By Jessica Heath and Neal Goulet

Developed by a Japanese chiropractor more than 30 years ago, kinesiology tape had its coming out party at the 2008 Summer Olympics.

It was everywhere at the 2012 Games, too, colorful strips visible on the exposed skin of beach volleyball players, rowers, divers.

When the world gathers for the 2014 Winter Games in Russia, it’s certain that the tape will be present if less conspicuous under cold-weather garb.

After all, in 2010, American skier Lindsey Vonn reportedly wore strips of kinesiology tape on her shin prior to winning the downhill, and the gold medal-winning U.S. bobsled team known as “Night Train” was sponsored by one of the tape manufacturers.

But the tape – also known generically as elastic therapeutic tape and by brand names such as Kinesio®, RockTape® and PerformTex® – is not just used on world-class athletes. The Olympic exposure got the public into the game, too.

“It helped that the conduit was a tall and toned blonde with … an Olympic gold medal: American beach volleyball player Kerri Walsh, who competed in Beijing [2008] with an eye-catching black swatch of Kinesio tape on her shoulder,” wrote the Albuquerque Journal newspaper.

Walsh was at it again in 2012, as was German rival Katrin Holtwick, strips of tape flowing down her abdomen in a pattern that resembled nothing so much as a teal squid.

**RELIEVING PAIN**

It was a perhaps unintentional fashion statement, but the real purpose behind kinesiology tape is to improve health by relieving pain in muscles and joints. Many people – elite athletes, everyday patients and medical professionals alike – swear by the tape’s effectiveness.

Dr. Jennifer Solomon, team physician for the U.S. Tennis Association, told ABC News that athletes think kinesiology tape improves their performance.

“But there’s no solid scientific evidence that this tape helps,” Solomon said.

Physical therapists work with other types of tape: the traditional white athletic tape, commonly found in training rooms, and adhesive sports tape brands such as Leukotape® that helps to support joints, tendons and ligaments and improve body posture and body awareness. Each of these works on the basis of restricting movement, in sharp contrast to kinesiology tape.

The term “kinesio” derives from the word kinesiology: the scientific study of human movement. Dr. Kenzo Kase was a Chicago-trained chiropractor and acupuncturist working in his native Japan when he developed a tape that would mimic the texture and elasticity of human skin so as not to restrict movement.

The original Kinesio-brand tape is made of cotton fiber with an acrylic adhesive. Its manufacturer touts its cost-effectiveness as it can be worn for three to five days per treatment. Consumers may purchase the tape online in rolls or in pre-cut pieces, although there is a method to applying it that should be left to trained professionals.

While some of the taping patterns found on Olympic athletes suggest a randomness, the Kinesio Taping Association has trained more than 50,000 people worldwide in the Kinesio Taping® Method that Kase developed. Becoming a Certified Kinesio Taping Practitioner® requires the successful completion of three eight-hour courses and a written exam.

While Kinesio Tape cites its use by more than half of all...
NFL teams, two-thirds of Major League Baseball clubs and one-third of NBA teams, the majority of its applications are non-athletic.

Kinesio Tape claims to affect four main physiological systems:
- Skin
- Circulatory/lymphatic
- Fascia (tissue that surrounds muscles, nerves and bones)
- Musculoskeletal

The application of the tape initially affects the skin. Reducing pressure on the pain receptors and reducing swelling allows for increased movement of extremities. This then influences the many layers of deep fascia, muscle activation and movement, and joint position.

The association boasts of the tape’s “effectiveness in hundreds of clinical conditions” with more than 1,200 recognized applications. More than 150,000 medical practitioners worldwide use it, including physical therapists, occupational therapists, athletic trainers, chiropractors, physicians and nurses.

USES IN PHYSICAL THERAPY

Is kinesiology tape really effective?

Medical professionals have their doubts given the limited research conducted to date. A Los Angeles Times story suggested that the tapes “could just be stretchy, colorful placebos.”

Citing a lack of clinical evidence, Dr. George Theodore, Massachusetts General Hospital surgeon and team physician for the Boston Red Sox, told the Wall Street Journal that the tape “is not harmful and over the short term it can have a beneficial effect” on pain and range of motion. He added that it is not clear whether the effect is psychological.

It could be that athletes just think the tape is helping, giving them confidence that could improve performance.

Tape could be used to assist a muscle during the four to six weeks it takes physiologically to strengthen it. Published research aside, physical therapists and athletic trainers have found that kinesiology taping assists with reducing pain; supports injured joints, ligaments or muscles; and improves posture and body awareness.

Other benefits of this taping method are that it is latex free and breathable; requires no pre-tape or pre-wrap, allowing for affect at the skin level; is elastic, allowing for full movement; offers multiple days of wear time; and enhances circulation, thus decreasing edema and promoting healing.

A clinician can help determine whether kinesiology taping is right for your plan of care. ▶

REFERENCES


Q&A

Kinesiology Taping

By Jeremy Ansbach

WHAT ARE KINESIO® TAPE AND THE KINESIO TAPING® METHOD?

Founded in 1979 by Kenzo Kase, a Japanese chiropractor, this is a therapeutic treatment method in which a clinician uses a special type of elastic tape that mimics the characteristics of skin. The tape has an elasticity of 40 to 60 percent of resting length and thickness and weight similar to skin. Because the tape has no medicinal properties and is latex free, patients are less susceptible to adverse reactions and allergies.

IS THIS TAPING ONLY FOR OLYMPIANS AND OTHER ATHLETES?

Kinesiology tape, as it is known generically, became popular at the 2012 Summer Olympics and can be seen on any number of Major League Baseball and NFL players. However, the majority of patients are non-athletes with varying diagnoses. Because the taping affects the circulatory, nervous and facial (controls connective tissue) systems, the treatment possibilities are vast. It also can affect muscles, joints and ligaments, similar to other athletic and therapeutic tapes on the market. Kinesio Tape claims that approximately 85 percent of applications are non-athletic.

WHO CAN BENEFIT FROM KINESIOLOGY TAPING?

Many treatment techniques have been developed, not only for athletes but also other orthopedic populations; pregnancy and post-partum diagnosis; and pediatric, geriatric, neuromuscular and neurological conditions.

HOW DOES IT WORK?

Kinesiology tape is rolled with an elastic stretch built in. When applied to the skin, it gently recoils to slightly lift the skin. This forms tiny spaces that allow for improved circulation and decreased edema (swelling).

HOW QUICKLY DOES THE TAPE WORK?

Immediately if it is applied correctly, including reduced pain, improved range of motion, greater muscle control. Swelling typically lessens within a few hours. These improvements can last from three to five days or as long as the tape remains on the skin depending on the individual’s activity level. ▶
CASE STUDY: Taping Approach for Injured Bowler

By Ryan Bechtel and Jessica Heath

PATIENT HISTORY
A 70-year-old male was referred to physical therapy with a partial tear of his left Achilles tendon. He had spent approximately two months in a walking boot but recently was discharged by his doctor to walk as tolerated without the boot. He presented to physical therapy with complaints of pain and edema (swelling).

The initial injury occurred while he was working part time as a cook, when a swinging door hit him in the back of his leg. His primary complaint was pain with sustained standing and squatting, and an uneasy feeling with walking. Most important to him, he was unable to bowl in the four months between his injury and this evaluation.

ASSESSMENT
The patient presented with significant left gastroc (calf) atrophy and moderate edema around the Achilles insertion. His pain increased significantly to 6/10 with a functional squat, and he walked with a limp on his left side.

Range of motion (ROM) of the left ankle was limited to minus-10 degrees of dorsiflexion, 23 degrees of plantarflexion, 4 degrees of inversion, and 5 degrees of eversion. Strength assessment revealed significant limitations on the left compared with the right, which tested strong. He was unable to hold resistance in dorsiflexion, plantarflexion and tibialis posterior and minimal resistance in inversion and eversion.

TREATMENT
Treatment consisted of soft tissue massage to the gastroc, passive ROM and mobilization to the ankle, progressive strengthening, and proprioceptive training. The patient’s flexibility and ROM advanced in the first two weeks, but he continued to have moderate pain and edema and was unable to raise his left heel.

Kinesiology tape was introduced into treatment in the third week. The application was used to inhibit the gastroc soleus complex to allow for additional healing of the tendon. The patient was placed prone in a dorsiflexed position with the tape anchored on the heel with no tension. The tape was applied in a Y-shaped strip at 25 to 50 percent tension lengthened over the medial and lateral aspects of the muscle, ending with no tension. With the tape applied, the patient had immediate relief with squatting and with a double-leg heel raise.

The patient continued to have the tape applied for the next two weeks. Advanced strengthening, functional exercise, and proprioceptive and return-to-sport activities were introduced without pain.

OUTCOME
Upon discharge, the patient’s range of motion was equal to the opposite side and strength on the left was functional. He completed single-leg heel raises without difficulty. He scored a 94 percent on the Foot Ankle Ability Measure and was able to return to bowling without pain.

With the tape applied, the patient had immediate relief with squatting and with a double-leg heel raise.
RESEARCH ABSTRACT

Taping’s Effect on Baseball Shoulder Pain

By Jessica Heath

INTRODUCTION

Subacromial impingement syndrome is one of the most common causes of shoulder pain seen by orthopedic physicians. It also is one of the most frequent causes of pain in “overhead athletes,” such as baseball players, who are required to make repetitive motions over their heads.

Many factors can contribute to shoulder pain, including instability of the glenohumeral joint, overuse of the rotator cuff tendon, and a decreased role played by the scapular stabilizing muscles. This key group of muscles, consisting of the trapezius and serratus anterior, provide corresponding movement with the humerus to clear the rotator cuff and prevent impingement.

For this reason, rehabilitation for many patients with subacromial impingement has centered on scapular control. One method to facilitate control of the scapula is taping. The purpose of this study was to identify the effects of elastic therapeutic taping on scapular kinematics, muscle strength and electromyography (EMG) activity in baseball players with shoulder pain.

METHODS

Seventeen amateur baseball players with subacromial impingement syndrome were used for this study, identified with the help of these tests: (1) a history of proximal anterior or lateral shoulder pain for more than one week during the past six months; (2) painful arc with active shoulder elevation; (3) tenderness to palpation of rotator cuff tendons; (4) pain with resisted isometric shoulder abduction; (5) positive “Jobe’s test” (empty can test).

Measurements were taken of muscle strength, EMG and scapular motion performed in both kinesiology tape and placebo tape applications. During a scaption task (movement of the arm overhead in the scapular plane), muscle strength of the lower trapezius was measured, EMG activity was monitored, and scapular motion was evaluated.

RESULTS

Scapular kinematics: Both the kinesiology and placebo tapings assisted in normalizing the scapular kinematics.

Scapular muscle activity: Facilitated (increased) muscle activity was found with kinesiology taping on the lowering phase of the scaption task. A compensatory and negative effect of increased upper trapezius activation was seen with the placebo tape. Researchers have seen this previously and hypothesize that it may be the result of the non-elastic tape forcing subjects to over-compensate.

Scapular strength: Compared with the placebo, the kinesiology taping method showed marginal increase in lower trapezius strength, most likely explained by the positioning of the scapula.

DISCUSSION

Based upon the results of this study, kinesiology taping may assist in the rehabilitation of patients with subacromial impingement disorders. However, the benefit is specific to patients with limited lower trapezius activity.