Trunk postural control in low back pain patients: the effects of increased dead space breathing, local muscle vibration, external force perturbations and unstable sitting on precision control of trunk posture.

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The main objective is to study precision control of trunk posture and associated muscle recruitment in LBP patients and healthy controls during trunk positioning tasks in which postural control is challenged, by increased dead space breathing, by...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Musculoskeletal and connective tissue disorders NEC
Study type	Observational non invasive

Summary

ID

NL-OMON34066

Source
ToetsingOnline

Brief title
Trunk postural control in low back pain patients

Condition

- Musculoskeletal and connective tissue disorders NEC

Synonym
low back pain, musculoskeletal disorder of the lumbar spine

Research involving

Human

Sponsors and support

Primary sponsor: Vrije Universiteit
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: electromyography, external perturbations, low back pain, trunk postural control

Outcome measures

Primary outcome

Main study parameters will be the differences between LBP patients and healthy

control subjects in

1. kinematic variability (standard deviation of trunk angle)

2. trunk muscle recruitment (EMG amplitudes and ratios of different muscle

groups)

3. stiffness of the trunk (estimated based on kinematic responses to external

forces)

Secondary outcome

Not applicable

Study description

Background summary

Motor control in low back pain (LBP) patients is poorly understood. Recently, the theory of contingent adaptation was developed. This theory suggests non-deterministic adaptations of movement strategies with increased robustness (resistance to internal and external perturbations) of the afflicted joints or body parts as common goal. The present study will provide insight in adaptive strategies and associated muscle recruitment in patients with LBP during trunk positioning tasks in which postural control is challenged.

Study objective

The main objective is to study precision control of trunk posture and associated muscle recruitment in LBP patients and healthy controls during trunk positioning tasks in which postural control is challenged, by increased dead space breathing, by external perturbations (max. 100 N) and by local muscle vibration.

Study design

Comparative, cross-sectional study on cases and healthy controls.

Study burden and risks

Participation in this study involves low risks. All tasks are performed within a small part of the total range of motion (Troke et al., 2005), close to neutral posture. Perturbations and other challenges to postural control are mild. However, it is possible that (part of) the tasks evoke pain in LBP patients. Also, subjects can experience some discomfort due to pressure at the buttocks (ischial bones) in the fixed semi-seated position and due to the external forces (max. 100 N) applied to the thorax. Patients can always stop a measurement or the complete experiment instantaneously.

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

aspecific low back pain for at least 6 weeks
age 18-65

Exclusion criteria

previous spine surgery
any conditions, other than LBP, that interfere with trunk posture, or that render the patient too unfit to be tested or unable to understand or adhere to the experimental protocol.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	19-10-2010

Enrollment:	52
Type:	Actual

Ethics review

Approved WMO Date:	03-08-2010
Application type:	First submission
Review commission:	METC Amsterdam UMC

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	NL32378.029.10