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Postural biofeedback training for managing neck pain

Submission date
17/02/2025

Recruitment status
No longer recruiting

Registration date
25/02/2025

Overall study status
Completed

Last Edited
20/02/2025

Condition category
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Mechanical neck pain (MNP) is a common problem that can strain healthcare resources and create economic challenges. Poor and prolonged neck posture can lead to neck pain. This study aims to see if combining posture correction exercises with visual and auditory feedback can help reduce neck pain and improve movement in people with MNP.

Who can participate?
Adults of any gender who are experiencing mechanical neck pain can participate in this study.

What does the study involve?
Participants are divided into two groups. One group performs neck exercises as a placebo, while the other group engages in posture correction exercises with visual and auditory feedback. Both groups will complete four sessions, and changes in their symptoms will be measured before and after the study.

What are the possible benefits and risks of participating?
Participants in the training group may experience reduced neck pain and improved movement. However, the exercises might cause temporary discomfort or mild soreness.

Where is the study run from?
Kaohsiung Medical University in Taiwan.

When is the study starting and how long is it expected to run for?
June 2013 to June 2014

Who is funding the study?
The study is funded by the National Health Research Institutes (NHRI), the Research Center for Precision Environmental Medicine at Kaohsiung Medical University, and the Ministry of Education (MOE) in Taiwan.

Who is the main contact?
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Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
KMUH-IRB-20130102

Study information

Scientific Title
The application of postural correction biofeedback training for clients with mechanical neck pain

Study objectives
The hypothesis was that postural correction biofeedback training would lead to improvements in sensorimotor function and a reduction in clinical symptoms in clients with mechanical neck pain

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 14/06/2013, Kaohsiung Medical University Hospital (No. 100, Shiquan 1st Road, Sanmin District, Kaohsiung, 807378, Taiwan; +886 73121101; irb@kmuh.org.tw), ref: KMUH-IRB_20130102

Study design

Interventional randomized controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Mechanical neck pain

Interventions
Twenty subjects with mechanical neck pain from outpatient clinic of Kaohsiung Medical University Hospital were randomly divided into two groups: a control group and a training group with drawing lottery system.

The control group was instructed to perform 6-direction active cervical range of motion exercises, 15 times for each direction in session, as a placebo intervention. The training group, on the other hand, carried out postural correction biofeedback exercises, consisting of one trial per hour. Both groups underwent a total of four intervention sessions.

Total duration: 2 weeks

Intervention Type
Other

Primary outcome(s)
1. Joint position error with absolute value, constant value, and variable value, measured at baseline and 2 weeks after intervention
2. Neck kinematic data of movement unit, head moving velocity, max range of planar motions at baseline and 2 weeks after intervention

Key secondary outcome(s))
1. Neck pain measured by visual analogue score (VAS) at baseline and 2 weeks after intervention
2. The index of fear-avoidance belief questionnaire (FABQ) at baseline and 2 weeks after intervention
3. Neck Disability Index (NDI) at baseline and 2 weeks after intervention

Completion date
13/06/2014

Eligibility

Key inclusion criteria
1. Neck pain caused by musculoskeletal system dysfunction
2. Pain occurring in the area between the occipital bone and the scapula
3. Myofascial neck pain
4. Radiating head/neck pain

Participant type(s)

Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
20 years

Upper age limit
60 years

Sex
All

Total final enrolment
20

Key exclusion criteria
1. Neck pain caused by neurological or other pathological mechanisms: rheumatic or neurological diseases
2. A history of traumatic injury to the head or neck
3. A history of cervical spine surgery
4. A whiplash injury within the past six weeks
5. Pain not originating from the neck itself
6. Neurological symptoms in the upper limbs

Date of first enrolment
14/06/2013

Date of final enrolment
31/12/2013

Locations

Countries of recruitment
Taiwan

Study participating centre
Kaohsiung Medical University
No. 100, Shiquan 1st Road, Sanmin Distri
Kaohsiung
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Sponsor information

Organisation
Kaohsiung Medical University

ROR
https://ror.org/03gk81f96

Funder(s)

Funder type
Government

Funder Name
National Health Research Institutes

Alternative Name(s)
NHRI

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Taiwan

Funder Name
Kaohsiung Medical University Research Center Grant

Funder Name
Kaohsiung Medical University the Research Center for Precision Environmental Medicine

Funder Name
Ministry of Education, The Featured Areas Research Center Program within the framework of the Higher Education Sprout Project

Results and Publications

Individual participant data (IPD) sharing plan

The dataset during the current study would be available upon request from LI,YAN-CHENG (kelly01100110@hotmail.com)

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes