The utilization of virtual realilty studying changes in motor control after ACL injury

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Tendon, ligament and cartilage disorders
Study type	Observational non invasive

Summary

ID

NL-OMON36013

Source
ToetsingOnline

Brief title
Motor control after ACL injury

Condition

- Tendon, ligament and cartilage disorders
- Bone and joint therapeutic procedures

Synonym
ruptured ACL, torn anterior cruciate ligament

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: ACL injury, Knee, Motor control, Virtual reality

Outcome measures

Primary outcome

Lower extremity joint angles and moments.

Secondary outcome

IKDC scores

Study description

Background summary

Patients may fail to to fully utilize motor learning capabilities after ACL-injury and subsequent ACL-reconstruction. It appears that cognitive changes in motor control have occurred after injury of the ACL. It has been shown that patients who have had an ACL-reconstruction have a 5-fold increase to sustain the same injury when compared to non injured subjects.34 It is currently not well understood what the cause of the significant increased risk is. A possible cause that has been reported is that patients have an ineffective motor control which places them at greater risk.34 If the causes of these abnormal movement patterns are known, rehabilitation programs can be developed and implemented to determine if and how these alterations can be normalized or optimized. This research may aide in understanding how rehabilitation may be improved.

Study objective

The goal of the study is to investigate whether and to what extend conscious control of the movements of the knee joint is present. Evidence is emerging that patients use an attentional focus that is directed to conscious control of the movements (internal focus). This strategy has been shown to be detrimental in motor learning. The patients will be embedded in a virtual reality setting in order to distract them from their conscious control of the knee. The hypothesis is that patients reach a more normalized movement pattern, that is, with a focus on the effects of the movements (external focus) in the virtual reality setting versus the same biomechanical task in terms of stepping down a 20-cm box.

Study design

The study will be a observational study. Patients will be tested at 6 months after surgery. Control subjects will be tested to establish reference values.

Study burden and risks

The burden of the research consists of the regular physical examination which takes place in the context of routine checks after surgery. This study intended to determine the suitability of patients for possible participation in the study. Insofar as this physical examination takes place in the context of regular patient care, therefore places no additional time requirements for the patient. The measurements made when the patient gives his/her consent to participation is in total duration 1 hour. The measurements are performed 6 months after surgery. Heavy physical work, according to the Directive Anterior Cruciate Ligament of the Dutch Orthopaedic Society are allowed 3 months after surgery. In general at 6 months, patients either entirely or partially return to sports. The task of the research is to move from box 20 cm high. For clarity, this is similar to the height of a stair. In this sense, the researchers consider the risk as very low since it is similar to an everyday task like stairs and down.

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

Patients between age 18-45
Injury < 1 year
Arthroscopic ACL reconstruction
Standardized rehabilitation
Active in sports after surgery

Exclusion criteria

Swelling and pain of the operated knee joint
Varus malalignment of the knee
Grade 3 injuryof the collateral ligaments
Concomitant ligamentous injuries to the posterolateral corner
> 50% base menisectomie
Traumatic cartilage injuries
Degenerative changes of the knee joint
Surgical procedures or injuries to the contralateral leg
Neurological and/or vestibular disease

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-10-2011
Enrollment:	0
Type:	Actual

Ethics review

Approved WMO

Date:	05-05-2011
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

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	NL35657.042.11