

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

A comparative study of the effects of virtual reality based exercises versus conventional exercises in the neck region on sensorimotor function and postural control of patients with nonspecific chronic neck pain

Protocol summary

Summary

The aim of this study is to compare the effects of virtual reality based exercises versus conventional exercises in the neck region on sensorimotor function and postural control of patients with nonspecific chronic neck pain. This is a double-blinded randomized clinical trial. Inclusion criteria are non-traumatic neck pain with a duration between 3 months and 12 months and age between 20 to 55 years. Exclusion criteria are history of cervical and upper thoracic trauma in the 6 months before examination, neurological signs and symptoms in upper extremities, nerve injury, spinal cord compression, any disorders in which exercise therapy is contraindicated, scored more than 15 (out of possible 50) on the neck disability index, cervical spine pathology or surgery and cancer. 42 patients will be randomly assigned to conventional or virtual reality based exercises group. The virtual reality group will perform the computer game. The stages of the game are designed easy to hard sequentially. Movement and position sense, gaze stability, head-eye coordination exercises will be performed by patients in conventional group. Exercise regimes are of 8 sessions each lasting 20 minutes. The main outcomes are pain intensity, disability score, neuromuscular control and max range of motion of the head and neck and postural control. The participants will be assessed before and after 8 sessions of training.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2014040817177N1**

Registration date: **2014-12-09, 1393/09/18**

Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2014-12-09, 1393/09/18

Registrant information

Name

Iman Rezaei

Name of organization / entity

School of Rehabilitation

Country

Iran (Islamic Republic of)

Phone

+98 71 1627 1551

Email address

irezaei@sums.ac.ir

Recruitment status

Recruitment complete

Funding source

Shiraz University of Medical Sciences

Expected recruitment start date

2014-12-11, 1393/09/20

Expected recruitment end date

2015-04-21, 1394/02/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

A comparative study of the effects of virtual reality based exercises versus conventional exercises in the neck region on sensorimotor function and postural control of patients with nonspecific chronic neck pain

Public title

A comparative study of the effects of virtual reality based exercises versus conventional exercises in the neck region on sensorimotor function and postural control of patients with nonspecific chronic neck pain

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: non-traumatic neck pain with a duration between 3 months and 12 months; age between 20 to 55 years. Exclusion criteria: History of cervical and upper thoracic trauma in the 6 months before examination; neurological signs and symptoms in upper extremities; nerve injury, spinal cord compression; cervical spine pathology or surgery; cancer; cervical instability; forward head posture; severe osteoporosis; cervical or thoracic spine or upper extremities fracture; pregnancy; history of brain or vestibular system injury; congenital anomaly of the cervical spine; cervical spine physiotherapy intervention in the preceding 6 months; scored more than 15 (out of possible 50) on the neck disability index; any disorders in which exercise therapy is contraindicated; otolaryngeal disorders that affect postural control; hearing problem; inability to clearly see any number with size 14 of Calibri font on monitor screen with or without glasses; the participant does not have required cervical range of motion to see computer screen during the game.

Age

From **73 years** old to **37 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **42**

Randomization (investigator's opinion)

Randomized

Randomization description**Blinding (investigator's opinion)**

Double blinded

Blinding description**Placebo**

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Shiraz University of Medical Sciences

Street address

Shiraz University of Medical Sciences, Zand Ave.

City

Shiraz

Postal code

7134814336

Approval date

2014-02-23, 1392/12/04

Ethics committee reference number

CT-92-6895

Health conditions studied**1****Description of health condition studied**

Nonspecific chronic neck pain

ICD-10 code

M54.2

ICD-10 code description

Cervicalgia

Primary outcomes**1****Description**

Pain intensity

Timepoint

Before and after training

Method of measurement

Visual analogue scale

2**Description**

Neuromuscular control of the head and neck movements

Timepoint

Before and after training

Method of measurement

Movement time of fitt's task

3**Description**

Functional disability

Timepoint

Before and after training

Method of measurement

Neck disability index questionnaire

4**Description**

Head and neck proprioception (position sense)

Timepoint

Before and after training

Method of measurement

Head repositioning error

5**Description**

Maximum range of motion of the head and neck

Timepoint

Before and after training

Method of measurement

Kinematic assessment

6

Description

Postural control

Timepoint

Before and after training

Method of measurement

Systematic balance assessment

Secondary outcomes

empty

Intervention groups

1

Description

Control group (conventional training): The combination of joint position sense and movement sense training (by using laser beam fixed on the head), gaze stability training, eye and head coordination training will be performed in each session and they will be progressed in the next sessions. Eight exercise sessions each lasted 20 minutes is programed. 5 minutes warm up exercises will be performed at the beginning of each session.

Category

Treatment - Other

2

Description

Intervention group: (virtual reality training) the computer game is designed to improve cervicocephalic kinesthesia, eye-head coordination, reflexes related to head and neck, eye and vestibular system. The stages of the game are designed easy to difficult sequentially. The duration of each training session and the number of training sessions are the same as conventional group.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

The hospitals of Shiraz University of Medical Sciences

Full name of responsible person

Street address

City

Shiraz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Dr Mohsen Razeghi

Street address

School of Rehabilitation, Abiverdi1, Chamran Blvd.

City

Shiraz

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Shiraz University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

School of Rehabilitation

Full name of responsible person

Iman Rezaei

Position

Physiotherapy, PhD Candidate

Other areas of specialty/work

Street address

School of Rehabilitation, Abiverdi1, Chamran Blvd.

City

Shiraz

Postal code

7194733669

Phone

+98 71 3626 1081

Fax

Email

irezaei@sums.ac.ir

Web page address

Person responsible for scientific inquiries

Contact

Name of organization / entity

School of Rehabilitation

Full name of responsible person

Iman Rezaei

Position

Physiotherapy, PhD Candidate

Other areas of specialty/work

Street address

School of Rehabilitation, Abiverdi1, Chamran Blvd.

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Phone

+98 71 3626 1081

Fax

Email

irezaei@sums.ac.ir

Web page address

Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty

Person responsible for updating data

Contact

Name of organization / entity

School of Rehabilitation, Shiraz

Full name of responsible person

Iman Rezaei

Position

Physiotherapy, PhD Candidate

Other areas of specialty/work

Street address