

September 2009

Regaining Full Range of Motion After Knee Surgery



In order for you to walk, run, sit or kick comfortably, your knee—the largest joint in the body—must be able to move through an arc of about 130 degrees, from completely straight, or fully extended, to completely bent, or fully flexed. Two muscle groups control this motion: the **quadriceps** on the front of the thigh contract to fully extend the leg and the **hamstrings** on the back of the thigh contract to fully flex the knee. The second important structures are the soft tissues (ligaments and

joint capsules), which control movements providing joint stability.

After knee surgery, when mobility is restricted, these muscle groups can lose strength and atrophy while the soft tissues can adaptively shorten. If muscle strength is not restored, there can be a permanent loss of the knee's range of motion, a condition called **flexion contracture**.

When a flexion contracture is severe, additional surgery may be necessary to help restore range of motion. Many studies have shown that even in less severe cases, **a reduction in range of knee motion by as little as three degrees to five degrees is associated with increased pain and decreased patient satisfaction with the outcome of the surgery.**

Whether you have had anterior cruciate ligament surgery, total knee replacement or other knee surgery, achieving full extension of your leg will give you the best possible chance to return to your preoperative activity level. To achieve the best possible outcome, we can design a series of progressive resistance exercises that will strengthen the thigh muscles and restore the knee's function and strength—a stretching routine to return ligaments and capsule to normal length—while still allowing your knee to heal safely from surgery.

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What Is a Trapped Nerve?



By creating a pathway from the brain to the limbs, nerves make muscles move and allow skin to feel sensations, including pain, temperature and pressure. **A blocked, or “trapped,” pathway can impede the nerves’ normal processes, resulting in pain or reduced mobility.**

Nerves get trapped for a number of reasons, each of which creates its own unique set of symptoms in different parts of the body. For example, scar tissue that forms after back surgery is a frequent cause of nerve entrapment. Injury, swelling, constriction and arthritis are also culprits. Common conditions like sciatica (often caused by nerve compression from bulging spinal discs), felt in the lower back and legs, and carpal tunnel syndrome (causing pain in the wrist) result from pinched or trapped nerves.

Symptoms of a trapped nerve can be felt in many parts of the body, sometimes in the form of **“referred pain”** (for example, feeling the symptoms in your legs when the nerve compression is in your back). These include

- **numbness or weakness**
- **pins and needles**
- **burning sensations**
- **a feeling of electrical “shock”**
- **radiating pain**

After diagnosing the location of the nerve entrapment, your doctor may ask you to wear a splint or other restraint to allow the nerve to heal. The usual treatment, however, includes rest, nonsteroidal anti-inflammatory medications and physical therapy to “release” the nerve.

We can design an exercise regimen involving joint and muscle mobilization, which helps to reduce swelling and inflammation of the surrounding tissues and can increase the space around the compressed nerve to alleviate pain. The good news is that, despite the uncomfortable effects of a trapped nerve, early intervention often can keep it from being more than a temporary problem.

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Massage Therapy for Back Pain



If you experience lower back pain, you are not alone. In the United States, lower back pain is the leading cause of absenteeism and general disability. Because this condition is often an ongoing problem and is difficult to pinpoint and treat, you may have wondered whether massage therapy would bring relief.

Massage therapy is not appropriate for every patient, so check with your doctor before you begin. If you get the go-ahead, here are some

things to consider. At its best, correctly administered massage therapy

- improves circulation
- relaxes muscles
- releases endorphins, chemicals that increase a sense of well being
- provides short-term, transient improvement in pain

However, massage therapy has some limitations. Pain relief is modest and short lived; function and range of motion are not permanently increased; and the underlying condition causing pain is not changed. In addition, massage therapy is not covered by most health insurance plans.

Exercise to strengthen the core muscles—every muscle between your shoulders and hips—can reduce pain and correct underlying postural defects and muscle imbalances causing pain. People who participate in supervised exercise programs show a greater reduction in pain and improvement in function than those who exercise without continuing guidance.

We can design a fully integrated exercise program to address your lower back pain, with the goal of increased flexibility, pain improvement and restoration of function. Should you wish to use massage therapy—in addition to exercise—for short-term relief, we can help you find a massage therapist whose approach will complement your exercise program.

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Bow-legged. Knock-kneed. How Are These Conditions Treated?



Many people who are bow-legged (a condition called varus) or knock-kneed (a condition called valgus) do not realize how much extra stress they are putting on their knees. A normally aligned knee is designed to distribute weight equally to the inner and outer part of the joint.

When the knee is misaligned, weight distribution is uneven. If you are bow-legged, most weight bearing is shifted to the inside of the knee. If you are knock-kneed, the outside of the knee does most of the weight bearing.

This uneven distribution of stress increases the wear and tear on one side of the knee and increases the likelihood of developing **osteoarthritis**, especially if you are overweight. Because the knee no longer glides smoothly, walking or climbing stairs becomes painful.

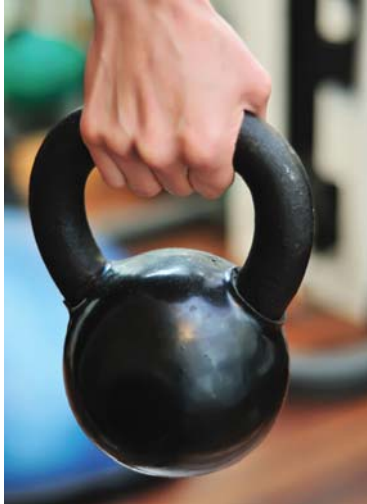
One solution to relieve pain and improve knee function is a surgical procedure called an **osteotomy**, which realigns the lower leg so that the opposite side of the knee now carries most of the weight-bearing load. In an osteotomy, **a wedge-shaped piece of bone is removed from the leg just above or below the knee, and the cut surfaces of the bones are fastened in place with a plate and screws.** Osteotomy is not right for every patient, and it is not a permanent solution to osteoarthritis. However, it can extend the life of your natural knee and delay, by years, the need for total knee replacement.

While continuous passive motion of the knee can begin immediately after the operation, toe touching is the only weight-bearing activity allowed for four weeks to allow the bone to fuse. Eight to 10 weeks after surgery, exercises to tone and strengthen the muscles may begin. Stationary biking, treadmill and outdoor walking, straight leg raises and use of the elliptical trainer may enable you to feel totally comfortable during normal activities after three to six months.

Because rehabilitation plays an important role in achieving a successful outcome, we can work with your surgeon to design an exercise program that will restore your range of motion and train your gait, while protecting the healing bone. If you are considering this or any other knee procedure, talk with us before your surgery so that we can plan for your successful rehabilitation.

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What Are Kettlebells? How Can They Help Me?



Kettlebells are cast iron balls about the size of bowling balls with a curved handle on one side. Ranging in weight from two to 100 pounds, they are used to promote **functional, whole-body conditioning**. Some models are designed so that additional weight can be added in small increments to create a progressive resistance regimen.

Because Pavel Tsatsouline, a Soviet strength and conditioning trainer, popularized kettlebells in the United States, they are sometimes called “Russian kettlebells.” Popular among athletes, mixed martial artists and actors, kettlebells are showing up in more and more fitness and rehabilitation centers.

Kettlebells owe their popularity to the fact that they provide a coordinated full-body workout. While many fitness routines emphasize isolation and strengthening of individual muscle groups, **a kettlebell workout requires all the muscles of the body to work together**. For example, a kettlebell cannot be lifted without properly engaging the hips.

To prevent injury, correct positioning and movement of the body when performing kettlebell exercises is extremely important. Monitored by an experienced instructor, training should begin with lightweight kettlebells, until proper execution of the exercise becomes second nature. Later, more weight and more repetitions can be added.

Enthusiasts find that kettlebell exercises not only increase core strength but also promote flexibility, coordination, cardiovascular fitness and the development of explosive power. **This whole-body approach is believed to more closely mimic the way the entire body needs to work as a unit during athletic activities.**

Our staff will be happy to develop a program that incorporates kettlebells into your total fitness or rehabilitation program. This equipment might be just the ticket to **improve your body strength and conditioning through a full-body workout.**