

HAMSTRING TENDON ULTRASOUND GUIDED PERCUTANEOUS TENOTOMY (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.

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

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| Over-the-counter pain medicine | <ul style="list-style-type: none">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 bleedingAcetaminophen (Tylenol™) is ok to take for pain after the procedure.If you are taking aspirin (ASA) for cardiovascular benefit, please continue with the same dosage.There should be no need for narcotic pain medication. |
| Alcohol | <ul style="list-style-type: none">Avoid 48 hours before your procedure. Do not consume alcohol while you are taking prescription pain medication. |
| Tobacco & nicotine | <ul style="list-style-type: none">Consider talking to your physician about stopping. These products impair your ability to heal and might reduce the beneficial effects of the procedure. |
| Diet | <ul style="list-style-type: none">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 |

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

1. Crutches
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 approximately 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 crutches to your procedure if they were given to you

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| Crutches | <ul style="list-style-type: none">• Do not drive while using crutches if your RIGHT side was injected |
| Discomfort | <ul style="list-style-type: none">• Some pain after your procedure is expected for the first few weeks. Local anesthetic was used and this will begin to wear off about 8 hours after the procedure. Anticipate an increase in pain at this time and consider taking Acetaminophen (Tylenol) about 6 hours after the procedure to stay ahead of your pain.• Use an ice pack on the painful area for 15 minutes as needed; in the first 2-3 days consider icing 3 times daily.• If you are concerned about your pain, please contact your care team. |
| Bandage | <ul style="list-style-type: none">• A bandage / dressing was applied. It is ok to remove dressing after 24-48 hours. Replace with simple bandage |
| Bathing | <ul style="list-style-type: none">• It is OK to bathe 24 hours after the procedure |
| Follow-Up Appointment | <ul style="list-style-type: none">• You will be scheduled for follow-up appointments at 1 week, 1 month, and 3 months |
| When to call your Provider | <ul style="list-style-type: none">• 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. |

Post-Procedural Hamstring 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.

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



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| | Weight Bearing | Activity and Rehab |
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| Day of your procedure | <ul style="list-style-type: none"> Continue use of crutches Weight bearing: non-weight bearing unless otherwise instructed | <ul style="list-style-type: none"> Protect your hamstring by resting. Ice application as directed above for 15 minutes to decrease pain |
| Days 2-3 | <ul style="list-style-type: none"> Begin partial weight-bearing with crutch use | <ul style="list-style-type: none"> Begin gentle range of motion to increase hip flexion. Begin isometric strengthening with quad sets and glute squeezes 3 times per day. |
| Days 4-7 | <ul style="list-style-type: none"> Under the direction of your physical therapist, begin weaning off of the crutches. | <ul style="list-style-type: none"> Continue increasing hip flexion. Continue quad sets and begin straight leg raises, reverse straight leg raises and heel slides. Incorporate core stability exercises like planks. Start swimming & pool exercise when the wound is healed. |
| Criteria to Progress to Progression 2 | <ul style="list-style-type: none"> No reactive pain with weight-bearing No reactive symptoms >24 hours. Full AROM | |
| Progression 2 (2-4 weeks) | <ul style="list-style-type: none"> Under the direction of your physical therapist, begin increasing walking distances at home and in the community as tolerated | <ul style="list-style-type: none"> Add hamstring stretching in standing (forward folds) and supine 90/90 as tolerated Begin hamstring specific isometric progressions in prone or supine at 10/30/60/90 degrees of knee flexion <ul style="list-style-type: none"> Begin at 50% effort and progress as tolerated 5 sets building up from 5 seconds to 30 seconds per round 2-3 times per day May begin manual (joint and soft tissue) interventions 2 weeks from surgical date. |
| Criteria to Progress to Progression 3 | <ul style="list-style-type: none"> No reactive pain or swelling >24 hours Can ambulate in community for a full day with minimal reactive pain/effusion No pain with MMT of the hamstrings in prone at 90, 60, and 30 degrees of knee flexion | |
| Progression 3: (4 weeks) | <ul style="list-style-type: none"> Full weight-bearing | <ul style="list-style-type: none"> Begin isotonic strengthening interventions Resisted hamstring curls, ball hamstring curls, and RDLs Squats, lunges, and lateral hip strengthening as tolerated Progress to eccentric exercises when appropriate <ul style="list-style-type: none"> Eccentric hamstring curls, RDLs, and ball curls SL bridge slide outs Nordic hamstring curls Asking's glides |



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| Criteria to Progress to Progression 4: | <ul style="list-style-type: none"> • No reactive pain with exercises >24 hours • Muscle soreness no longer than 48 hours with eccentric loading progression • Isokinetic testing with LSI <20% for hamstrings at both 60 deg/s and 300 deg/s |
| Progression 4: Dynamic effort, Running Progression | <ul style="list-style-type: none"> • Initiate explosive hamstring contractions <ul style="list-style-type: none"> ◦ Tantrums, rapid eccentrics, alternating explosive SL bridge alternations with legs elevated • Initiate walk/jog progression • Progress to sprinting and high-level activity as tolerated once jog progression is complete |

For Therapists Only

- All strength work should be performed every other day, 2-3 sets of each exercise to fatigue without reactive pain in progression 1-2
- 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.

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References

1. Askling CM, Tengvar M, Tarassova O, Thorstensson A. Acute hamstring injuries in Swedish elite sprinters and jumpers: A prospective randomised controlled clinical trial comparing two rehabilitation protocols. *British Journal of Sports Medicine*. 2014;48(7):532-539. doi:10.1136/bjsports-2013-093214
2. A Hamid MS, Mohamed Ali MR, Yusof A, George J, Lee LP. Platelet-rich plasma injections for the treatment of hamstring injuries. *The American Journal of Sports Medicine*. 2014;42(10):2410-2418. doi:10.1177/0363546514541540
3. Pas HIMFL, Reurink G, Tol JL, Weir A, Winters M, Moen MH. Efficacy of Rehabilitation (lengthening) exercises, platelet-rich plasma injections, and other conservative interventions in acute hamstring injuries: An updated systematic review and meta-analysis. *British Journal of Sports Medicine*. 2015;49(18):1197-1205. doi:10.1136/bjsports-2015-094879
4. Reurink G, Goudswaard GJ, Moen MH, et al. Platelet-rich plasma injections in acute muscle injury. *New England Journal of Medicine*. 2014;370(26):2546-2547. doi:10.1056/nejmc1402340
5. Reurink G, Goudswaard GJ, Moen MH, et al. Rationale, secondary outcome scores and 1-year follow-up of a randomised trial of platelet-rich plasma injections in acute hamstring muscle injury: The Dutch hamstring injection therapy study. *British Journal of Sports Medicine*. 2015;49(18):1206-1212. doi:10.1136/bjsports-2014-094250
6. Rettig, AC, Meyer, S, Bhadra, AK. Platelet-rich plasma in addition to rehabilitation for acute hamstring injuries in NFL players clinical effects and time to return to play [published online June 24, 2013]. *Orthop J Sports Med*. doi:10.1177/2325967113494354.
7. Silder A, Sherry MA, Sanfilippo J, Tuite MJ, Hetzel SJ, Heiderscheid BC. Clinical and morphological changes following 2 rehabilitation programs for acute hamstring strain injuries: A randomized clinical trial. *Journal of Orthopaedic & Sports Physical Therapy*. 2013;43(5):284-299. doi:10.2519/jospt.2013.4452



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