

Achilles Tendon Rupture Non-surgical Rehabilitation Protocol

This protocol provides a guideline for rehabilitation of an Achilles tendon injury that is being treated WITHOUT surgery. Exercises should be gradually progressed based upon protocol recommendations and physician discretion as well as the patient's ability to perform correctly and without an increase in pain. We expect the total recovery from an Achilles tendon injury to take 12-18 months, but by 6-9 months most patients will be back to a functional level and only have deficits in explosiveness, stamina, and max power.

Phase I: (0-6 weeks from injury) Maximum Protection Phase	
Goals	<ul style="list-style-type: none"> • Protect healing tissue • Decrease pain and inflammation • Manage swelling • Slow muscular atrophy • Early calf activation
Boot Wear	<ul style="list-style-type: none"> • At all times except during showering and during PT exercises for first 2-4 weeks, then ok to leave off when sleeping, but on all day
Precautions	<ul style="list-style-type: none"> • WBAT with two crutches (for stability, but also because it is often uncomfortable to fully weight bear for the first week or two) • NO passive dorsiflexion
Suggested Exercises	<ul style="list-style-type: none"> • Active ankle plantar flexion and dorsiflexion to neutral can begin immediately • Submaximal, pain free isometrics (may hold off on resisted isometric plantarflexion for first couple weeks if painful) • Towel gathering • Hip adduction/abduction • Straight leg raises/flexion • Bicycle (in boot) • Ankle inversion/eversion below neutral (slight plantar flexion) • Biofeedback / Neuromuscular electrical stimulation to calf • Seated calf raises
Frequency & Duration	<ul style="list-style-type: none"> • Exercises 2x/daily, formal PT 1x/week
Progression Criteria	<ul style="list-style-type: none"> • Gap in Achilles tendon is noticeably smaller, tendon is taut, and Thompson Squeeze Test is intact (although it may be weak)

If there are any questions regarding the protocol, or patient related concerns or setbacks, do not hesitate to contact us at the office at 214-383-9356.

Phase II: (6-12 weeks from injury) Early Strengthening Phase

Goals	<ul style="list-style-type: none"> • Protect healing tissue • Decrease pain and inflammation • Control stresses applied to healing tissues • Slow muscular atrophy • Improve calf activation and strength
Precautions	<ul style="list-style-type: none"> • WBAT in boot, wean crutches if still using • No passive ROM or stretching, everything should be active only • No dorsiflexion past neutral when weight bearing (boot will protect)
Suggested Exercises	<ul style="list-style-type: none"> • Bicycle (out of boot) • Seated balance on BAPS board • Biofeedback / Neuromuscular electrical stimulation to calf • 4 way ankle band isotonic • Static standing/weight shifting out of boot • Continue quad/hip strengthening • Seated calf raises • Standing calf raise (ankle not to exceed neutral dorsiflexion) • Squats (ankle to not exceed neutral dorsiflexion)
Frequency & Duration	<ul style="list-style-type: none"> • Exercises 1-2x/daily, formal PT 2x/week
Progression Criteria	<ul style="list-style-type: none"> • Begin weaning wedges – if 3 wedges in, start removing 1 wedge per week at 6 weeks post injury, if 2 wedges in, start removing 1 wedge per week at 8 weeks post injury • Pain free AROM to 5 degrees dorsiflexion (should be able to lift forefoot from flat position on ground enough to get hand underneath)

Phase III: (Week 12-20) Motion/Strengthening Phase

Goals	<ul style="list-style-type: none"> • Progress out of boot • Progress to full ankle motion • Normalize gait • Advanced proprioceptive drills • Increase strength and endurance
Precautions	<ul style="list-style-type: none"> • Ok to wean out of boot at 12 weeks • Begin very slow dorsiflexion stretching ONLY if stiffness is affecting gait (otherwise, tendon will naturally stretch out over time)
Suggested Exercises	<ul style="list-style-type: none"> • Graduated resistance exercises (OKC, CKC, functional) • Proprioceptive and gait retraining • Standing proprioceptive drills • Leg press

	<ul style="list-style-type: none"> • Squats, lunges, lateral step downs as tolerated • Ok to begin elliptical, stair climber, faster paced walking at 12 weeks
Frequency & Duration	<ul style="list-style-type: none"> • Exercises daily, PT 1-2x/week
Progression Criteria	<ul style="list-style-type: none"> • Pain free heel raise to at least 50% of uninjured side heel-rise height (15 reps in 1 min) • Good, stable, controlled single leg squat with only 1 finger balance (30 reps in 1 minute)

Phase IV: (Month 4-6) Advanced Strengthening/Running Phase

Goals	<ul style="list-style-type: none"> • Progress to running, jumping, agility • Increase power, explosiveness, endurance
Precautions	<ul style="list-style-type: none"> • Rest days are critical to allow muscular growth • Pain at this phase is a red light – take a week off before resuming at prior pain-free level
Suggested Exercises	<ul style="list-style-type: none"> • Continue strengthening program • Plyometric program • Agility Drills • Running program • Begin sport specific training 2 weeks after running program • Squats, lunges, stair climber, elliptical, leg press • Proprioceptive training – perturbation training, balance exercises
Frequency & Duration	<ul style="list-style-type: none"> • Exercises 3-4x/week, formal PT 1-2x/week, ok to stop formal PT when running with good form without pain, but encourage continued PT if goal is for return to high level sport
Progression Criteria	<ul style="list-style-type: none"> • Pain free running/jumping/landing with no form breakdowns with fatigue • Pain free heel raise to at least 50% of uninjured side heel-rise height (20 reps in 45s)

Phase V: (Month 6-12) Return to Sport Phase

Goals	<ul style="list-style-type: none"> • Return to prior level of performance in sport
Precautions	<ul style="list-style-type: none"> • None – expect early fatigability and frequent muscle soreness after workouts
Suggested Exercises	<ul style="list-style-type: none"> • Continue closed chain strengthening program • Continue running and agility program • Accelerate sport specific training and drills including cutting

Frequency & Duration	<ul style="list-style-type: none"> • Exercises 3-4x/week
Progression Criteria	<ul style="list-style-type: none"> • Return to play once calf strength on affected limb is at least 90% of unaffected limb, often takes 12-18 months before return to prior level is possible • Objective testing for RTP (>90% compared to contralateral limb): <ul style="list-style-type: none"> • Single leg hop for max distance/time over 10m distance • Triple hop • Crossover triple hop • Single leg heel rise (max HR reps from 10 deg decline to a 30bpm metronome)