The effect of body positioning on vertebral rotation in the normal spine, measured in an upright weight-bearing MR-scanner.

Published: 27-05-2008
Last updated: 10-05-2024

To investigate the effect of different spinal mechanical loading conditions on (pre-existent) rotation in the normal nonscoliotic human spine in vivo.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Musculoskeletal and connective tissue disorders congenital
Study type	Observational invasive

Summary

ID

NL-OMON31751

Source
ToetsingOnline

Brief title
Vertebral rotation in upright MRI

Condition

- Musculoskeletal and connective tissue disorders congenital

Synonym
adolescent scoliosis without a known cause

Research involving
Human

Sponsors and support

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

Intervention

Keyword: body position, upright MRI, vertebral rotation

Outcome measures

Primary outcome

Vertebral rotation in the transverse plane.

Secondary outcome

Not applicable

Study description

Background summary

Rotational instability and vertebral rotation plays an important role in the onset and progression of AIS. However, dorsal shear loads lead to an impairment of rotational stability of the spine in vitro. This dorsal shear load only occurs in the upright human spine, not in the spines of other vertebrates, quadrupedal or bipedal alike.

A recent CT-studie has shown that the normal nonscoliotic spine has a preexistent rotation, corresponding to the most prevalent types of thoracic idiopathic scoliosis. However, the vertebral rotation in these studies was measured in subjects in a supine position.

By subjecting the spine to a more axial load, dorsally- or ventrally directed shear load by altering the scanning position of the subject (supine, standing upright and quadrupedal position), we can study the effect of these forces on preexistent vertebral rotation in vivo.

Study objective

To investigate the effect of different spinal mechanical loading conditions on (pre-existent) rotation in the normal nonscoliotic human spine in vivo.

Study design

Prospective cohort MRI pilot study

Study burden and risks

There are no major risks associated with participation in this study.

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

Healthy volunteers aged 18-30 years old

Exclusion criteria

All contra indications for MRI

A history of any spinal disorder, spinal trauma or spinal surgery.

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	06-08-2008
Enrollment:	30
Type:	Actual

Ethics review

Approved WMO Date:	27-05-2008
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	22-07-2008
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	14-10-2008
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

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	NL21119.041.07