

Orthopaedic Observations

A Matter of Medicine...

TM Pending

Achilles Tendon Problems

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The Achilles tendon is the largest and strongest tendon in the body. The Achilles tendon is formed from the confluence of the Soleus and the Gastrocnemius and inserts on the calcaneus over a broad area (2x2cm). The Achilles tendon plays a vital role in gait and running. As people are more active in the summer months overuse disorders of the foot and ankle become more prevalent.

Many of these conditions involve the Achilles tendon.

In children, inflammation of the Calcaneal Apophysis or Severs disease is a common cause of posterior heel pain. This condition often affects active children (soccer players, etc.) in their high growth years. The condition is characterized by pain over the Achilles tendon insertion on the calcaneus. The condition is often bilateral. Symptoms are exacerbated by running and other sports. Achilles tendon stretching is the most important component of treatment. A lift in the shoe can sometimes be helpful. For recalcitrant cases a course of physical therapy and splinting are necessary. Severs Disease (as with Osgood Schlatter Disease in the knee) is self-limited and resolves as growth is completed.

Achilles tendon problems are also common in the adult population. There are different stages of Achilles tendonitis. Initially, there is an inflammation of the peritendon or lining of the Achilles tendon. Later stages involve inflammation and degeneration of the tendon tissue. The area most vulnerable is the avascular zone located 2-6cm proximal to the calcaneus. This condition affects active individuals involved in running and jumping such as tennis players and joggers. Achilles tendonitis is associated with: overuse syndromes, foot deformities (such as flatfoot or pes cavus), training errors, poor footwear or underlying inflammatory arthropathy. Patients report posterior heel pain, start up

pain (increased pain as they start to walk) and difficulty playing sports. Physical exam demonstrates: tenderness, decreased ankle motion, increased temperature, edema and thickening of the tendon. Radiographs can demonstrate calcification within the tendon and possibly cortical erosion (in patients with inflammatory arthropathy.) An MRI can demonstrate partial tears of the tendon and tendonosis.

Most cases of Achilles tendonitis are successfully managed non-surgically. The initial and most important treatment of Achilles tendonitis is heel cord stretching. A tight heel cord compromises the normal mechanics of the foot. Heel cord stretching exercises are straight-forward (patients are given a hand-out or attend one visit of physical therapy) and should be performed several times per day. Heel lifts, footwear modifications and orthotics (especially in patients who pronate) can be helpful. Brief courses of NSAIDS are occasionally used. With continued symptoms, a patient is referred to physical therapy for a program of modalities (ultrasound, etc.) and more intensive stretching. Dorsiflexion braces used at night are also quite helpful. Some patients require a period of immobilization in a cast or removable boot. Steroid injections are not used in the area of the Achilles tendon given the high risk of tendon rupture. Surgery is rarely needed but if necessary consists of debridement of the Achilles tendon sheath and tendon. At times, the Achilles tendon has such degenerative disease that tendon transfers are required to replace the diseased Achilles tendon.

Posterior heel pain can also be caused by inflammation of the Achilles tendon insertion. These patients have similar symptoms and limitations to patients with Achilles tendonitis. Physical exam demonstrates tenderness in the region of the Achilles tendon insertion. The calcaneus is often more prominent in the area of the Achilles tendon insertion (a condition termed Haglunds Deformity.) There can also be calcification in the area of the Achilles tendon insertion. Most often non-surgical treatment is successful. For continued symptoms, surgery is required to remove the prominent calcaneus that impinges

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on the Achilles tendon. Achilles tendon ruptures are common injuries in the summer months. Ruptures are most common in males (5:1 male to female ratio) and occur in middle-aged and older adults. Achilles tendon ruptures are common in weekend warriors who stress their deconditioned gastroc-soleus muscles in activities such as tennis or basketball. An Achilles tendon rupture can also occur after jumping from a height or a fall. Other factors that predispose an individual to Achilles tendon rupture include: preexisting Achilles tendonitis, systemic inflammatory arthritis, endocrine dysfunction (renal failure, hyperthyroidism), infection and use of fluoroquinolone antibiotics or steroids.

Most patients report a “pop” after a misstep, jump or push off. Patients often state that they feel as if they were kicked in their calf. Most patients (but not all) report difficulty ambulating and feelings of weakness.

Physical exam demonstrates: ecchymosis, swelling and a palpable gap at the rupture site (usually 2-6 cm from the calcaneus). The Thompson test (squeeze the calf to elicit plantarflexion of the foot) is the classic test to determine the integrity of the Achilles tendon. Radiographs are obtained to assure that there is no bony avulsion associated with the tear. An MRI can be obtained when the diagnosis is not clear.

Management of Achilles tendon ruptures include: casting/bracing or operative repair. Casting avoids the risks of surgery (infection, wound healing problems) but has a risk of re-rupture. At times the tendon heals in an elongated position with resultant decrease in strength. Surgical treatment is favored in younger and active patients. With current surgical techniques patients are allowed to weight bear within two weeks of surgery in a brace. The results of operative repair are good and allow the individual to return to sports.

Dr. Zell grew up in Westchester County, New York. After graduating from the University of Notre Dame, he attended medical school at the State University of New York at Stony Brook. Dr. Zell completed a five-year residency in Orthopaedic Surgery at the University of Connecticut Integrated Residency Program (University of Connecticut Health Center, Hartford Hospital, St. Francis Hospital and Connecticut Children’s Medical Center.)

Dr. Zell continued his training with two orthopaedic fellowships. The first fellowship was in sports medicine and arthroscopy of the shoulder and knee. The second fellowship was in foot and ankle surgery at the Hospital for Joint Diseases (an orthopaedic specialist hospital in New York City). He is currently a member of both the Arthroscopic Association of North America and the American Foot and Ankle Society.

Dr. Zell is an Assistant Clinical Instructor of Orthopaedic Surgery at the Yale School of Medicine. He was awarded the 2004 Yale Orthopaedic Residents teaching award. This is given annually to the community attending physician who contributes the most to the orthopaedic resident’s education.

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