HAMSTRING STRAIN

Nonoperative Physical Therapy Protocol and Return to Sport

SCAN FOR THE ONLINE VERSION

Stanford MEDICINE

Dear Colleague,

I appreciate your partnership in the rehabilitation of this very special patient of ours. I have instructed the patient that you will be using this protocol. My belief is that the biggest predictor of success is what the patient does at home and consistently. **They should view you not just as a therapist but as a highly educated and skilled teacher** and the patient must be an active participant in the rehab process.

To facilitate this, I have included a copy of the rehab protocols I would like the patient to focus on at each time point in the rehab process. Please assist me by encouraging and teaching our mutual patient their home exercises as well.

With your help and the active participation of our patient, I know we can have another fantastic outcome.

Please do not hesitate to reach out directly to me and my team with any questions at any time.

Respectfully,



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How to Use This Protocol

- Progression is **criteria-based**, not time-based. Mild strains may move through all phases in a few weeks.
- We suggest keeping **pain during exercise at 2/10 or less**, settling by the next morning.
- If a PRP injection is given for a more severe tear, we suggest a short pause in loading for a few days before progressing.
- Please let us know if the patient has **numbness or tingling in the leg** or is not progressing as expected.
- These recommendations complement your clinical judgment.

ASKLING LENGTHENING EXERCISES



The Extender

Twice a day · 3 sets of 12

Lying on the back, hold the thigh with the hip bent to about 90 degrees. Slowly straighten the knee to just before pain is felt.



The Diver

Every other day · 3 sets of 6

Standing on the injured leg with the knee bent 10-20 degrees, reach the arms forward while bending at the hip and extending the other leg back with that knee bent about 90 degrees. Keep the pelvis level. Start slowly and stay pain-free.



The Glider

Every third day · 3 sets of 4

Holding a support, keep body weight on the injured leg with the knee bent 10-20 degrees. Slide the other foot (in a sock) backward as far as is pain-free. Return by pulling with the arms, not the injured leg. Progress by gliding farther and faster.

Reference: Askling CM, Tengvar M, Thorstensson A. Acute hamstring injuries in Swedish elite football: a prospective randomised controlled clinical trial comparing two rehabilitation protocols. Br J Sports Med. 2013;47(15):953-959.

Images: Mardis M, PFATS Foundation

	PHASE 1 Protection	PHASE 2 Lengthening strength	PHASE 3 Running and speed	PHASE 4 Return to sport
Weight bearing	Crutches until normal gait	Full	Full	Full
Motion	Gentle, pain-free	Full active motion	Full	Full
Strengthening	Isometrics, core	Extender, Diver, Glider	Nordic, heavy eccentrics	Maintain Nordic
Running	None	Walk-jog to 70%	Build to 100% sprint	Sport-specific

Tendon tears treated without surgery may need protected weight bearing with crutches for about 4 weeks or more, as directed by Dr. Tummala.

Phase 1 · Protection

- Crutches only until the patient walks **without pain or a limp**
- We suggest no aggressive hamstring stretching or painful positions in this phase
- Gentle pain-free motion. Flexibility for the hip flexors, quadriceps and calf.
- Submaximal isometric knee flexion and hip extension, glute sets and core stabilization
- Begin **the Extender** as tolerated
- Upper body or single-leg cycling for fitness. Ice and compression for comfort.

CRITERIA TO PROGRESS

- ✓ Normal walking without pain
- ✓ Pain-free submaximal isometric knee flexion
- ✓ Pain-free single-leg squat

Phase 2 · Lengthening Strength

- Askling lengthening exercises: **the Extender, the Diver and the Glider** (page 1)
- Bridges progressing to single-leg bridges. Prone leg curls.
- Lumbopelvic and trunk control with progressive speed
- Walk-jog program starting at 10-25% effort, progressing by about 10% steps to 70%

CRITERIA TO PROGRESS

- ✓ Running at 70% effort without pain
- ✓ Full pain-free active motion
- ✓ Pain-free resisted knee flexion in mid-range

Phase 3 · Running and Speed

- Running from 70% to 100% effort. Progress by about 10% steps, then 5% steps above 90%.
- Acceleration, deceleration and change-of-direction drills
- **Nordic hamstring exercise** progression. Heavier eccentric and single-leg strength work.
- Plyometrics as tolerated

CRITERIA TO PROGRESS

- ✓ Pain-free sprinting at full speed
- ✓ Pain-free high-speed change of direction
- ✓ Strength close to the uninjured side

Phase 4 · Return to Sport

- Sport-specific drills progressing from light to full team training
- Build high-speed running volume to match the demands of the sport before full return
- Continue the Nordic hamstring exercise once or twice a week through the season
- We favor a gradual increase in match play since reinjury risk is highest in the first weeks back

Suggested Return-to-Sport Criteria

- Hamstring strength **at least 90% of the uninjured side**
- Full, pain-free active knee extension compared with the other side
- No tenderness on palpation of the injured area
- **Pain-free full-speed sprinting** and sport-specific change of direction
- Completion of full team training sessions without symptoms

After return, we suggest continuing the Nordic hamstring exercise once or twice a week through the season.

This protocol is a general guideline and does not replace the clinical judgment of the treating therapist and surgeon.

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