research considering ethical and scientific aspects to explain the real action mechanism of KT.
- Professional sport organizations and famous athletes, in other words media, is very important for the process of becoming popular and preferred one.

So what do you think about taping now? Is it fact or myth?

Table 1: The characteristic of different kinesiotaping application.

Taping techniques	Posıtıon	Dırectıon	Tensıon	Cuttıng
Muscle facilitation	Muscles are elongate dposition	Origo insersio	25-50 %	I-Y strip
Muscle inhibitation	Muscles are elongate dposition	Insersio origo	0-25 %	I-Y strip
Fascial correction	Resting position	Fascial direction	Maximaltension	I-Y strip
Ligament correction	Ligaments are undertension.	Insersio origo	Maximaltension	I strip
Functional correction	Shortened position to elongate dposition	Insersio origo	Moderatetension	I strip
Lymphatic correction	Pre-streched position	Inthedirection of lymphdrainage	0-25 %	Fan cut

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