

Hamstring return to play Protocol; Part two

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Part two of this series aims to progress treatment and rehabilitation beyond the acute phase and facilitate an athlete's return back into training based activity. Please note that many of the principles covered in Part one of this series should continue to be employed. In particular, importance to athletes hydration, tissue quality and the avoidance of provocative postures/positions should be employed.

What may be prevalent post 72 hours injury and beyond is to determine what may have caused the hamstring injury. I have found great use in the SFMA screen as a tool to determine possible causes. Failure in multisegmental extension could for example indicate a tightness in the hip flexors. Knowing that over activity of this area can increase load on the hamstrings, particular the biceps femoris, is of great use. In addition, lack of hip extension could result in adequate gluteal contraction in the rear leg during running. This would relate to both rear foot swing and rear foot push off. Particularly under fatigue, this may result in other posterior chain muscles increasing in their contribution to both hip extension and forward propulsion during running. Therefore, it could be argued that improving the hip extension pattern could reduce overuse and traumatic injury throughout the posterior muscle chain.

Multisegmental flexion testing (SFMA) could indicate possible neuro-muscular tightness within the hamstring group. Having baseline data for such testing would inevitably be of great use at this point to compare the athlete's current measure against their baseline. However, if no baseline scores were available a measure at this point could serve as a clinically sound objective marker which could then be retested at subsequent treatment sessions. These scores are easily recorded using a measuring stick and a plyo box. At our facility we test all our athletes weekly using this technique.

If any neural component is detected during testing a proportion of treatment and rehab should be designated to this area. I have found the ART techniques to the hip capsule and lateral rotators along with direct sciatic nerve techniques extremely beneficial. Neural sliders can be incorporated into rehab, slowly progressing the amount of knee flexion, as symptoms allow. Active isolated stretching can be begun at this point progressing from the achilles to calf to adductors to glutes/rotators and finally to direct hamstring protocols. Please note that all stretches must be painfree.

Many hamstring protocols focus on developing gluteal strength post hamstring injury. I think this is largely the result of the conception that the hamstring has overworked as a result of weak gluteals. Whilst this can be a component in such injuries I believe that we often over focus on this aspect and can sometimes fail to develop other critical areas. Hip dominant exercises (pull throughs/hip thrusts/bridges) are very important in the rehab post hamstring injury to promote posterior muscle strength however, this is only part of the process.

The 5th hip extensor

Research tells us the adductor magnus is a hip extensor in addition to a hip adductor. However, we

often fail to incorporate functional adductor exercises into our hamstring rehab protocols. Some studies have shown that the adductor magnus is the strongest hip extensor above 60 degrees of hip flexion thus, inclusion of specific exercises to this muscle and surrounding adductor group must be beneficial. Sports including an aspect of running, jumping or swimming will at times be in a position whereby the hip is in a degree of flexion above 60 degrees. Thus, we need to strengthen the adductor magnus.

As a basis for returning to running I ensure that all athletes are able to complete the following pain-free before attempting to run.

- Full ROM; both active and passive and to include muscle and neural testing
- No pain on resisted knee flex/hip ext
- Add mag bridge 5 x 12 reps each side
- Single leg long lever bridge 3 x 3 reps each side
- Completed a pool running session pain-free with no reaction following day

A thorough warm up is imperative. Ten to fifteen minutes as a minimum should be completed followed by some glute and adductor activation drills.

The stiff ankle and hip extension preparatory drills made famous by Frans Bosch can be incorporated to encourage optimal lower chain mechanics and movement patterning prior to running. Examples would include foot pawing and cycling, high knee work and high knee run and holds. There is some excellent materials by Frans Bosch available for those who are interested in reading further into this area.

At this stage I would begin with straight line tempo runs over a distance of between 50-70 m building up from 30 % jogging pace to around 90 % of maximal pace. Only at this point would I then begin to include some acceleration and deceleration work and start to incorporate some sub-maximal change of direction work. Be cautious not to induce to high running volume at this stage. My first session might include eight tempo runs starting at 30% and progressing onto 60% of max speed. I would then monitor the athletes reaction the following day and then progress accordingly.

Some other aspects to be aware of at this stage include;

- The avoidance of deep flexion loads via rowing/bike particularly with high hamstring injury
- Ice and sciatic nerve path stretching post session every session
- With big hamstring tears and especially those with previous history the use of traumeel and losartan to reduce neuromuscular tone and reduce excessive scar formation respectively could be considered.

I hope this article has been helpful and given an insight in possible ways to rehabilitate any athlete after the initial acute inflammatory phase. The final episode of this series will look at bridging the gap from a return to running to the athletes return to competitive play.

Biography

Andy is the current assistant first team physiotherapist for the Leeds Rhinos and has been involved with the club for the past two seasons. The Leeds Rhinos are an elite rugby league club competing in the Engage Super League (England).

He graduated in Physiotherapy from the 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 at a variety of representative levels. He has also treated within National League basketball and professional golf.

Andy is also the creator and author of rehabroom.co.uk, a free online resource site aimed at physiotherapists, strength and conditioning coaches and personal trainers.

Andy also works as an associate physiotherapist for Pro Sport Physiotherapy providing assessment and treatment for patients at the company's Kirkstall site and at the 4 star hotel Oulton Hall.