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# Effects of a telerehabilitation program combining respiratory retraining and shoulder stabilization exercises on upper body

**Submission date**
16/10/2023

**Recruitment status**
No longer recruiting

**Registration date**
24/10/2023

**Overall study status**
Completed

**Last Edited**
24/10/2023

**Condition category**
Musculoskeletal Diseases

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

## Plain English summary of protocol

Background and study aims
Forward head posture is one of the most common posture-related conditions affecting the neck, characterized by an anterior shift of the head over the cervical spine. Due to the increased use of electronic devices, the prevalence of forward head posture is on the rise and can affect individuals from adolescents to working adults. If forward head posture persists, it can lead to various health issues, ranging from compromised respiratory function to musculoskeletal disorders, rounded shoulders, and even neurological conditions such as cervical disc herniation. Improving these conditions often requires consistent exercise and respiratory training. To date, research specifically addressing the combined effect of diaphragmatic breathing re-education and shoulder stabilization exercises in young adult males with forward head posture is limited. Therefore, this study aims to assess the effects of a 4-week intervention, involving diaphragmatic breathing re-education and shoulder stabilization exercises, on neck pain, posture, and function in young adult males with forward head posture.

Who can participate?
Young adult males, aged 20-30 years, who do not have any musculoskeletal disorders or experience low back pain while performing shoulder stabilization exercises.

What does the study involve?
Participants will undergo an initial assessment of forward head posture, neck pain, function, and posture, which will take about 10 minutes. They will then be randomly allocated into one of two groups: the intervention group, who will receive diaphragmatic breathing re-education and shoulder stabilization exercises for 30-40 minutes, three times a week, over a 4-week period, or the control group, who will receive shoulder stabilization exercises for 20-30 minutes, three times a week, over the same 4-week period. After the 4-week intervention period, participants will undergo a re-assessment of the initial measures in the treatment facility.

What are the possible benefits and risks of participating?
Participating in this study may lead to improvements in forward head posture, neck pain, function, and posture. It can help enhance your understanding of daily posture management and

neck pain management. To compensate you for your time and effort, you will receive a 30,000 KRW gift card for chicken and pizza. The assessments conducted in this study do not involve any invasive procedures, and there are no known or anticipated side effects. However, potential reactions could include fatigue, discomfort, or dizziness. If such reactions occur, you may request rest and adjustment of the exercises from the physical therapist at any time. Safety measures are always in place during assessments and treatments, and immediate actions can be taken in case of unexpected incidents. If you have any questions about possible side effects or risks during the study, please contact the assigned researcher.

Where is the study run from?
Seoul Chukchuk Neurosurgery Clinic (South Korea)

When is the study starting and how long is it expected to run for?
January 2023 to March 2023

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
GyeongHyeon Jeong, jgh10108@naver.com

# Contact information

### Type(s)
Public, Scientific, Principal investigator

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# Additional identifiers

### Protocol serial number
KCT0008383

# Study information

### Scientific Title

Effects of diaphragmatic breathing re-education and shoulder stabilization exercise on neck pain, posture, and function in young adult men with upper crossed syndrome in tele-rehabilitation: a randomized controlled trial

## Study objectives
The experimental group receiving diaphragmatic breathing re-education and shoulder stabilization through telerehabilitation is expected to show significant improvements in pain pressure threshold (PPT), craniovertebral angle (CVA), round shoulder posture (RSP), shoulder tilt degree (STD), neck disability index (NDI), and closed kinetic chain upper extremity stability test (CKCUEST) compared to the control group, which only received shoulder stabilization through telerehabilitation.

## Ethics approval required
Ethics approval required

## Ethics approval(s)
approved 31/01/2023, Sahmyook University IRB (815, Hwarang-ro Nowon-gu, Seoul, 01795, Korea, South; +82 (0)2 3399 3903; IRB@syu.ac.kr), ref: SYU 2022-12-008-001

## Study design
Randomized controlled trial

## Primary study design
Interventional

## Study type(s)
Treatment

## Health condition(s) or problem(s) studied
Upper crossed syndrome with neck pain

## Interventions
A total of 40 participants who initially indicated their willingness to participate were randomly assigned to either the experimental group that performed DB re-education and shoulder stabilization exercises (DB + SSE group; n = 20) or the control group that performed only SSE (n = 20).

Experimental Group:
4 weeks of diaphragmatic breathing retraining, 10 minutes per day, three times a week, along with four shoulder stabilization exercises, 20 minutes per day, three times a week

Control Group:
4 weeks of four shoulder stabilization exercises, 20 minutes per day, three times a week.
Random sampling was conducted using SPSS 'Random Sample of Cases - Approximately 50%.

## Intervention Type
Behavioural

## Primary outcome(s)

1. Pain measured using Pressure Pain Threshold (PPT) at baseline and after 4 weeks of the experiment
2. Posture assessed using Craniovertebral Angle (CVA) at baseline and after 4 weeks of the experiment
3. Functionality evaluated using the Neck Disability Index (NDI) at baseline and after 4 weeks of the experiment

### Key secondary outcome(s))
1. Posture assessed using Round Shoulder Posture (RSP), and Shoulder Tilt Degree (STD) at baseline and after 4 weeks of the experiment
2. Functionality evaluated using the Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST) at baseline and after 4 weeks of the experiment

### Completion date
31/03/2023

## Eligibility

### Key inclusion criteria
1. No history of outpatient or hospitalization treatment
2. No musculoskeletal or neurological diseases
3. No back pain during diaphragmatic breathing re-education and training
4. No shoulder pain during shoulder stabilization exercises
5. An craniovertebral angle of less than 52 degrees

### Participant type(s)
Patient

### Healthy volunteers allowed
No

### Age group
Adult

### Lower age limit
20 years

### Upper age limit
39 years

### Sex
Male

### Total final enrolment
37

### Key exclusion criteria

1. Inability to continue plank exercise due to back or shoulder pain
2. Diagnosis of neck or lumbar disc herniation
3. History of neck or lumbar surgery within the past 6 months

**Date of first enrolment**
31/01/2023

**Date of final enrolment**
28/02/2023

# Locations

**Countries of recruitment**
Korea, South

**Study participating centre**
**Seoul Chukchuk Neurosurgery Clinic**
410, Mangu-ro, Jungnang-gu
Seoul
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02164

# Sponsor information

**Organisation**
Sahmyook University

**ROR**
https://ror.org/04vxr4k74

# Funder(s)

**Funder type**
Other

**Funder Name**
Investigator initiated and funded

# Results and Publications

## Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date