

Hamstring Strain Rehabilitation & Prevention



Bryan Heiderscheit

Bryan is a physical therapist with a doctorate in biomechanics. His research is aimed at understanding and enhancing the clinical management of orthopaedic conditions, with a particular focus on running related injuries. Bryan is also Director of both UW Badger Athletic Performance, founder of UW Health Runners' Clinic and Co-director of UW Neuromuscular Biomechanics Laboratory.

Quick Takeaways

- Running at high speed can be more demanding on the muscle than strength exercises including nordics
- Exercise selection is important and must be clinically reasoned
- Athlete-perceived location of maximum pain does not align well with edema location (5-8cm difference) - Don't always rely on the athlete for location of injury!
- Force/Time tracings are an important metric to assess as it can expose deficits even in the presence of normal peak force outputs
- Generally the further away from the ischial tuberosity the epicentre of pain the faster the recovery
- Beware with loading at longer muscle lengths too quickly



Key Learnings

1 Knee flexion torque represents a composite score of all hamstring muscles. Even if athletes reach limb symmetry in strength testing, they may have individual muscle deficits

2 Slow running has a different form, landing posture and acceleration profile to high speed running. Short distance higher speed running should be introduced in early rehab over slow, high volume running

3 Increasing running speed from 80% max velocity to 100% max velocity increases eccentric load by 50%