

## Prevent Knee Pain Before It Strikes

We rely on our knees for so many basic daily movements and virtually every athletic endeavor that it creates great difficulty when pain or injury occurs. Chronic pain, from tendonitis, inflammation or osteoarthritis, and acute pain, caused by muscle, ligament or tendon strains or tears, are the most common knee maladies.

Induced by a breakdown of cartilage, osteoarthritis in the knees is twice as common in women as in men. Meanwhile, a tear of the ACL (anterior cruciate ligament) is the most common acute injury, afflicting 80,000 people a year in the U.S. alone.

An intricate blend of muscle, bone and soft tissue, the knee is a hinge joint where the lower end of the femur (thigh bone) and the upper end of the tibia (lower leg bone) meet. Cartilage rings are attached to the tibia and act as a cushion. Ligaments and soft tissue surround the knee joint, with the ACL connecting the tibia to the femur. The patella, or kneecap, guides the quad muscles over the knee joint. Problems in any of these key areas can result in pain. Likewise, personal physical characteristics, such as bow legs, tight hamstrings, and hyper-extended or knock-knees, can affect the stability of the knee and cause discomfort. Whether chronic or acute, prevention is your first line of defense against knee pain:

### **Osteoarthritis**

Often blamed for causing osteoarthritis, high heels and sports have been vindicated by English researchers. Instead, they found that being overweight between the ages of 36 and 40 was a more accurate predictor of arthritis risk in women. That being the case, the best prevention methods are maintaining a healthy weight and strengthening the muscles surrounding the knee joint to reduce pressure and the risk of cartilage damage.

### **Acute Injuries**

Acute injuries, including ACL tears, can be prevented by strengthening the muscles around the knee, improving flexibility and learning proper technique and execution for physical activities that stress the knee (particularly sports that require landing, stopping or planting feet to change direction). Knowing when to take a break is also helpful. Many injuries occur when technique is compromised by fatigue.

The following hamstring curl is great for strengthening the muscles that run along the back of your thigh. The

hamstrings work in harmony with the quadriceps to bend and straighten the knee. Make a loop in a resistance tube by putting one handle through the other. Place the loop around your right ankle. (If this is uncomfortable for you, move the loop down around your shoe) Hold the free end in your left hand, and step on the tube with your left foot to secure it to the floor. Give yourself about 10 to 12 inches of slack between your feet. Stand with your feet hip width apart, and your knees and toes pointing forward. Shift your weight onto your left foot and extend your right foot directly back.

Slowly lift or "curl" your left heel upward toward your hips, trying to keep your thighs and torso stationary. Pause briefly, then slowly lower to the beginning position. Repeat 10 to 15 times before placing the tube on the other foot. Be sure to lift tall through your torso, keep your abdominal muscles pulled in, your shoulders relaxed, and your supporting leg slightly bent throughout the exercise.