

Hamstring return to play protocol Part 1

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Overview

Having recently read an article in the journal Physiotherapy titled; **Interventions for preventing hamstring injuries: a systematic review** (Goldman & Jones, 2011) it got me thinking about how we rehabilitate hamstring injuries and what we do prior to try and prevent such injury.

In this article I will discuss how I base my treatment plans from the incidence of injury up to and including the first 72 hours. In later issues I plan to progress into how treatment and rehab is advanced up to an athletes return to play.

Prevention

Referring back to the meta-analysis study referenced above, the article didn't reveal anything new. The evidence available links increased tissue quality as a major factor in reducing hamstring injury incidence. This emphasises the importance of regular soft tissue work either by an appropriate manual therapist or self directed e.g. foam rolling, active isolated stretching (AIS).

In addition, evidence strengthened the argument for more eccentric based hamstring strength training as opposed to concentric based exercises. This is of significant importance given that the hamstrings are most vulnerable during late swing phase of running (Verrall et al. 2001), when hamstring function changes from eccentric to concentric activation. This makes it logical that improving the eccentric function of muscles should decrease the risk of strain. Furthermore, running technique and re-training may be useful to prevent over-striding, if an athlete warrants such input.

The importance of core strength and stability is also of importance, with athletes weak in this area at increased injury risk. Personally this point hit the button for me. Every athlete or private client I have treated for hamstring injuries has, bar one or two, has had some significant core issues. Be that asymmetrical core strength, reduced core endurance, inefficient or poor core recruitment/patterning, a common link has been highly apparent. Thus, any attempt to identify such issues prior to injury would be seem advantageous so that appropriate training for highlighted individuals could be employed.

I also feel hydration has a major influence particularly considering the fascial networks and close proximity of the major prime movers of the upper shank. Knowing that good hydration aids fascial elasticity and pliability explains the importance of this point and could serve as medium for patient/athlete education, in particular those who have suffered with previous hamstring issues.

Early management

Early detection and diagnosis is obviously of great importance with any soft tissue injury. However, failure to gain an accurate and definitive diagnosis should not deter from employing several key aspects following soft tissue trauma. Many of the concepts listed below are transferable to other injuries;

- PRICE (protection, relative rest, ice, compression and elevation/education)
- Don't stretch or soft tissue Rx directly over injured area first 48-72 hours to allow adequate scar formation
- Compression first 72 hrs; via strapping in addition to compression pants/shorts at all times
- No non steroid anti-inflammatories first 72 hrs
- Avoid prolonged sitting/travelling
- Prevent dehydration

During initial assessment a straight leg raise would most probably be used to assess for neural involvement. As this test stretches the hamstring group it should be used with caution. If the result of this test is not going to change what you do in terms of treatment and rehab don't routinely re-test during the first 72 hours, as ultimately it may prevent adequate scar tissue formation.

Probably of most importance at this stage is ensuring that the athlete is pain-free walking. If not use elbow crutches until athlete is able. This doesn't mean that the athlete cannot ambulate but should engage with alternative movement based rehab such as pool walking. By incorporating hip and ankle mobility exercises in the water will prevent restrictions developing and such exercise should be commenced as soon as possible.

During this early period the use of external aids such as sacroiliac joint (SIJ) belt could be considered if pelvic instability was suspected (Mason and Dickens, 2007). If any pelvic/SIJ mal-alignments are identified these should be treated appropriately. A local

SIJ mobilisation or manipulation could provide improvement in SIJ hypomobility that may be evident as a result of increased hamstring torque and tone post injury. Inner core exercises and anti-rotational exercise variations can be started immediately.

Checking for increased activity of the quads, hip flexors and spinal erectors could indicate corrective exercise/treatment to normalise. Over activity of these components, can increase load on the hamstrings and in particular the biceps femoris. See below for videos showing AIS exercises for the quads and hip flexors.

AIS quad stretch with band

AIS hip flexor stretch with band

Hip dominant exercises such as hip thrusts, small knee bends, glute bridges, low load isometric hamstring activation exercises along with sciatic nerve sliders can all be commenced as soon as possible providing all are pain-free. It is imperative that terminal knee extension is avoided to prevent excessive hamstring stretching which could prevent adequate scar site formation during the acute stages post injury.

If I was to pinpoint one real specific manual therapy technique that can have great results it would probably be releasing the sacrotuberous and long dorsal ligaments. The sacrotuberous ligament is of particular importance given that we know its close relation to the hamstring group and that it begins to stretch first during the early swing phase prior to stretch of the hamstrings. Thus, treating any adhesions at this site could improve hip flexor patterning during gait and promote an early return to a normal gait pattern.

I hope Part One of this series has given some insight into possible ways to treat and rehabilitate athletes within the first 72 hours post hamstring injury. Look out for Part Two which will progress the above and look at what objective markers are needed prior to a return to running.

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References

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Biography

Andy is the current assistant first team physiotherapist for the Leeds Rhinos.

He graduated in Physiotherapy from University of Bradford with a first class honours degree which followed on from a previous Bachelor of Science degree from Leeds Metropolitan University in Sports Performance Coaching.

He has previous experience working in rugby league within both amateur, junior and youth representative level.

Andy also works as an associate physiotherapist for Pro Sport Physiotherapy providing assessment and treatment for patients at the 4 star hotel Oulton Hall. **For more information on Pro Sport Physiotherapy visit their website at www.prosportphysiotherapy.co.uk**