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The Effect of Pillow Height on Nocturnal Sleep Evaluated by Subjective Scale and Activities during Sleep

Noriko Matsuura Research Institute on Sleep and Society

Midori Yamao, Naomi Adachi LOFTY Co., Ltd.

Ryoji Aritomi S & A associates, Inc.

Yoko Komada Neuropsychiatric Research Institute

Hideki Tanaka Hiroshima International University

Shuichiro Shirakawa National Institute of Mental Health, NCNP

[Introduction] INTRODUCTION: Recently highly-functional pillows draw much attention. However, few studies have investigated basic function of pillow. In the study, we aimed to reveal the effect of pillow height on nocturnal sleep. We monitored sleep at home with sleep diary and actigraphy, and compared the pillow with different height but the same structure.

[Method] Twenty-two healthy postmenopausal women (54.5 ± 4.45 years) participated the study. They slept at home for 17 consecutive days with usual pillow for 3 days (Adaptation Nights), proper height pillow for 7 days (Proper Condition), and higher pillow for 7 days (High Condition) with crossover design. We measured each participant's cervical depth to decide rough height of proper cervical pillow. In addition to measurement, we checked lying position of each participant to determine the pillow height for Proper Condition. Pillow height of High Condition was 2cm higher than the pillow of Proper Condition. During the period, participants kept a sleep diary with subjective rating scale of sleep quality and wore actiwatch.

[Results] From the ratings of sleep quality, "refreshing" factor score was slightly better in the Proper Condition, while sleep length, subjective sleep latency and WASO showed no differences between two conditions. With the Proper Condition pillow, participants scored significantly better to the item about how much the pillow disturbed their sleep and tended to have fewer physical problems in the morning such as pain in the lower back and lassitude. We are also analyzing wrist activities during sleep to estimate objective sleep quality circumstantially.