

## Research and Development of Pillow for Health in Thai People: A Pilot Study

Panida Chaiming<sup>1,2</sup>, Wichai Eungpinichpong (Ph.D)<sup>3\*</sup><sup>1</sup>Graduate School, Khon Kaen University, Thailand<sup>2</sup> Ph.D. student of Exercise and Sport Sciences Development and Research Group, Khon Kaen University, Thailand<sup>3</sup>Back, Neck, and Other Joint Pain, and Human Performance Research Center, Khon Kaen University, Thailand

\*Corresponding author: wiceun@yahoo.com

## Abstract

**Introduction:** Sufficient sleep is essential for all human to have good physical and mental health. Proper size of pillow is an important factor in promoting quality and quantity of sleep. However, the most pillows available in the market are built according to the curve of the cervical spine of the people in the west which may not be suitable for Thai people who have relatively smaller stature. The objectives of this study are to preliminarily determine the proper pillow size by verify the effect of three pillow sizes based on the perception of comfortable, the ability to produce force of wrist flexor muscles, electromyography (EMG) signals of the upper trapezius muscle, and skin temperature of neck. Moreover, we studied on the correlation between the body height and the preferred pillow size.

**Methods:** Thirty healthy individuals (aged between 20- 80 years) participated in this study. The participants underwent baseline tests on cervical anthropometry, maximal voluntary contraction force of wrist flexor muscles, and peak EMG amplitude of the upper trapezius muscle. After that, the participants performed the same tests and rated on perception of comfortable as they rested in the supine position with their heads supported on three different high of the adjustable pillow (8 cm, 10 cm and 12 cm). Descriptive analysis was used to evaluate for pillow size preference. Spearman rank test was applied for the correlation study.

**Results:** Most of the participants preferred the first two pillow heights (8, 10 cm). However, most of force and EMG of the wrist flexor muscle were greatest when they rested on the 10, and 12 cm of pillow heights. EMG of the upper trapezius muscle and temperature of the neck were no statically significant among the three of them. There was no correlation between the body height and the preferred pillow size.

**Conclusions:** The three pillow heights could be suitable for sleeping in Thai people. Study in the future should be done in larger sample to get a clearer answer.

**Keywords:** Pillow, Health, Comfortable, Thai people