

# PLANTAR FASCIA ULTRASOUND GUIDED PERCUTANEOUS FASCIOTOMY (TENEX) CLINICAL CARE GUIDELINE

## Background

The ultrasound guided percutaneous tenotomy allows what was once major surgery to be performed quickly through a small incision. Although post-procedure care will be tailored to fit your individual needs, the following guidelines are designed to help you and your physical therapist after the procedure. Your physician may also amend or adjust these treatments as they deem necessary.

## Disclaimer

Progression is time and criterion-based, dependent on soft tissue healing, patient demographics and clinician evaluation. Contact Ohio State Sports Medicine at 614-293-2385 if questions arise.

## Things to Avoid Before and After Your Procedure

Over-the-counter pain medicine	<ul style="list-style-type: none"><li>Over-the-counter pain medicine like ibuprofen (Advil™, Motrin™), naproxen (Aleve™, Naprosyn™). <u>Please avoid these medications for two weeks before and one week after your procedure.</u> They may impair your ability to heal and may increase risk of bleeding</li><li>Acetaminophen (Tylenol™) is ok to take for pain after the procedure.</li><li>If you are taking aspirin (ASA) for cardiovascular benefit, please continue with the same dosage.</li><li>There should be no need for narcotic pain medication.</li></ul>
Alcohol	<ul style="list-style-type: none"><li>Avoid 48 hours before your procedure. Do not consume alcohol while you are taking prescription pain medication.</li></ul>
Tobacco & nicotine	<ul style="list-style-type: none"><li>Consider talking to your physician about stopping. These products impair your ability to heal and might reduce the beneficial effects of the procedure.</li></ul>
Diet	<ul style="list-style-type: none"><li>You will need to fast overnight before the procedure. After your procedure, you may eat normal meals resume your regular diet when you feel able</li></ul>

## Make sure your medical team provides you with the following before or at your procedure:

1. Walking boot
2. Therapy appointment times (initial evaluation appointment only. Further rehabilitation appointments will be scheduled in PT department at time of initial evaluation)
3. Follow-up times: You will need to see your physician one week, one month and three months after the procedure.

## Post-procedure Information

- Plan to have a family member or friend drive you home after your procedure.
- Bring your boot to your procedure appointment if you have one at home or were given one in the office.

<b>Orthotics &amp; Braces</b>	<ul style="list-style-type: none"> <li>You do not need to sleep in boot.</li> <li>Do not drive while you are wearing the boot.</li> <li>If you have an orthosis, wear this in your boot/shoe as you normally would.</li> </ul>
<b>Discomfort</b>	<ul style="list-style-type: none"> <li>Some pain after your procedure is expected for the first few weeks.</li> <li>Use an ice pack on the painful area for 15 minutes as needed; in the first 2-3 days consider icing 3 times daily.</li> <li>If you are concerned about your pain, please contact your care team.</li> </ul>
<b>Bandage</b>	<ul style="list-style-type: none"> <li>If a bandage/dressing was applied, remove dressing after 24-48 hours. Replace with simple bandage.</li> <li>Sterile strip bandages can be removed when they begin peeling off or after 7 days.</li> </ul> <p>Keep procedure area clean and dry for 1 week after the procedure until your doctor has seen you for your wound check at 1 week.</p>
<b>Bathing</b>	<ul style="list-style-type: none"> <li>Do not soak/submerge the foot in water for 1 week.</li> <li>Showering is OK, but keep incision site covered for the first week.</li> </ul>
<b>Follow-Up Appointment</b>	<ul style="list-style-type: none"> <li>You will be scheduled for follow-up appointments at 1 week, 1 month, and 3 months</li> </ul>
<b>When to call your Provider</b>	<ul style="list-style-type: none"> <li>If you notice increasing redness, warmth, pain, fever, drainage from the wound or other problems that concern you, call Ohio State Sports Medicine (614-293-3600) during normal clinic hours. Otherwise seek care at your local emergency room.</li> </ul>

## Post-Operative Foot & Ankle Care Timeline

Your Rehabilitation will follow these basic principles:

**Phase 1: Inflammation:** 3 - 5 days after procedure, sometimes lasting up to 2 weeks.

Purpose: localize and eliminate damaged tissue so that the body can heal

Response: Increase in blood flow, permeability of blood vessels, migration of fluid proteins and white blood cells.

**Phase 2: Proliferation:** 1-4 weeks after procedure, sometimes lasting up to 8 weeks.

Purpose: PDGF recruit fibroblasts, synthesize collagen to begin to repair tissue.

Response: Davis Law: soft tissue heals according to the manner in which they are being stressed. Rest is contraindicated in this phase.

**Phase 3: Remodeling:** 1 -3 months after procedure.

Purpose: Remodeling, strengthening, improve cellular organization.

Response: increased organization of collagen. Tissue and scar maturation.



**THE OHIO STATE UNIVERSITY**

WEXNER MEDICAL CENTER

Please understand that these treatments are not “quick fixes” like cortisone injections but rather we are trying to cause long term healing and lengthening of the plantar fascia. Anticipate that it may take up to 3 months to experience the improvements in your symptoms, and full healing may take up to a year.

	<b>Weight Bearing</b>	<b>Activity and Rehab</b>
<b>Day of your procedure</b>	<ul style="list-style-type: none"> <li>Stay in the CAM boot</li> <li>Minimal weight bearing</li> </ul>	<ul style="list-style-type: none"> <li>Protect your foot by resting and keeping it elevated to reduce swelling.</li> <li>Ice application as directed above for 15 minutes to decrease pain</li> </ul>
<b>Days 2-3</b>	<ul style="list-style-type: none"> <li>Begin light weight-bearing in the boot</li> </ul>	<ul style="list-style-type: none"> <li>Elevate at least 3 times a day to control swelling.</li> <li>Ankle AROM/AAROM exercises 3 times per day (ankle alphabet, 4-way ankle without resistance, ankle circles).</li> </ul>
<b>Days 4-7</b>	<ul style="list-style-type: none"> <li>Begin walking in the boot only</li> </ul>	<ul style="list-style-type: none"> <li>Continue ankle range of motion.</li> <li>Isometric ankle strengthening in plantarflexion, dorsiflexion, inversion, eversion, hallux plantarflexion</li> <li>Foot Intrinsic: 1-2 times per day (toe crunching, toe extensions, toe spreading, arch doming)</li> <li>Calf stretching with knee flexion and hallux dorsiflexion (soleus stretch, FHL stretch)</li> </ul>
<b>Week 2</b>	<ul style="list-style-type: none"> <li>Discontinue the use of the boot</li> <li>Begin walking normally in your typical shoes at home and then in the community as you are able.</li> </ul>	<ul style="list-style-type: none"> <li>Manual plantar fascia stretching</li> <li>May begin manual (joint &amp; soft tissue) interventions</li> <li>Perform isotonic ankle strengthening, 1-2x/day</li> <li>Begin heel raise progression (double leg →single leg)</li> <li>Stationary bike without the boot (non-impact aerobic exercise).</li> <li>Gentle swimming and pool exercise when the wound is healed (consider pulling workouts vs lap swimming/kick workouts depending on sensitivity of foot)</li> </ul>
<b>Criteria to Progress to Progression 2</b>	<ul style="list-style-type: none"> <li>No reactive pain with weight-bearing in boot</li> <li>No reactive symptoms &gt;24 hours.</li> <li>Full AROM</li> </ul>	
<b>Progression 2: Week 3-5</b>	<ul style="list-style-type: none"> <li>Full weight-bearing</li> </ul>	<ul style="list-style-type: none"> <li>Progress strengthening: adding resistance (ankle weights, theraband, etc.).</li> <li>Begin eccentric heel raise progression to neutral, progress to beyond neutral and with load as pain allows</li> <li>Begin balance exercises like single-leg stance on stable surface Progress to unstable surfaces as dictated by safety, ability, symptoms, and goals.</li> <li>May perform upper body and core resistance training as appropriate/safe per patient goals</li> <li>Effusion management</li> <li>Begin using an elliptical machine and increase walking pace for exercise (begin with no incline and low resistance) .</li> </ul>



<b>Criteria to Progress to Progression 3</b>	<ul style="list-style-type: none"> <li>• Advance lower body strengthening as tolerated at the discretion of your care team.</li> <li>• Partial weight-bearing plyometric training (shuttle jump training) as tolerated</li> </ul>	<ul style="list-style-type: none"> <li>• Advance lower body strengthening as tolerated at the discretion of your care team.</li> <li>• Partial weight-bearing plyometric training (shuttle jump training) as tolerated</li> </ul>
<b>Progression 3: Week 6-8</b>	<ul style="list-style-type: none"> <li>• Full weight-bearing</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the intensity of biking, swimming, elliptical, fast walking and resistance exercises as pain/symptoms allow.</li> <li>• Begin return to impact activities: plyo training in full weight-bearing as tolerated, proximal lower extremity and trunk strength as dictated by symptoms, safety, patient needs/goals.</li> <li>• For running, consider using an anti-gravity treadmill to start.</li> <li>• Continue concentric/eccentric loading and heel raise progression.</li> </ul>
<b>Week 8+</b>	<ul style="list-style-type: none"> <li>• Full weight-bearing</li> </ul>	<ul style="list-style-type: none"> <li>• Return to jogging/running progression</li> <li>• Progress to directional changes and variable surfaces</li> <li>• Progress double leg to single leg</li> <li>• Sport/Activity specific training</li> <li>• Continue single leg balance training</li> </ul>

### For Therapists Only

- All strength work should be performed every other day, 2-3 sets of each exercise to fatigue without reactive pain.
- Manual therapy may begin 2 weeks after the procedure date.
- Stretching should be performed daily
- Consider patient goals and needs when determining rehabilitation progression speed and intensity.

Last Updated May 2021

**Authors:** Bryant Walrod, M.D., Claire P. Such, PT, SCS, ATC

**Reviewers:** Kristy Pottkotter, PT, SCS

**Completion Date:** May 2021

## References

1. Johannsen F, Konradsen L, Herzog R, Krogsaard MR. Plantar fasciitis treated with endoscopic partial plantar fasciotomy - One-year clinical and ultrasonographic follow-up. *Foot*.2019;39:50-59.
2. Johannsen F, Konradsen L, Herzog R, Krogsaard MR. Endoscopic fasciotomy for plantar fasciitis provides superior results when compared to a controlled non-operative treatment



**THE OHIO STATE UNIVERSITY**

WEXNER MEDICAL CENTER

protocol: a randomized controlled trial. *Knee Surg Sports Traumatol Arthrosc.* 2020; 28(10):3301-3308

3. Feng SM, Song RL, Wang AG, Sun QQ, Zhang SC. Endoscopic partial plantar fasciotomy via 2 medial portals vs mini-open procedure for refractory plantar fasciitis. *Foot Ankle Int.* 2021; 42(4):458-463.
4. Colberg RE, Ketchum M, Javer A, Drogosz M, Gomez M, Fleisig GS. Clinical Outcomes of Percutaneous Plantar Fasciotomy using microdebrider or coblation wand. *Foot Ankle Int.* 2020;41(2):187-192.
5. Wang W, Rikhranj IS, Chia A, Chou C, Chong HC, Koo KOT. Endoscopic plantar fasciotomy vs Open Radiofrequency Microtenotomy for Recalcitrant Plantar Fasciitis. *Foot Ankle Int.* 2018;39(1):11-17.
6. Endoscopic Plantar Fasciotomy; Deep Fascial Versus Superficial Fascial Approach: A Prospective Randomized Study. Catal B, Keskinbora M, Uysal MA, Şahin M, Gulabi D, Demiralp B. *J Foot Ankle Surg.* Sep-Oct 2017;56(5):1001-1008

