



Sleep and body composition, physical function in older women

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Sleep problems are common among older adults and is an important contributor to functional impairment and morbidity. Age-related changes in sleep such as decrease in N3 sleep, more nighttime awakenings have been well reported [1]. In addition, numerous circadian rhythms of biologic processes have been found to shift earlier with age, including rhythms of cortisol, melatonin, and core body temperature. There is also a change in the form of the circadian sleep-promoting signal, with the elderly being more vulnerable to sleep disruption in the latter half of the habitual sleep period [2].

Moreover, excessive daytime sleepiness (EDS) and related symptoms are particularly frequent among the elderly. This issue can be attributed to hormonal imbalance, and has been associated with various health problems, such as cardiovascular disease and diabetes [3]. A previous study revealed that elderly individuals with EDS were three times more likely to be fearful of falling in comparison to those without EDS [3].

A cross-sectional study for 102 non-obese older women aged 60–75 years published in *Sleep and Biological Rhythms* [4] has investigated the relationship between sleep problems and body composition. Body mass index (BMI) has been extensively employed as a measure of adiposity in body composition. However, postmenopausal women classified as obese according to body fat percentage were found to be misclassified as non-obese on BMI criteria [5], thereby indicating the necessity to examine body composition by means of indices other than BMI, particularly in postmenopausal women. To this end, Wang et al. used body composition evaluated by dual energy x-ray absorptiometry (DXA). As a consequence, the associations between whole body lean mass with total sleep time (TST) and time in bed (TIB), and gynoid and trunk lean mass with sleep efficiency (SE)

remained after adjusting for age. Upon examining physical function, it was established that grip strength and leg extension acted as mediators of the connections between sleep characteristics and body composition. Authors postulated that older women with lower physical function may need more sleep to recuperate. In keeping with the classic recuperative theory of sleep, those who have high physical function with high physical activity require longer sleep. A review paper indicated that sustained exercise appears to increase total sleep time, and the positive effects of sustained exercise are more obvious in older populations [6]. Future research should explore potential mechanisms behind the relationship between sleep and body composition as well as physical function in older women.

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