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Effect of tablet tilt position on students' muscle and breathing function

Submission date	Recruitment status	[_] Prospectively registered
24/06/2021	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
28/06/2021	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
20/07/2023	Musculoskeletal Diseases	

Plain English summary of protocol
Background and study aims
Prolonged use of tablets causes a reduction in movement which can lead to musculoskeletal disorders. This study aims to evaluate the effect of different tablet tilt positions on muscle and breathing function.

Who can participate?
Undergraduate student aged 18 - 25 years who use a tablet for more than 2 hours per day for the past 6 months.

What does the study involve?
Participants perform a writing task for 2 hours. Group 1 position their tablets at a tilt of 0 degrees, and group 2 use a tablet tilt position of 40 to 55 degrees.

What are the possible benefits and risks of participating?
None

Where is the study run from?
Burapha University (Thailand)

When is the study starting and how long is it expected to run for?
January 2021 to June 2021

Who is funding the study?
Burapha University (Thailand)

Who is the main contact?
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Contact information

Type(s)

Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Nil known

Study information

Scientific Title
Effect of tablet tilt positioning on ergonomic risks and respiratory function

Study objectives
0-degree tablet placement on a flat surface of a student chair affects ergonomic risks and respiratory function when compared with 40- to 55-degree tablet placement.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 04/04/2021, Research and Innovation Administration Division, Burapha University (Chonburi, Thailand; +66 (0)38-102561-62; research@buu.ac.th), ref: HS004/2564

Study design
Interventional randomized controlled trial

Primary study design

Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
School

Study type(s)
Prevention

Participant information sheet
See additional files

Health condition(s) or problem(s) studied
Prevention of poor posture in students

Interventions
A total of 18 undergraduate student participants are divided into two groups of 9 persons per group using the sealed envelope method.

Group 1 position their tablets at a tilt of 0 degrees, and group 2 use a tablet tilt position of 40 to 55 degrees.

Participants perform the same writing task for 2 hours in the same environment with identical temperature, light, and chair.

The researchers collected data on the rapid upper-limb assessment (RULA), respiratory function, and costovertebral (CV) angle before and after the study. They used a standard student chair, a tablet with a tilting tool, a spirometer (CareFusion MicroLab), and a CV angle assessment tool for the evaluation.

Intervention Type
Behavioural

Primary outcome measure
Upper limb function measured using rapid upper-limb assessment (RULA) at baseline and 2 hours after tablet use

Secondary outcome measures
Respiratory function measured using spirometer at baseline and 2 hours after tablet use:
1.1. Forced expiratory volume in 1 second (FEV1)
1.2. Forced vital capacity (FVC)

Overall study start date
01/01/2021

Completion date
10/06/2021

Eligibility

Key inclusion criteria
1. Undergraduate student aged 18 - 25 years
2. Used a tablet for more than 2 hours per day for the past 6 months

Participant type(s)
Healthy volunteer

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
18

Total final enrolment
18

Key exclusion criteria
1. History of neck or upper-extremity surgery in the past year
2. Disorder or malalignment of the cervical spine or upper extremity
3. Neck and upper-extremity pain, as measured by a visual analog scale score of greater than 3 /10
4. Chronic musculoskeletal disorder such as rheumatoid arthritis, osteoarthritis, or fibromyalgia
5. Nervous or musculoskeletal system disorder affecting sensory input
6. Visual problem that could not be fixed by glasses
7. Dizziness that resulted in poor balance
8. Sedative drug uptake or alcohol drinking in the previous 48 hours

Date of first enrolment
05/04/2021

Date of final enrolment
31/05/2021

Locations

Countries of recruitment
Thailand

Study participating centre

Burapha University
169 Lonhard bang sean road
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Chonburi
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Sponsor information

Organisation
Burapha University

Sponsor details
The Exercise and Nutrition Innovation and Sciences Research Unit
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Sponsor type
University/education

Website
https://www.buu.ac.th/

ROR
https://ror.org/01ff74m36

Funder(s)

Funder type
University/education

Funder Name
Burapha University

Alternative Name(s)
, BURAPHA, BUU

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Thailand

Results and Publications

Publication and dissemination plan
Planned publication in a high impact peer-reviewed journal

Intention to publish date
01/12/2021

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication.

IPD sharing plan summary
Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			08/07/2021	No	Yes
Results article		24/04/2023	20/07/2023	Yes	No