

## WHY DO SO MANY HAMSTRING INJURIES OCCUR/RECUR?



### Askling C

The Swedish School of Sport and Health Sciences,  
Department of Molecular Medicine and Surgery, Karolinska Institutet,  
Stockholm, Sweden

#### Introduction

Acute hamstring injuries are the single most common injury in European professional football and therefore have an impact on the performance of the actual team. Despite recent/ongoing research and prevention strategies, acute hamstring injury incidence in elite football seems not to decrease.

#### Different types – injury situation

There are at least two distinctly different types of acute hamstring injuries in football, which are best distinguished by the different injury situation. The most common injury type occurs during high-speed running and/or accelerations and the other occurs during movements leading to extensive lengthening of the hamstrings, such as, high kicking, split positions and glide tackling.

The *high-speed running type* is mainly located to the Long Head of Biceps Femoris (BFH) and typically involves the proximal muscle-tendon junction.

In contrast, the *stretching-type* is located close to the ischial tuberosity and typically involves tendon tissue of the Semi-Membranosus (SM).

#### Reinjuries

The re-injury rate is high for European elite football, which in most cases probably indicates inadequate rehabilitation program or a premature return to football, in worst case, a combination of both. The commonly utilized rehabilitation programs may be inadequate at resolving possible muscular weakness, reduced tissue extensibility, and/or altered movement patterns associated with the injury. Further, the traditional criteria used to determine the readiness of the player to return to team training/match may be insensitive to these persistent deficits, resulting in a premature return.

#### Strongest riskfactor – previous hamstring injury

The strongest risk factor for hamstring injury appears to be a previous history of hamstring injury. The reasons for this increased risk could be incomplete healing, prior hamstring injury persistent eccentric weakness and/or neuromuscular inhibition in previously injured hamstring muscle (commonly BFH).

#### Effective evidence based rehabilitation – L-protocol

A recent study on Swedish elite football players, showed that a rehabilitation protocol consisting of lengthening type of exercises (L-protocol) was significantly more effective to promote return to full team training/match compared with a conventional protocol (C-protocol) after acute hamstring injuries (mean 28 days vs 51 days), respectively (1-2).

**Return - Askling H-test**

The primary objective of all rehabilitation protocols is to return the player as soon as possible to the prior level of performance with a minimal risk of injury recurrence. Hamstring injuries are a heterogeneous group, especially in terms of the different types of injuries, injury locations and sizes. Even psychological aspects on an individual level can affect the rehabilitation period. All these parameters make the prognosis after acute hamstring injuries in terms of rehabilitation time and safe return to football difficult to predict.

A active ballistic hamstring flexibility test (Askling H-test) could provide useful additional information to the common clinical examination before allowing return to full team-training and/or match.

**References**

1. Askling CM, Tengvar M, Thorstensson A. Acute hamstring injuries in Swedish elite football: a prospective randomized clinical trial comparing two rehabilitation protocols. *Br J Sports* 2013; 47: 953-959
2. Askling CM, Tengvar M, Tarassova O, Thorstensson A. Acute hamstring injuries in Swedish elite sprinters and jumpers: a prospective randomized clinical trial comparing two rehabilitation protocols. *Br J Sports* 2014; 48: 532-539