



KINESIOLOGY TAPING

Cătălin Octavian MĂNESCU¹

Abstract

Kinesiology taping is a therapeutic tool and has become increasingly popular within the sporting arena. Taping has been used for a long time for the prevention and treatment of sporting injuries. Kinesiology taping is not only used for sporting injuries but for a variety of other conditions. It was developed by Japanese Chiropractor Dr. Kenzo Kase in the 1970's with the intention to alleviate pain and improve the healing in soft tissues.

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JEL classification I12, I23

1. Introduction

Kinesiology tape is a thin, stretchy, elastic cotton strip with an acrylic adhesive. Therapeutic kinesiology tape that can benefit a wide variety of musculoskeletal and sports injuries, plus inflammatory conditions.

Kinesiology tape is almost identical to human skin in both thickness and elasticity, which allows kinesio tape to be worn without binding, constricting or restriction of your movement.

Kinesiology tape is used for treating athletic injuries and a variety of physical disorders. For the first decade after its introduction practitioners in Japan were the main users of the therapeutic kinesiology tape. By 1988 the tape had been adopted by Japanese Olympic and professional athletes before spreading across the world.

The Kinesio Taping Method is a definitive rehabilitative taping technique that is designed to facilitate the body's natural healing process while providing support and stability to muscles and joints without restricting the body's range of motion as well as providing extended soft tissue manipulation to prolong the benefits of manual therapy administered within the clinical setting. Latex-free and wearable for days at a time, Kinesio Tape is safe for populations ranging from pediatric to geriatric, and successfully treats a variety of orthopedic, neuromuscular, neurological and other medical conditions. The Kinesio Taping Method is a therapeutic taping technique not only offering patients the support they are looking for, but also rehabilitating the affected condition as well. By targeting different receptors within the somatosensory system, Kinesio Tape alleviates pain and

¹ The Bucharest University of Economic Studie, sctln.manescu@gmail.com



facilitates lymphatic drainage by microscopically lifting the skin. This lifting affect forms convolutions in the skin thus increasing interstitial space and allowing for a decrease in inflammation of the affected areas.

1. The Kinesio Taping benefits

Evaluation and assessment are key in the treatment of any clinical condition. In order to get the desired results from a Kinesio Tape application as well as any other treatment, a full assessment of the patient is necessary. In some cases, the treatment of a condition may require treatment of other underlying conditions as well. This assessment should include manual muscle testing, range of motion testing, gait assessment, and any other orthopedic special tests that you deem necessary.

The information gained from these assessments will allow for the proper treatment protocol to be laid out. Kinesio Tape can be a valuable addition to this protocol. It has been proven to have positive physiological effects on the skin, lymphatic and circulatory system, fascia, muscles, ligaments, tendons, and joints. It can be used in conjunction with a multitude of other treatments and modalities within your clinic and is effective during the rehabilitative and chronic phases on an injury as well as being used for preventative measures.

Other benefits include :

- Pain relief via structural support for weak or injured body parts;
- Kinesiology tape is a flexible elastic tape that moves with the body. This provides supports to the body parts without the tape slipping;
- By supporting the body part, kinesiology tape is able to provide pain relief and muscular support to help control body parts affected by muscle inhibition;
- Muscle support; As previously mentioned, muscle strength may be assisted by kinesiology tape via physical assistance and tactile feedback through the skin proprioception boost. This phenomenon may assist both the able bodied athlete to enhance their performance and hypotonic children with low muscle tone.
- Swelling reduction;

Kinesiology provides a passive lift to your skin via its elastic properties. This vacuum effect allows the lymphatic and venous drainage systems to drain and swollen or bruised tissue quicker than without the kinesiology tape.

It is also thought that this same principle can assist the removal of exercise byproducts like lactic acid that may contribute to post-exercise soreness eg delayed onset muscle soreness (DOMS).



2. How does Kinesiology taping works?

The following are the current theories of how properly applied Kinesio Taping works.

On skin, the Kinesio Tape pulls the upper layers of skin, creating more space between the dermis and the muscle. The space created is believed to relieve pressure on the lymph channels in the area between the muscle and the dermis, creating more space for lymph flow and thus better lymph drainage through an affected area. This space also houses various nerve receptors that send specific information to the brain. When the space between the epidermis and the muscle is compressed, such as during an injury, these nerve receptors are compressed and send information to the brain regarding continuous touch, light touch, cold, pain, pressure, and heat. This information causes the brain to send out certain signals to the body on how to react to particular stimuli. Kinesio Tape alters the information that these receptors send to the brain and causes a less reactive response in the body, allowing the body to work in a more normal manner and removing some of the roadblocks that normally slow down the healing process.

Kinesio Tape also is felt to affect deeper tissues in the body. Increased space theoretically allows muscles greater contractility, which in turn pushes more fluid through the muscle, resulting in better muscle performance. The end results are believed to be reduced muscle fatigue, increase in range of motion, and better quality of muscle contraction.

Kinesio Tape is used to improve joint alignment by affecting the muscles and fascia and can reduce poor function of a joint by influencing opposing muscle groups and joint mobility.

Fascia and lymph have an intimate relationship with each other. Fascia is a material that divides and separates the muscles and internal organs and helps to provide support against gravity in some parts of the body. Lymph removes fluids and chemical substances in the muscles. Lymph channels pass through fascia between the bone and the muscle and superficially between the skin and the muscle. Lymph ducts range in size from smaller than a hair to 2 cm lymph nodes. Major lymph channels can be found in the groin, neck, and armpits. When the flow of lymph is restricted or increased, an accumulation of fluid occurs behind the congested area, resulting in swelling that decreases space between the muscle and skin, causing the body to react to a painful stimulus.

The working model gives rise to the basic theoretical concepts of the Kinesio Taping Method.

There are six basic concepts of the Kinesio Taping technique called corrections. They are: mechanical, fascia (fascial), space, ligament/tendon, functional, and circulatory/lymphatic. Mechanical corrections are used for improved stability and



biomechanics. Fascia or fascial corrections create or direct movement of fascia. Space corrections are used for decreasing pressure over a target tissue. Tendon/ligament corrections decrease stress on a ligament or tendon. Functional corrections provide sensory stimulation to either assist or limit a motion. Circulatory/lymphatic corrections help move lymphatic fluid from more congested to less congested areas.

However, a study conducted in Italy attempted to determine the immediate effects of Kinesio Taping on maximal muscle strength of the dominant quadriceps of 36 healthy subjects. Subjects were tested across three different sessions, randomly receiving three experimental kinesiotaping conditions:

- 1 Tape applied with the goal of enhancing muscle strength.
- 2 Tape applied with the goal of inhibiting muscle strength.
- 3 Tape applied incorrectly with the goal to deceive.

Quadriceps muscle strength was measured by means of an isokinetic maximal test performed at 60 and 180 degrees per second. Two secondary outcome measures were also performed: a one-leg triple jump for distance to measure leg performance and the Global Rating of Change Scale to calculate the correlation between the Kinesio taping technique and the subjective perception of strength.

Here is what they found:

None of the three taping conditions showed a significant change in muscle strength and performance. The effect size was very low under all conditions. Only a few subjects showed an individual change greater than the minimal detectable change. Global Rating of Change Scale scores demonstrated low to moderate correlation with the type of taping applied, but some placebo effects were detected independent of the condition.

This study concluded no significant effect in maximal quadriceps strength immediately after the application of enhancing, inhibiting, or deceptive Kinesio Taping. Therefore, the test results do not support the use of Kinesio Taping as a means of altering maximal muscle strength in healthy people.

That stated, there are also those skeptical about the Kinesio taping's effect. According to Dr. Nicholas Fletcher, an assistant professor of orthopedic surgery at Emory University, there are few large scientific studies regarding its effectiveness. Dr. Fletcher stated, "I think, if anything, there is a placebo effect involved, and there probably is a little bit of a peer pressure effect. When people see athletes who are doing so well, they think, 'Maybe this could work for me.'" But if the tape is only effective as a placebo, that's no reason to stop using it.

A study published this year, in the *European Journal of Sport Science*, examined 79 elite athletes and their attitudes toward placebo-induced performance



enhancement. Almost half of the athletes said they experienced placebo effects in the past and more than 80 percent believed that placebos could affect their sports performances positively.

“In the past, placebo effects were thought of as a ‘fake’ effect,” wrote Shona Halson and David Martin in a 2013 issue of the *International Journal of Sports Physiology and Performance*, “but today, the powerful performance-related outcomes associated with improved belief in a training program or novel intervention are seen as real effects that need to be harnessed.”

3. Pros and cons Kinesiology taping

Pros:

- Some evidence proves theories ;
- Provides a treatment ;
- Applicable to multiple patient populations ;
- Feeling of treatment encourages movement ;
- Versatile ;

Cons:

- Small body of evidence to prove theories ;
- Expensive ;
- Requires practice.

Conclusions

The popularity of KT has grown and spread worldwide based on its clinical effectiveness to reduce pain and enhance performance rather hard tangible evidence about how the effects are achieved.

Although still in its infancy, there are very encouraging signs from research studies and a body of independent academic research is growing to support the positive effects of tape.

There are conflicting messages coming from the research at present. Some studies show no effect of tape on the parameters they tested. Whilst others show that tape does change various things such as pain, strength, endurance etc. So it's quite possible to cherry pick to form an argument either way.

All research is not equal, and many of the studies examining tape effects are at best on the small side and a worst poorly designed, badly written up and generally quite pants.

That said research studies have shown kinesiology tape to:

- Improve power and strength in uninjured muscles;
- Reduce pain and improve function in painful conditions like plantar fasciitis and



patello-femoral pain;

- Improve pain, range of motion and function in people with shoulder impingement;

- Raise the anaerobic threshold of muscle during endurance activity;

A recent systematic review (a research studies into a bunch of other papers on a similar topic) concluded that there was 'moderate evidence to support the use of tape to reduce pain'.

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