Short and tall body height and the effect on venous blood flow

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To investigate the effect of different sitting positions that are experienced in public transport by people of taller or shorter height than average on venous blood flow.

Ethical review	Approved WMO
Status	Will not start
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON37763

Source
ToetsingOnline

Brief title
Short and tall body height and the effect on venous blood flow

Condition

- Other condition
- Embolism and thrombosis

Synonym
blood clots, veous thrombosis

Health condition

grote of kleine lichaamslengte

Research involving
Human

Sponsors and support

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

Intervention

Keyword: blood flow, bodyheight, thrombosis, veins

Outcome measures

Primary outcome

Ultrasonography is applied to measure flow velocities in the popliteal vein. We

will measure both peak flow and mean flow.

Secondary outcome

Secundary study outcomes are popliteal flow velocity (cm/s), cross-sectional

area of the popliteal vein (cm2), and blood volume flow (ml/s).

Study description

Background summary

In the Netherlands there are around 800.000 people taller than average (> 1.90 m for men, and > 1.80 m for women), and approximately 2500 people smaller than average (< 1.51 m for men and < 1.45 m for women). The number of tall people is expected to increase. A recent study showed that people with a short stature have a reduction in health related quality of life. In people with a tall stature quality of life data is lacking.

The extremes of body height come with physical limitations in public transport and public space. Examples are little leg space or unadjustable seat height. This does not only lead to physical inconvenience, but also to physical complaints: a Norwegian cohort study found a 2-fold increased risk of venous thrombosis in men taller than 1.81 m.
In two previous studies we showed that in people with a body height above 1.85 m, the risk of venous thrombosis was 1.5 to 4.5 times increased after a long haul flight, as compared to people of average height. For people smaller than 1.60 m this risk was about 3-fold increased. Besides, unpublished results from the MEGA case-control study showed that there is an increased risk of venous

thrombosis for extremes of body height in people that have seated immobility at work.

Venous thrombosis is a disease that comes with morbidity and even mortality (e.g. death of acute pulmonary embolism). When seats are not height adjustable, it is possible that in people with short stature the popliteal veins become compressed and stasis of venous blood occurs. In people with a tall stature, stasis occurs when due to little leg space the legs are folded and therefore popliteal veins become compressed. A previous study showed that people that are seated in a way that their feet can not touch the floor, had a decreased venous blood flow velocity, as compared to sitting with feet touching the ground.
As a marker of venous thrombosis risk, we used stasis (or remaining flow) in the popliteal veins. The velocity of the venous blood can be measured using ultrasonography imaging. Our hypothesis was that in people with a taller or shorter stature than average, a decreased mean flow and peak flow in the popliteal vein would be found.
The results of this study, will tell us what optimal sitting positions are, and which positions should be avoided. Physical complaints should not occur, and the risk of venous thrombosis should not be increased.

Study objective

To investigate the effect of different sitting positions that are experienced in public transport by people of taller or shorter height than average on venous blood flow.

Study design

observational study

Study burden and risks

In this study, all participants are asked to come to the Leiden University Medical Center for a single study visit including a questionnaire and an ultrasonography examination.
Ultrasonography is a non-invasive technique without radiation. The study poses no risks for the participants.

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

- age between 40 and 50 years
- body height of either below 1.60 m (10 participants), above 1.90 m (10 participants), or in between these body heights (10 participants).

Exclusion criteria

- history of venous thrombotic event or pulmonary embolism
- history of venous surgery (leg veins)
- pregnancy

Study design

Design

Study type: Observational non invasive

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

Recruitment

NL

Recruitment status:	Will not start
Enrollment:	30
Type:	Anticipated

Ethics review

Approved WMO

Date:	27-02-2012
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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	NL38660.058.11