Sensorimotor Incongruence and Distorted Visual Feedback in Patients with Low Back Pain: an Experimental Study

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The objective of this study is to investigate the effect of incongruent and congruent visual feedback on pain reports and Pressure Pain Thresholds (PPTs).

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON44000

Source
ToetsingOnline

Brief title
The Effect of Visual Feedback in Patients with Low Back Pain

Condition

- Other condition

Synonym
low back pain, spinal pain

Health condition

bewegingsapparaat

Research involving
Human

Sponsors and support

Primary sponsor: Vrije Universiteit Brussel
Source(s) of monetary or material Support: Ministerie van OC&W,Het betreft in dit geval alleen geen Nederlandse Universiteit.

Intervention

Keyword: low back pain, pain, sensorimotor incongruence, visual feedback

Outcome measures

Primary outcome

After each condition, participants will be asked two questions to assess the

perceived sensory disturbances: *How did it feel?* and *Where you aware of any

changes in your body?*. Perceived pain and/or sensory disturbances measured

will be measured with a Visual Analogue Scale.

Secondary outcome

PPTs of the lower back and dorsal part of the foot will be measured with a

digital Fisher algometer.

Study description

Background summary

Chronic low back pain (CLBP) has major public health implications, but the theoretical framework remains elusive. It is hypothesised that sensorimotor incongruence (SMI), an ongoing mismatch which causes deficits in sensori motor information processing, might be a cause of long lasting pain sensations in patients with chronic pain. Research data about experimental SMI triggering pain in patients with chronic pain has been equivocal and evidence regarding SMI in patients with CLBP is lacking. Additionally, there is preliminary evidence of the analgesic effects of congruent visual feedback in patients with spinal pain. Therefore it seems interesting to investigate the effect of congruent and incongruent visual feedback on pain in patients with low back pain (LBP).

Study objective

The objective of this study is to investigate the effect of incongruent and congruent visual feedback on pain reports and Pressure Pain Thresholds (PPTs).

Study design

The study design is a randomised cross-over trial.

Intervention

Participants will randomly participate in six different visual feedback conditions (four experimental conditions and two control conditions). Real-time visual feedback of the lower back and left hand (control condition) will be displayed. The image of the participant*s body will be captured using a webcam and displayed via a vertical placed television screen placed in front of the participant. Four experimental conditions will contain real- and distorted visual feedback of the lower back. The real- and distorted visual feedback will be provided in a 2x2 design: moving (side flexing of the lower back) and standing normally. Additionally, a real and distorted image of the participant*s left hand -a region from which it is normal to receive visual feedback- will be displayed during the control conditions. Conditions will be performed in a randomised order. Measurements will be taken immediately after each condition.

Study burden and risks

Since the protocol contains a non-invasive cross-over treatment and participants are not asked to take any drugs during or before the study, risks associated with participation are very low. Participants will be asked to discontinue analgesic and anti-inflammatory drugs 48 hours before testing. Furthermore, they are restricted from physical exertion or exercise and consumption of nicotine, alcohol and caffeine 24 hours before testing. Participants are asked to fill in four questionnaires prior to the study and they will visit the study location once. The total amount of time of the procedure will be approximately 70 minutes.

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

- Chronic non-specific LBP, which is defined as having back pain as the main symptom for a minimum of three months.
- Acute non-specific LBP, which is defined as having back pain as the main symptom within 6 weeks of the onset.
- Participants need to be able to read and speak the Dutch language properly.

Exclusion criteria

- Younger than 18 years old.
- Severe leg pain (NRS >7).
- Evidence of specific spinal pathology such as hernia, spinal stenosis, spondylolisthesis or spondylolysis, infection, spinal fracture or malignancy.
- Patients with spinal cancer or spinal cancer survivors (i.e. a history of cancer).
- Patients with a severe chronic disease such as a rheumatologically, cardiovascular, neurological or psychiatric disorder.
- Participants who are pregnant and until one year after giving birth.
- Participants with severe vision impairments.
- Participants suffering from epileptic insults.
- Participants who had a back surgery in the past 12 months.

- Any former experience with mirror visual feedback as a treatment.
- Sensory disturbances or pain in the left hand, since the left hand is used in the control condition.

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	02-10-2015
Enrollment:	93
Type:	Actual

Ethics review

Approved WMO Date:	18-06-2015
Application type:	First submission
Review commission:	METC Slotervaartziekenhuis en Reade (Amsterdam)
Approved WMO Date:	06-09-2015
Application type:	Amendment
Review commission:	METC Slotervaartziekenhuis en Reade (Amsterdam)
Approved WMO Date:	30-01-2017
Application type:	Amendment

Review commission: METC Slotervaartziekenhuis en Reade (Amsterdam)

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	NL52940.048.15