Knee Pain

Resolving Knee Pain with Active Release Techniques® (ART®)

Knee problems can be very frustrating. In fact, a painful knee can prevent you from enjoying your favorite things, such as walking, playing golf, exercising, or gardening. There are many instances where knee pain can even interfere with a good nights sleep. To make matters worse many common knee conditions are slow to respond to traditional types of care, often creating further disappointment and aggravation.

Now for the good news, a new treatment technique known as Active Release Techniques® (ART®) is proving to be a very effective method to treat many common knee problems and is helping to get knee pain sufferers back doing their favorite activities. But before we talk about how ART® works so effectively we first need to understand how the knee becomes injured in the first place.

How Does Knee Pain Occur?

The knee consists of three bones – the Femur, Tibia, and the Patella, or knee cap. As the Femur and Tibia come together they form a hinge joint that is designed to move back and forth – movements that we refer to as flexion and extension. As you can see, the knee is designed to allow a large amount of movement, which is great because it permits us to do a wide range of activities such as walking, running, crouching, and kneeling. In order to move properly and protect the area from injury, the knee joint relies on a complex system of muscles that surround the area.

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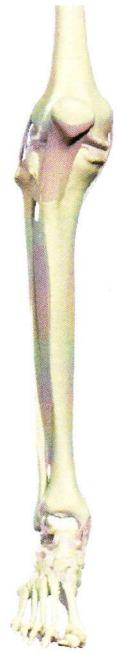
These muscles include the thigh muscles, known as the quadriceps group, the hamstring muscles, the inner thigh muscles - known as the adductor group, the calf muscles, and also some smaller muscles around the knee, such as the popliteus muscle. Underneath these muscles there are also several strong ligaments that help protect the knee joint. When the muscles are all working properly, the knee moves as it should and the chance of pain and injury is very small. Unfortunately, it is common for these muscles to become tight and weak, which can lead to a variety of knee problems.

How Does Injury Occur?

We rely on the muscles that support and control the knee with virtually all of our daily activities. Simply climbing a flight of stairs or bending down to pick up the newspaper requires a complex interaction of the knee muscles to move and stabilize the area. With sports such as running, tennis, or golf the demand of the knee muscles is even greater. If any of the muscles that surround the knee become tight or weak it will place excessive strain on the other muscles and on the knee joint itself. Over time, if this imbalance in the muscles and resulting abnormal knee motion is allowed to continue, it can eventually develop into more severe knee conditions.



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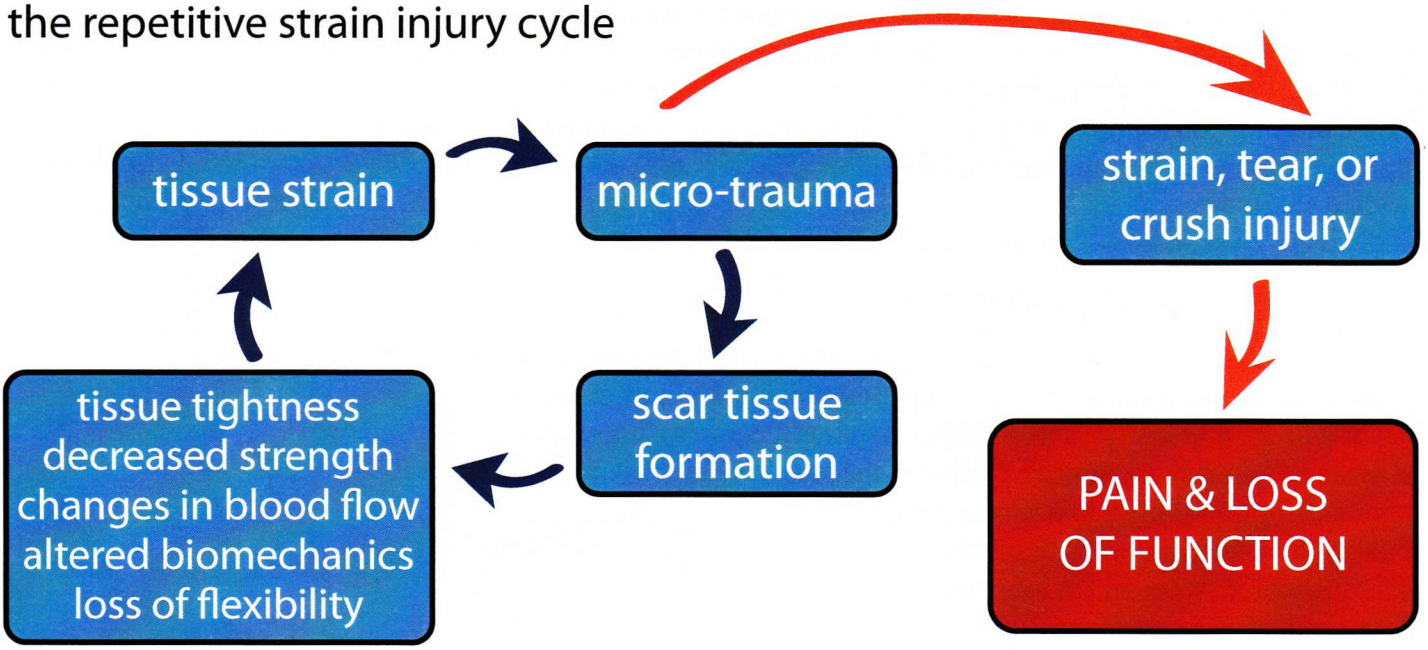
There are a variety of situations that can cause pain, weakness, and abnormal function of the knee. For example, repetitive use with certain sports or occupations, poor posture, lack of use, lack of stretching, muscle imbalances, or previous injuries can all affect the normal function of the knee and surrounding muscles, resulting in excessive strain to the area.

Over time, this strain can develop into what is known as micro-trauma. Simply stated, micro-trauma is very small scale damage that occurs in the muscles, tendons, joint capsules, and ligaments in response to small levels of strain. Initially this micro-trauma is not painful, but may be perceived as a mild ache or tightness in the muscles. Although only small, this damage still needs to be repaired. The body responds to micro-trauma in a predictable way, by laying down small amounts of scar tissue to repair the injured tissue. Unfortunately, over time this scar tissue will build-up and accumulate into what we call adhesions. As these adhesions form, they start to affect the normal health and function of the muscles. In fact, they will often lead to pain, tightness, stiffness, restricted joint motion, and diminished blood flow.

As scar tissue adhesions accumulate in the muscles, tendons, and ligaments of the knee, it places more and more strain on the muscles as they must now stretch and contract against these adhesions in an attempt to move and stabilize the knee. This places even further strain on the knee muscles, which in turn, leads to even more micro-trauma. Essentially a repetitive strain injury cycle is set-up, causing continued adhesion formation and progressive knee dysfunction. At this point, pain and tightness at the knee and surrounding area will start to become noticeable.

As this repetitive strain injury cycle continues, the ability of the knee muscles to meet the demands placed on them diminishes. At this point it is not uncommon for the muscles to give way and a more severe and debilitating pain occurs. In fact, many patients come into our office explaining how they have knee pain but they did not really have any major type of injury occur. When further questioned, these patients almost always describe some mild pain or tightness in their knee that has been building over time. As you can see from the explanation of the repetitive injury cycle, these types of injuries build-up over time until it eventually develops into a larger scale injury.

the repetitive strain injury cycle



Muscles and the Kinetic Chain Relationship

When discussing any type of knee problem, we also need to review the relationship that the knee has with the other joints in the body, particularly the hip and the foot. It can be said that the knee is caught between the foot and the hip, and as such, the foot, knee, and hip make up what is known as a kinetic chain. In fact, the majority of the muscles that act at the knee also cross either the hip or ankle joint. As a result of this relationship, with any knee problem, both the foot and hip must always be closely examined, as an abnormality in either area will greatly influence problems at the knee.

A common example of how the knee is influenced by the kinetic chain occurs in someone whose foot excessively pronates. Hyper-pronation of the foot occurs when the foot excessively rolls inward, causing the foot to flatten out when walking and running. This will also cause the Tibia to rotate inwards, which in turn will result in a twisting stress at the knee. Not only will this result in injury to the knee joint itself, but it will also strain the muscles of the knee, hip, and foot as they have to work even harder in an attempt to control the excessive strain and combat the effects of the hyper-pronation. This will greatly magnify the effects of the repetitive strain cycle, further leading to knee dysfunction and injury. As you can see, even though pain may be at the knee, the entire kinetic chain must be evaluated and treated to fully resolve the condition.

Active Release Techniques® (ART) can help resolve many common knee conditions, including:

- Patellofemoral Pain Syndrome
- Quadricep Tendonitis
- Arthritis
- Pes Anserine Bursitis
- Hamstring Tendonitis
- Iliotibial Band Syndrome
- Patellar Tendonitis
- Patellar Tracking Disorders
- Meniscus Injuries
- Ligament Strains
- Nerve Entrapment Syndromes
- Popliteus Tendonitis
- and many more...

How Can These Knee Injuries Be Fixed?

The Traditional Approach

In an attempt to relieve knee pain, a variety of treatment methods are used, either on their own, or in combination with other methods. Some of the more common approaches include anti-inflammatory medications, rest, ice, ultrasound (US), muscle stimulation (E-Stim), stretching and strengthening exercises, and when all else fails, surgery. Unfortunately, most of these traditional techniques generally require a long period of time before they provide any significant relief, and in many cases provide only temporary relief from symptoms instead of fixing the underlying cause of the problem.

The main reason that these approaches are often ineffective is that they fail to address the underlying scar tissue adhesions that develop within the muscles and surrounding soft tissues. These adhesions are binding the tissues together, restricting normal movements, and interfering with the normal flexibility and contraction of the muscles in and around the knee.

Passive approaches such as medications, rest, ice, and ultrasound, all focus on symptomatic relief and do nothing to address the muscle restrictions and dysfunction. More active approaches such as stretching and exercises are often needed for full rehabilitation of the condition and to restore full strength and function of the muscles, however, they themselves do not treat the underlying adhesions. In fact, without first addressing the scar tissue adhesions, stretches and exercises are often less effective and much slower to produce relief or recovery from knee pain.