Ambulating with osteoarthritis: Validity and reliability of a mobile measuring tool to determine knee load in patients with knee osteoarthritis

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The aim of the present study is to validate a mobile measuring tool that is capable to determine the knee load during different daily activities.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Bone and joint injuries
Study type	Observational non invasive

Summary

ID

NL-OMON39819

Source
ToetsingOnline

Brief title
Ambulating with osteoarthritis

Condition

- Bone and joint injuries

Synonym
osteoarthritis; degenerative joint disease

Research involving
Human

Sponsors and support

Primary sponsor: Fontys Paramedische Hogeschool
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: adduction moment, knee, osteoarthritis

Outcome measures

Primary outcome

The correlation coefficient describing the relation between the knee adduction moment measured with 3D gait analysis and the knee adduction angle as measured with the mobile measuring tool (3D gyroscope).

Secondary outcome

N.A.

Study description

Background summary

Osteoarthritis is a degenerative joint disease. The damaged cartilage may lead to pain, joint stiffness and loss of function. Although osteoarthritis cannot be cured, it can be treated with pharmacological pain relief and physiotherapy. The physiotherapist aims to treat osteoarthrtis by reducing pain, physical limitations and participation problems.

Ambulation and the stimulation of movement is an important part of the treatment. However, it is important that patient ambulates in such a way that it does not increase the load on the knee joint. It has been pointed out in scientific research that in certain patients ambulating may lead to an increased load on the affected part of the knee joint. It is therefore crucial that the physiotherapist is able to objectively measure the knee load during movement. The increased knee load may be partly due to an incorrect gait pattern. The knee load, or more specifically, the knee adduction moment, seems to play an important role in the onset and progression of osteoarthritis. Patients with a high knee adduction moment have an increased risk of developping osteoarthritis and requiring total knee arthroplasty. The knee adduction moment is determined by the ground reaction force and the moment arm of the ground reaction force. Currently, this can only be measured in a gait lab by means of a force plate and 3D gait analysis. Because this equipment is not accessible for physiotherapists, there is a need for an alternative method, that is, easier to use and less expensive than the current measuring tools to

determine the knee load/knee adduction moment in the physiotherapy practice.

Study objective

The aim of the present study is to validate a mobile measuring tool that is capable to determine the knee load during different daily activities.

Study design

Cross-sectional observational study

Study burden and risks

Each person will participate in the study for a duration of maximally two hours. During that time they will repeatedly (6 times) perform three simple dailly activities.

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

1) Age 50 years and older;
2) Diagnosed with knee osteoarthritis (radiografically diagnosed or determined according to the American College of Rheumatology (ACR) guidelines;
3) Ability to understand and read the Dutch language (this with regard to persons' ability to fill out questionnaires).

Exclusion criteria

1) Unable to walk without the use of walking aids;
2) Additional orthopedic or neurological problems which severely limit person's functioning;
3) Diagnosed with osteoarthritis in the hip;
4) Severe perceptual or cognitive limitations.
5) Cardiac and pulmonairy problems.

Study design

Design

Study type: Observational non invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	02-04-2013
Enrollment:	20
Type:	Actual

Ethics review

Approved WMO Date:	27-02-2013
Application type:	First submission
Review commission:	METC Maxima Medisch Centrum (Veldhoven)

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	NL42762.015.12