

BACK IN THE GAME

VOLUME 6

SPRING • 2006

Rehabilitation information for those who enjoy the sporting life

• Kinesiotape • a new technique for physical therapists

By: Kim Spranger, Physical Therapist and Supervisor for Doctors Park Rehab-Escanaba

Physical therapists at Marquette General have a new treatment technique to treat pain, muscle spasm, atrophy, postural dysfunctions and edema. It's as simple as a piece of medical tape applied with the right amount of pull in the right direction. In many cases, including with Lance Armstrong's cycling team, it almost seems like magic in how quickly and effectively it works.

HISTORY AND RESEARCH BEHIND KINESIOTAPE

Dr. Kenso Kase initiated the concept behind Kinesiotape in the 1970s. A chiropractor from Japan, he believed that muscles and other connective tissues could be treated with constant stimulation from the outside.

After trying a variety of tapes already on the market to affect muscle and connective tissue with minor success, he developed a

tape with elastic properties similar to the skin and called it Kinesiotape. Dr. Kase researched the effectiveness of this tape for ten years and found that its implications were broad and far-reaching. He began teaching his concepts and the use of Kinesiotape initially in Japan and by 1995, it was introduced into the United States.

In 2005, a Kinesiotaping certification course was hosted by Marquette General and fourteen MGH therapists were trained and certified to use this dynamic, new treatment approach.

KINESIOTAPE AND ITS MANY USES

A non-invasive and cost-effective tool, Kinesiotape affects pain through several different mechanisms. It stimulates the sensors within the skin that in turn, activate the endogenous analgesic system. It also stimulates touch

receptors which activate the spinal inhibitory system. Finally, it decreases inflammation and pressure on the nociceptors by creating space between the muscle and the skin. When applied across the painful area with 20-30% stretch, it can bring almost immediate reduction in pain. It can remain on for 3-5 days and can provide pain relief during this time. Because it involves no medication, it's an excellent option for athletes who don't want to use medication or for those who struggle with addictions. Depending on the direction of tape application, Kinesiotape affects on muscle can be either facilitatory or inhibitory.

Clinicians apply the tape from origin to insertion with 10-20% stretch in order to facilitate a weak muscle. That direction and extent of pull helps to restore optimal muscle length for effective contraction. It also stimulates the skin to facilitate a contraction. Finally, it provides proprioceptive feedback to assist with muscle reeducation.

When clinicians apply the tape from insertion to origin with a 0-10% stretch, it promotes relaxation of an overused or acutely damaged muscle. Clinicians have found that this works very well in reducing muscle spasms as well as the associated pain in chronic and acute conditions.



Kinesiotaping of the ankle

Continued on back

Core Strengthening

By: Laurie Smith, Physical Therapist

In recent years, there has been more focus in strengthening the core muscles of the trunk. Joseph and Clara Pilates brought attention to this type of exercise through dance instruction at their New York City studio in the 1960s. This exercise form is more popularly known as Pilates.

Many health clubs and exercise instructors have embraced and embellished the traditional Pilates moves to offer Pilates classes and produce videos which focus on training the core muscles, including the abdomen, low back, diaphragm, pelvic floor and gluteal muscles. Some instructors collectively refer to these muscles as “the powerhouse.”

Increasingly, athletes are appreciating the value of



strengthening the core trunk muscles. These muscles do not necessarily create movement, but increase stability and tension in the spine and pelvis. This stability gives a more solid base for an athlete to work from with their arms and legs.

Athletes are not the only ones who are finding the benefit of core strengthening exercises. Recent scientific research shows how breathing, core strengthening and back pain are tied together. Scientists found that 82% of subjects without back pain could perform a test for the transversus abdominus (one of the abdominal muscles). However, only 10% of those with back pain could do the test. Scientists also found that activation of this same muscle provided increased stability of the

sacroiliac, or tailbone joint, in the pelvis. Additionally, they discovered that people with low back pain have delayed activation of their core stabilizers and that the muscles didn't automatically return to normal function once the back pain resolved. This suggests the need for retraining these muscles, especially when statistics show that when an individual has low back pain another occurrence is likely.

So, just where is this core set of muscles? It can be visualized through the following exercise.

Imagine that the trunk is the shape of a cylinder. The top of the cylinder is the diaphragm, a horizontal plane of muscle just below the lungs. The front and sides of the cylinder are formed by the abdominals, in particular the transversus abdominus. The back side of the cylinder is formed by the spinal extensor muscles which run along the spine. The bottom of the cylinder is formed by the pelvic floor muscles which form a sling from the pubic bone in front to the tailbone in back.

In addition to learning how to use these muscles, it is important for an athlete to learn how to place the spine in neutral position. This position balances the spinal curves and minimizes stress, while increasing stability in the spinal joints.

For more information on neutral spine and core strengthening exercises, ask your physician to write you a referral for physical therapy. You may also contact a physical therapist at Sawyer Rehabilitation Services at 906-346-3837.

Continued from front

Kinesiotape has also been used effectively in treating edema in both cases of lymphedema and edema associated with an acute injury. It is thought that the stimulation of the tape on the mechanoreceptors increases both lymphatic and blood circulation. Along with the creation of space between muscle and skin, it helps to decrease inflammation and move it out of the area quicker. In this situation, the tape is applied with 0-10% stretch and a fanning out of the tape from the site of the lymph nodes out into the affected area.

For more information on Kinesiotaping, contact a physical or occupational therapist at the Upper Michigan Rehabilitation Center at 1-800-562-9753.

