



South County

Orthopedics Specialist

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Achilles Tendon Rupture

The Achilles tendon is a large tendon at the back of the lower leg and ankle that connects the calf muscles to the heel. When the tendon ruptures it has been reported that that patient hears or feels a 'pop' in their lower leg, as though some one hit them in their calf or back of their thigh. In 25% of patients it is misdiagnosed as ankle sprain.

It is commonly seen in men, more so than women, between the ages on 30 and 40. Risk factors that can contribute to a rupture of the tendon include those that intermittently work out, sometimes known as 'weekend warriors', smoking, and steroid injections into the tendon.

The forces that cause the tendon to rupture are sudden forced plantar flexion which is seen with jumping and explosive movements. might feel pain in your heel and experience difficulty walking. When laying on your stomach with your knees bent, you will have increased ankle dorsiflexion. Also, a Thompson test will be performed in the office: you are instructed to lay on your stomach, the knee is bent and the calf is squeezed to see if there is any movement of the ankle (a positive test shows no movement of the ankle and is consistent with a complete rupture of the tendon). There is usually a palpable gap between the upper and lower portions of this tendon most often occurring 4-6cm above the calcaneal insertion of the tendon, but can be directly at the attachment or higher in the leg.

Treatment

Surgical Treatment

A small incision will be made just adjacent to the tendon, the two pieces of the tendon, where it ruptured, are cleaned up by removing the uneven ends. The tendon is reattached to each other by overlapping the two ends and using sutures to hold the two ends in place. Through the healing process the tendon will become slightly thickened where the rupture was, as the two ends of the tendon grow together to form one solid tendon once again. **The recovery after surgery takes 3-6 months before light aerobic exercises can begin. Total healing time is 9-12 months before you are back to full explosive activities (running, jumping, cutting).**

Post-operative care

You will wake up with a molded splint around your foot and ankle. You will not be putting any weight on this foot for the first 2 weeks. The use of a knee scooter, I-walk, crutches or wheel chair will assist with walking. During these first 2 weeks you are to keep the splint dry and clean. You DO NOT take the splint off until you are seen in the office for your first post-op

appointment. At that appointment we will remove the splint and the skin sutures. At that time you will transition into a CAM boot with a heel lift where you will be able to put weight on the foot. Your next appointment will be 4 weeks later. This appointment you will transition from the CAM boot to using your own shoe with a heel lift that we will provide for you. We will also initiate physical therapy at this appointment. Your next post-op appointment will be 6 weeks later. **Patients usually can start light jogging in 3-6 months with return to sports involving cutting and jumping in 6-9 months. Full return of strength and the feeling of being normal may take more than a year.**

Rehabilitation protocol

PHASE I (surgery to 2 weeks after surgery)

PRECAUTIONS	REHABILITATION GOALS
<ul style="list-style-type: none"> • Splint in equinus • Non weight bearing • Keep the incision dry • Avoid long periods of dependent positioning of the foot during the first week to assist in wound healing 	<ul style="list-style-type: none"> • Protection of the surgically repaired tendon • Wound healing

PHASE II (2 to 6 weeks after surgery)

PRECAUTIONS	REHABILITATION GOALS	NOTES
<ul style="list-style-type: none"> • Do not soak the incision (i.e. no pool or bathtub) • Watch for signs of poor wound healing 	<ul style="list-style-type: none"> • Normalize gait with weight bearing as tolerated (WBAT) using the boot and axillary crutches for comfort • Fixed heel lifts • Protection of the post-surgical repair • Active dorsiflexion to neutral 	<ul style="list-style-type: none"> • Instructed to begin active dorsiflexion (to neutral DF only) with passive plantar flexion 10 repetitions 3x/day (start at 2 weeks) • Edema control/massage/compression socks • Sleep with boot

PHASE III (usually 6 to 8 weeks after surgery)

PRECAUTIONS	REHABILITATION GOALS	SUGGESTED THERAPEUTIC EXERCISES	PROGRESSION CRITERIA

<ul style="list-style-type: none"> • Wean from use of the boot: heel lift in regular shoes • Avoid over-stressing the repair (avoid large movements in the sagittal plane; any forceful plantarflexion while in a dorsiflexed position; aggressive passive ROM; and impact activities) 	<ul style="list-style-type: none"> • Normalize gait on level surfaces without boot, use heel lift and shoes • Single leg stand with good control for 10 seconds • Active ROM between 5° of dorsiflexion and 40° of plantarflexion 	<ul style="list-style-type: none"> • heel lifts with both feet • Active ankle ROM • Gentle gastroc/soleus stretching • Static balance exercises (begin in 2 foot stand, then 2 foot stand on balance board or narrow base of support and gradually progress to single leg stand) • Hip and core strengthening • Pool exercises if the wound is completely healed 	<ul style="list-style-type: none"> • Normal gait mechanics without the boot • Single leg stand with good control for 10 seconds • Active ROM between 5° of dorsiflexion and 40° of plantarflexion
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PHASE IV (8-12 weeks after surgery)

PRECAUTIONS	REHABILITATION GOALS	SUGGESTED THERAPEUTIC EXERCISES	PROGRESSION CRITERIA
<ul style="list-style-type: none"> • Avoid forceful impact activities 	<ul style="list-style-type: none"> • Normalize gait on all surfaces without boot or heel lift • Single leg stand with good control for 10 seconds • Active ROM between 15° of dorsiflexion and 50° of plantarflexion • Good control and no pain with functional movements, including step up/down, 	<ul style="list-style-type: none"> • Active ankle range of motion • Gastroc/soleus stretching • Multi-plane proprioceptive exercises – single leg stand • Ankle strengthening – concentric and eccentric gastroc strengthening • Functional movements (squat, step back, lunge) 	<ul style="list-style-type: none"> • Normal gait mechanics without the boot on all surfaces • Single leg stand with good control for 10 seconds • Active ROM between 15° of dorsiflexion and 50° of plantarflexion • single leg heel lift

	squat and lunges	<ul style="list-style-type: none"> • Hip and core strengthening • Stationary Bike, Stair Master, Swimming 	
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PHASE V (4-6 months after surgery)

PRECAUTIONS	REHABILITATION GOALS	SUGGESTED THERAPEUTIC EXERCISES
<ul style="list-style-type: none"> • Post-activity soreness should resolve within 24 hours • Avoid post-activity swelling • Avoid running with a limp • return to sports/high impact activities when able to single limb rise 	<ul style="list-style-type: none"> • Good control and no pain with sport and work specific movements, including impact 	<ul style="list-style-type: none"> • Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities • Sport/work specific balance and proprioceptive drills • Hip and core strengthening • Stretching for patient specific muscle imbalances

FAQ

Is there anything I can do to prevent tearing the Achilles tendon?

A stretching and strengthening program for the Achilles tendon should be part of every athlete's warm up. Smoking should be avoided as the negative effects of cigarettes on tendon health have been well shown.

What is the likelihood of success with Achilles tendon rupture surgery?

Surgical repair of an acute rupture usually does well. It is important to understand that even after a successful surgical repair the ultimate strength of the leg will likely be less than it was before the injury

What is the risk of tendon re-rupture?

The risk of re-rupture after surgical repair is between 2-3%. If re-rupture occurs, the tendon can be repaired again either directly or with other techniques that utilize other tissues and materials to reinforce the repair. Revision surgery is always more complex than the original surgery.

Additional links

<https://orthoinfo.aaos.org/en/diseases--conditions/achilles-tendon-rupture-tear-video/>

<https://www.orthobullets.com/foot-and-ankle/7021/achilles-tendon-rupture?expandLeftMenu=true>

<https://www.footcaremd.org/conditions-treatments/ankle/achilles-tendon-rupture-surgery>

<https://pubmed.ncbi.nlm.nih.gov/15611008/>

<https://www.footcaremd.org/conditions-treatments/ankle/achilles-tendon-tear>