The course of a hamstring injury in an elite athlete: Patient perception, functionality tests and actual status of the injury observed using MRI and DTI

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The main objective of this study is to explore the correlation between the patient*s perception of the injury, clinical tests and parameters found using DTI and MRI during the rehabilitation process.

Ethical review	Approved WMO
Status	Will not start
Health condition type	Muscle disorders
Study type	Observational invasive

Summary

ID

NL-OMON41134

Source
ToetsingOnline

Brief title
DTI in hamstring injury

Condition

- Muscle disorders

Synonym
hamstring tear

Research involving
Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: DTI, Hamstring injury, recovery, return to play

Outcome measures

Primary outcome

The main endpoints of this study are:

DTI derived parameters and characterization of changes in of affected muscles, in the course of a hamstring injury and their correlation with self-reports and clinical assessments.

Secondary outcome

MRI T1 and T2 images shall be scored by a radiologist using a standardized form. The questionnaires regarding patient self-reports concerning injury severity will consist of several questions, taking a couple of minutes to fill in. Clinical assessments will be conducted by the (medical) physicians of AFC AJAX and will be scored accordingly on a standardized form. Active range of knee motion (AROM) and knee extension (with hip at 90 degree angle) will be measured in degrees. Pain experienced during stretch, eccentric and concentric resistance will be documented using VAS pain scores (1-10).

Study description

Background summary

Injuries are a frequent occurrence among professional football players. As the aforementioned trauma is known for its high prevalence of recurrence, it begs the question whether there is an overall premature *return-to-play*. Especially as regeneration and remodeling may occur up to 9 months following the injury 1.

In addition, studies regarding potential prognostic markers predicting *return to play* following the said injury are scarce.
In light of the current medical literature, efficiently predicting the convalescent period of an athlete remains difficult. Our interest lies in particular with acute hamstring injuries occurring during sudden explosive movements (such as jumping, shooting, twisting, turning and change of direction), sprinting or high intensity running.
Diffusion Tensor Imaging (DTI) is a Magnetic Resonance Imaging (MRI) technique that is able to characterize muscle and nerve fiber architecture as well as to provide insights in local histopathological status of nerve and muscle tissue 2* 6.

The main research question of this explorative study is:
What is the association between the patient*s perception of the severity of the injury, clinical tests and parameters found using DTI and MRI during the rehabilitation process.

We hypothesize that the DTI findings will provide insights regarding muscle repair and the convalescent period, which will not entirely correlate with current used patient self-perception and clinical tests. Thus return-to-play will not concur with complete normalization of DTI and MRI parameters.

Study objective

The main objective of this study is to explore the correlation between the patient*s perception of the injury, clinical tests and parameters found using DTI and MRI during the rehabilitation process.

Study design

Observational prospective study

Study burden and risks

Patients have no benefit by participating in this study.
Risks for the subjects undergoing a MRI examination are minimal, provided precautions have been made to prevent examining individuals with contraindications. For this purpose, the routine MRI contra indications form of the AMC will be used. Findings in this study will not be used for management. A group-related benefit of this diagnostic study is that DTI potentially has clinical utility in the assessment of therapeutic intervention if proven a suitable method to illustrate and predict the convalescent period. This is now based on hypothetically less reproducible strength measurements.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

*hamstring tear and positive MRI (O*Donoghue grade 1-2) 7 will be recruited through the sports physician of AFC Ajax Amsterdam.
* Diagnosis has to fulfill the UEFA acute hamstring tear criteria (Appendix 1)
* Tear has to be the result of explosive movements such as, sprinting or high intensity running.

Exclusion criteria

* Complete ruptures to the HMC will be excluded due to their different course of recovery. recurrent tear

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	2
Type:	Anticipated

Ethics review

Approved WMO

Date:	27-03-2014
Application type:	First submission
Review commission:	METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL48190.018.14