The effect of age on foot structure, foot complaints, plantar pressure and center of pressure in ageing women.

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To gather information about the development of 1. foot structure, 2. foot complaints, 3. plantar pressure distribution and 4. centre of pressure progression in feet over time in ageing women. 5. To determine the fit of shoes based on currently used...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Age related factors
Study type	Observational non invasive

Summary

ID

NL-OMON38551

Source
ToetsingOnline

Brief title
The effect of age on foot structure in ageing women

Condition

- Age related factors

Synonym
foot shape, foot structure, plantar pressure, pressure of the footsole

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Samenwerkingsverband Noord-Nederland (er zijn geen (beperkende) voorwaarden verbonden bij deze samenwerking)

Intervention

Keyword: age effect, foot structure, plantar pressure distribution, women

Outcome measures

Primary outcome

Ball circumference: the narrowest circumference measure around ball width and upper side foot.

Secondary outcome

1 Other foot structure variables, such as a) ball width, b) low instep, c) high instep and d) heel instep size , standing barefoot (loaded condition)

2. The presence of foot complaints using a questionnaire with multiple choice answers and open answers

3. Variables for pressure distribibution under the foot in six different regions under the foot: a) mean pressure, b) peak pressure, c) contact area and d) force-time integrals of the foot during stance and walking

4. Centre of pressure during stance (barefoot and with participants' own shoes and shoes provided by the UMCG): a) location in antero-posterio direction [percentage of total standlength], b) the absolute displacement of the COP in antero-posterior and medio-lateral direction [mm] c) the velocity of the displacement of the COP in antero-posterior and medio-lateral direction [m/s] d) The total discplacement of the COP [mm]

5. The fit of shoes: a) Determine the incidence of well-fitting shoes in each age-group [yes/no] and the absolute differences between foot structure measurements and last measurements, which are currently used by shoe

manufacturers.

Study description

Background summary

The prevalence of falls increases with age. A perturbed balance, due to ill-fitting shoes, is one of the leading causes of falls in healthy ageing people. As a consequence, also foot complaints may arise due to ill-fitting shoes.. Clinical practice gives the impression that age-related changes in foot-structure and plantar pressure distribution are present. However, shoe-fit of off-the-shelf shoes is based on the *average* foot structure of adult people and thus neglects the possible effects of age on foot structure. Therefore, it is of increasing interest to gather information about the development of foot structure, foot complaints and pressure distribution over age in order to analyze possible age-related differences. When differences in foot structure, foot pain and pressure distribution between age-groups exist, the results can be used to adapt shoe lasts in order to develop shoes specifically for age-related changes in women.

Study objective

To gather information about the development of 1. foot structure, 2. foot complaints, 3. plantar pressure distribution and 4. centre of pressure progression in feet over time in ageing women. 5. To determine the fit of shoes based on currently used last by shoe tecnicians, 6. To determine the effect of wearing solid, standard shoes on the plantar pressure distribution and center of pressure and 7. To determine the relationship between foot structure, foot complaints, plantar pressure distribution and center of pressure.

Statistically significant results may result in the development of better-fitting shoes by shoe technicians, according to age,

Study design

It is a cross-sectional observational study

Study burden and risks

The measurements will be conducted once (approx. one and a half hour) at the UMCG, in the motion laboratory of the department of Rehabilitationmedicine. No risks or burden are associated with the measurements, other than those encountered in daily life during standing and walking. Therefore, risks and burden are negligible. There are no invasive measurements of intervention

methods (medicine). In addition, there are no adverse effects.
Participants are asked to fill out a questionnaire about foot complaints.
Furthermore, geometry measures are made using tape measure and a 3D geomety footscan while standing.
Plantar pressure distribution and centre of pressure are measured using removable insoles while wearing shoes during standing and walking (Novel Pedar system). It is a leightweight and mobile system and therefore does nog cause any harm to the subjects. Women are included in this research because of our cooperation with a shoe manufacturer which specializes in women's shoes and the fact that women have a higher risk of falling and experience more foot complaints.

To determine the sensibility of the foot sole, the Semmes Weinstein test will be performed. Nylon monofilaments will be used. Sensibility can be decreased in elderly people or diabetic patients. Consequently, also perception of foot complaints or pain of the foot decrease. This test is not harmful for the participants and lasts for only a few seconds.

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

Being a Caucasian female
Aged in one of the following categories: 20-25, 30-35, 40-45, 50-55, 60-65, 70-75, 80-85 years
The self-reported ability to walk without a walking aid for more than 10 meters.

Exclusion criteria

- Sicknesses that have a major influence on gait, such as stroke and Parkinson*s disease,
- amputation at the level of hip, knee, ankle or foot or at the lower extremity,
- current use of orthopedic footwear and
- De zelfgerapporteerde bekwaamheid om verder te lopen dan 10 meter zonder hulpmiddellen.

Study design

Design

Study type: Observational non invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	30-10-2013
Enrollment:	168
Type:	Actual

Ethics review

Approved WMO Date:	11-10-2013
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO Date:	26-11-2013
Application type:	Amendment
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

ID: 28979
Source: Nationaal Trial Register
Title:

In other registers

Register	ID
CCMO	NL43412.042.13
OMON	NL-OMON28979