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Effects of resistance training on neck and shoulder pain

Submission date
24/09/2019

Recruitment status
No longer recruiting

Registration date
24/09/2019

Overall study status
Completed

Last Edited
23/11/2020

Condition category
Signs and Symptoms

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
More than half of all adults have experienced neck pain during the last six months and neck pain is now the second most common musculoskeletal disorder and is more prevalent in women than men. People who spend the majority of their work time in a static body position with repetitive movements of the arm and shoulder (e.g. computer work) have an increased risk of pain in the neck and shoulder region. Studies have demonstrated reduced pain in the neck and shoulder region after specific strength training of the affected muscles, and some studies have reported greater reductions in pain than general aerobic training. However, common aerobic activities such as cycling and walking do not involve the neck and shoulder muscles to a great extent. Specific resistance training of the neck and shoulder muscles have demonstrated promising results and proven to be more effective than aerobic exercises. Specific resistance training has proven effective in the reduction of muscle tension and pain as well as improvements in isometric strength. Even though previous studies have examined different training volumes using different lengths of sessions or training adherence, it is not clear whether different training volume caused by a greater training frequency per day could relieve the pain to a greater extent than lower training frequency.

Who can participate?
People who perform low intensity, but continuous, isometric contraction in the neck and shoulder region (e.g. computer work, hairdresser or dentist) experiencing mild to moderate pain in the neck and/or shoulder region lasting at least three months

What does the study involve?
The study takes place over a 16-week period with an 8-week control period and an 8-week training period. The treatment was identical in both groups with the exception that one of the groups performed training once per day and the other group performed identical training twice per day. The training consists of four exercises and each session lasts 10 minutes. The treatment lasts 8 weeks. The participants are tested before the control period (pre-test), between the control and training period (mid-test) and after the training period (post-test). The testing includes pain, isometric strength and health-related quality of life.

What are the possible benefits and risks of participating?
The possible benefits may be increased strength in the neck and shoulder region in addition to reduced pain and improved health-related quality of life. However, there is an inherent risk that the participants might experience some muscle soreness at the beginning of the treatment period.

Where is the study run from?
Western Norway University of Applied Sciences (Norway)

When is the study starting and how long is it expected to run for?
August 2016 to January 2017

Who is funding the study?
Western Norway University of Applied Sciences (Norway)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
Nil known

Study information

Scientific Title
Workplace resistance training as treatment for neck and shoulder pain

Acronym
RENS

Study objectives
The aim of the present study was to examine the dose-response relationship between resistance training frequency and pain relief among office workers with neck and shoulder pain.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 14/06/2016, local regional ethics committee (regional komiteer for medisinsk og helsefaglig forskningsetikk, Gullhaugvegen 1-3, 0484 Oslo, Norway; Tel: +47 (0)22 84 55 11; Email: post@helseforskning.etikkom.no), ref: 2016/1280 Sør-øst B

Study design
Randomised parallel trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Non-specific mild to moderate pain in the neck and/or shoulder region

Interventions
The study took place over a 16-week period starting with an 8-week control period and an 8-week training period

The treatment or intervention was identical in both arms/groups with the exception that one of the group performed training once per day and the other group performed the identical training twice per day. The training consisted of four exercises and each session lasted 10 minutes. The treatment lasted 8 weeks. The randomization was done by drawing (lottery).

The participants were tested before the control period (pre-test), between the control and training period (mid-test) and after the training period (post-test). The testing included the 0-100mm visual analog scale (VAS) for pain, isometric strength (shrugs and seated row) and health-related quality of life (EQ-5D-5L).

Intervention Type
Behavioural

Primary outcome(s)
General pain and worst pain assessed using 100 mm visual analog scale (VAS) at baseline (pre-test), after the control period/start of treatment period (mid-test) and post-treatment (post-test)

Key secondary outcome(s))

Measured at baseline (pre-test), after the control period /start of treatment period (mid-test) and post-treatment (post-test):
1. Health-related quality of life on 0–100 scale
2. Isometric strength in the neck and shoulder region (shrugs and seated row)

Completion date
31/01/2017

Eligibility

Key inclusion criteria
1. Mild to moderate pain (10 – 60mm VAS) in the neck and/or shoulder region lasting at least three months
2. Computer work or low-intensity isometric contraction during work (i.e. dentist, hairdresser)

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
30

Key exclusion criteria
1. People with considerable pain (> 60mm VAS)
2. Receiving treatment from health care professionals in the last six months

Date of first enrolment
01/08/2016

Date of final enrolment
15/09/2016

Locations

Countries of recruitment
Norway

Study participating centre
Atle Saeterbakken
Røyrgata 6

Sogndal
Norway
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Sponsor information

Organisation
Western Norway University of Applied Sciences

ROR
https://ror.org/05phns765

Funder(s)

Funder type
University/education

Funder Name
Western Norway University of Applied Sciences

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Atle Saeterbakken (atle.saeterbakken@hvl.no).

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/04/2020	23/11/2020	Yes	No