

CREATING STRUCTURE FOR SUCCESSFUL HAMSTRING REHABILITATION

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Introduction

Deciding the best time to allow a safe return to play after a hamstring injury continues to be one of the most challenging goals in sports rehabilitation, especially when trying to avoid an injury recurrence either of the hamstring muscle or of another anatomical district.

The optimal functional recovery of an injured player is attained by adopting a strict but safe criteria progression which can be summarised into 5 phases aimed to: i) reduce pain and swelling; ii) restore Range of Motion (ROM) and flexibility; iii) restore strength & endurance; iv) restore proprioception & coordination; v) restore sport specific activities and safely return to play preventing re-injuries.

This last phase of the rehabilitation program is carried out on the field, under supervision of expertly trained rehabilitation specialists. A functional, goal orientated rather than a time based criteria approach is implemented, with rehabilitation in the gym and hydrotherapy pool, before this, most important, last phase of field based rehabilitation can take place.

The on field rehabilitation should be specific for the individual and will vary depending on the severity and location of the neuro-musculo-tendinous injury.

There are 6 key points which are fundamental to address, to help the process of functional recovery, return to play and re-injury prevention.

Key Points

1. It is very important to start every on-field session with a very careful warm-up. The warm-up represents the introduction to the session and the importance of this is frequently underestimated. This lasts about ten minutes, with running and flexibility exercises that must be carried out with the correct technique, exploiting full ROM of all the involved joints. Carefully observing technical execution of the exercises, the rehabilitation specialist can understand the needs of the patient during the subsequent phases of the session.
2. Eccentric work is very important and should not be just gym based. If possible this aspect can be gradually trained with the use of hill walking.
3. Short distance shuttle running (i.e. 50 m), initially in straight lines of increasing intensity is commenced before repeating with cariocas and 360° turns. These exercises take place initially without, and then with the ball, with the specific aim to ensure symmetrical movement of both legs (injured and uninjured). They need to be of a high volume and of increasing speed.
4. Change of direction work should involve close assessment of lumbo-pelvic, knee and ankle control and alignment through progressively greater speeds and angle changes. Technique and execution of these movements in acceleration and deceleration should be focused separately at the lumbar spine/pelvis/hip/knee and ankle .

5. Use of football-based exercises should focus on defending and attacking with further focus on posture and movement patterning. When playing 1 vs 1 short games this involves isometric actions of most of the muscle groups of the trunk, the lower and also the upper limbs, maintaining the capability to possess the ball and at the same time to pass from almost static to dynamic exercises (sprint and kick). These capabilities should be trained carefully and deliberately repetitively, correcting all the technical errors and avoiding fatigue.
6. Physical fitness centrally and peripherally (loss of above mentioned posture). This aspect is frequently underestimated, but is one of the most important things to do for re-injury prevention. An incremental running test aimed to assess the aerobic and the anaerobic thresholds is very important for understanding if the player has recovered the ability to cope with fatigue: reference data are 11.5 km/h and 13.5 km/h for aerobic and anaerobic thresholds respectively.

For hamstring rehabilitation to be deemed successful the injured player should be able to return to full training at least at the same intensity prior to the injury and no recurrence of the injury. It is of a paramount importance that a structured, phase orientated approach is adopted with a particular focus on running and football movement patterns and fatigue, peripherally and centrally.