

Hamstring Tendinopathy Treatment Guidelines Handout

Hamstring tendinopathy, also known as hamstring tendonitis or tendinitis, is a condition that affects the hamstring muscles. The hamstring muscles are located in the back of the thigh and are responsible for bending the knee and extending the hip joint.

Treatment and management options

Rehabilitation

Effective management of tendinopathies hinges on progressive loading within a pain-monitoring framework to alleviate discomfort and restore function. Rehabilitation should encompass the entire kinetic chain and gradually incorporate energy storage and release exercises to normalize load capacity in the lower limb.

Exercise prescription

As mentioned earlier, progressive loading through exercise is a crucial aspect of hamstring tendinopathy treatment. However, the type and intensity of exercises should be tailored to the individual's specific needs and level of pain.

Goom et al. (2016) recommends daily monitoring of pain using a load test (e.g., short—or long-lever bridge, arabesque) at the same time each day during rehabilitation. While some pain during and after exercise is acceptable, symptoms should subside within 24 hours and should not progressively worsen throughout the loading program.

Advancement through the stages outlined below is determined by symptoms and response to increased exercise load rather than specific time frames. The 4-stage program typically takes 3 to 6 months to complete, though individual variations are common due to differences in pain levels and functional deficits.

- **Stage 1: Isometric hamstring load**

Resisted isometric exercise in positions without tendon compression is advocated as an effective means to load the muscle-tendon unit and reduce pain in PHT with irritable symptom.

Suitable exercises for this stage include isometric leg curls, bridge holds with hips in a neutral position, isometric straight-leg pull-downs, and trunk extensions. If gym equipment is unavailable, isometric long-leg bridging on two legs, progressing to single-leg holds, serves as an effective alternative.

- **Stage 2: Isotonic hamstring load with minimal hip flexion**

Isotonic load can be introduced once minimal, or no pain is experienced during early hip flexion exercises. The goal is to restore hamstring strength, bulk, and capacity within a functional range of motion, all of which are crucial for the rehabilitation of tendinopathy.

Eccentric exercise is widely recognized as the preferred treatment for tendinopathy; however, there is limited evidence supporting the isolation of the eccentric component. Heavy slow resistance (HSR) training, which incorporates both concentric and eccentric elements, has shown favorable comparisons to isolated eccentric loading in treating Achilles and patellar tendons.

The focus with HSR is on slow, fatiguing, resisted isotonic exercise, starting at a 15-repetition maximum (the heaviest load that can be lifted 15 times in one set) and progressing to an 8-repetition

maximum, with 3 to 4 sets every other day. A contraction duration of 3 seconds for each phase (concentric and eccentric) is recommended.

Suitable exercises in this stage include the single-leg bridge, prone hip extension, prone leg curl, Nordic hamstring exercise, bridging progressions, and supine leg curl.

- **Stage 3: Isotonic exercises in positions of increased hip flexion (70°–90°)**

The objective of stage 3 is to further develop hamstring muscle strength, hypertrophy, and functional positioning while advancing towards greater hip flexion. This phase can begin once there is minimal pain during high-load hip flexion tests (e.g., lunge or arabesque within the athlete's sport-specific range).

Exercise dosage and frequency remain consistent with stage 2, occurring every other day. In this stage, exercises may include slow hip thrusts, forward step-ups, walking lunges, deadlifts, Romanian deadlifts, and "the diver." It is important to note that some of these exercises may not be suitable for less active individuals.

- **Stage 4: energy storage loading**

Stage 4 is only required for those returning to sports involving lower-limb energy storage or impact loading. Reintroduction of power/elastic stimulus for the myotendinous unit can begin when there is minimal pain (VAS, 0 to 3 during load tests like the arabesque) and adequate bilateral strength in single-leg stage 2 and 3 exercises. There should also be proper execution and control of energy storage activity.

Potential progression of stage 4 exercises may include sprinter leg curl, A-skips, fast sled push or pull, alternate-leg split squats, bounding, stair or hill bounding, kettlebell swings, and gradual reintroduction of sport-specific squat and lunge activities.

For multidirectional sports (e.g., football, rugby), progression should include lateral, rotational, or cutting movements to improve strength and control and manage enthesal loads in multiple planes of movement. Sessions would include a maximum of 3 to 4 activities (typically 15–20 repetitions or steps, 3 sets), usually starting with 1 and adding 1 to 2 per week depending on pain response.

Other considerations

- Dry needling and soft tissue techniques have been employed in treating PHT, though supporting evidence remains limited to case series. Anti-inflammatory medications like ibuprofen are often recommended for alleviating irritable tendon pain and may also inhibit tenocyte overstimulation and signaling.
- Additional treatments to consider include extracorporeal shockwave therapy (ESWT) and various injections. ESWT can modulate pain in less reactive tendinopathies but is less effective and may even exacerbate early-stage symptoms. Peritendinous corticosteroid injections can offer short-term pain relief, though symptoms often recur.
- Platelet-rich therapies, autologous blood, and other agents are sometimes used for long-standing lesions; however, there is currently insufficient evidence to endorse platelet-rich therapies for musculoskeletal soft tissue injuries.
- For recalcitrant cases where conservative management has failed, surgical intervention might be an option.