P-05

PEAK AEROBIC CAPCITY AND SLEEP QUALITY IN MIDDLE-AGED AND OLDER PEOPLE

Ken Miyagawa[1,2], Masakazu Tsutsumi[1], Sho Nagayoshi[1], Toshikazu Shiga[1], Hiroshi Nose [2,3]

[1]Technology Development HQ, Omron Healthcare Co., Ltd., Muko 617-0002, Japan, [2]Dept. of Sports Med. Sci., Shinshu Univ. Grad. Sch of Med. & [3] Inst. for Biomed. Sci., Shinshu Univ. , Matsumoto 390-8621, Japan,

---

It has been suggested that sleep quality deteriorates with advanced aging; however, it remained unknown how it links with age-associated decline of peak aerobic capacity (VO_{2peak}). This study was conducted to assess this issue.

We recruited 33 middle-aged older people (62±8 (SD) yr) and randomly divided them into two groups; the interval walking training (IWT) group (5 males and 11 females) to perform IWT repeating >5 sets of fast (>70% VO2peak) and slow (<40% VO2peak) walking 3 min each, >4 days/week, for 5 months from June to November, during which period energy expenditure was measured with a tri-axial accelerometer (JD-Mate, Kissei Comtec), and the control (CNT) group (5 males and 12 females) to keep sedentary life as before. Before and after training, we measured VO_{2peak} by graded walking test and sleep quality with the contactless sleep sensor (HSL-101, Omron Healthcare).

We found that the frequency and the duration of sleep interruption were inversely correlated with VO_{2peak} before (R^2 =0.149, P=0.026 and R^2=0.162, P=0.020, respectively) and after (R^2=0.228, P=0.005 and R^2=0.263, P=0.002, respectively) training when the values were pooled across all subjects in both groups. Similarly, the sleep quality, calculated from sleeping time/ lying time on bed, was positively correlated with VO_{2peak} before and after training, respectively (R^2=0.176, P=0.015 and R^2=0.257, P=0.003, respectively). Moreover, we found that the sleep quality increased after training in IWT (P=0.001) with a marginal increase in VO_{2peak} (P<0.091), whereas it remained unchanged in CNT with no increase in VO_{2peak} (both, P>0.505).

Thus, VO_{2peak} was associated with sleep quality which was improved by IWT for 5 months with increasing VO_{2peak} in middle-aged and older people.

Key words: aging, peak aerobic capacity, sleep quality, contactless sleep sensor, interval walking training