HONG KONG METROPOLITAN UNIVERSITY

Information Sheet

TITLE OF THE STUDY

The impact of diaphragmatic breathing instructions and inspiratory pressures on diaphragm contraction in healthy adults

INTRODUCTORY SENTENCE

You are invited to participate in a research study conducted by Prof. William WN Tsang from the Department of Physiotherapy, School of Nursing and Health Studies of Hong Kong Metropolitan University (HKMU).

PURPOSE OF THE STUDY

This study aims (1) to investigate the recruitment of sternocleidomastoid muscle (measured by surface electromyography) and change of diaphragm thickness fraction (measured by ultrasound) under different inspiratory pressures in a population of healthy adults. (2) to compare the recruitment patterns of the diaphragm and sternocleidomastoid muscle with and without diaphragmatic breathing instructions under different inspiratory pressures in healthy adults.

PROCEDURES

In this study, you will be first requested to perform the standard spirometry lung function tests to assess your respiratory function.

Then you will be requested to use a nose clip to hold the nose and breathe through the mouth using a pressure threshold inspiratory loading device. The inspiratory intensities will be set at 30%, 40%, 50%, 60%, 70%, or 80% of your maximum inspiratory pressure (MIP) in a random order. Each inspiratory muscle training (IMT) intensity protocol consists of 10 breaths, so a total of 60 breaths will be needed to breathe with the specific load. A period of at least 15 minutes of rest time will be allowed between different protocols of contraction intensity.

The whole procedure as described above will be repeated on the same day, but with specific instruction of breathing in the “repeat” procedure. During each IMT intensity protocol, we will use surface electromyography (sEMG) to monitor the activity of your sternocleidomastoid muscle, and ultrasonography will be employed to measure changes in your diaphragmatic thickness.

The whole assessment will last for approximately 3.0 hours, including resting periods within the assessment.

All measurements are non-invasive.

POTENTIAL RISKS/STRESS/PAIN/DISCOMFORTS/OTHER FACTORS AND THEIR MINIMIZATION

There will be no direct risk, stress, pain or discomforts in participating in this study.

POTENTIAL BENEFITS

There will be no direct benefit in participating in this study.

PARTICIPATION AND WITHDRAWAL

You have every right to withdraw from the study before or during the measurement without penalty of any kind.

CONFIDENTIALITY

Your personal information and data will not be disclosed to any person not being in the research team. Your name or photo will not appear on any published materials.

QUESTIONS AND CONCERNS

If you have any questions or concerns about the research study, please feel free to contact Prof William Tsang Wai Nam of HKMU at 3970 8703. If you have questions about your rights as a participant in this research study, please contact the Research Ethics Committee of HKMU at 2768 6251.

Consent Form

Hong Kong Metropolitan University
School of Nursing and Health Studies, Department of Physiotherapy

Consent form for

The impact of diaphragmatic breathing instructions and inspiratory pressures on diaphragm contraction in healthy adults

I have read and understand the information provided about the above study. I agree to participate in this study.

Name of participant	Signature of participant	Date
Name of investigator	Signature of investigator	Date