

# 減量後の体重維持に寄与する 活動・座位・睡眠パターンの解明

東京大学大学院 笹井 浩行  
(共同研究者) 筑波大学 中田 由夫

## The Contributions of Objectively Measured Physical Activity, Sedentary Behavior, and Sleep to Successful Weight Loss Maintenance

by

Hiroyuki Sasai  
*Graduate School of Arts and Sciences,  
The University of Tokyo*  
Yoshio Nakata  
*Faculty of Medicine,  
University of Tsukuba*

### ABSTRACT

Weight loss maintenance is considerably more challenging than weight loss itself. Previous studies have investigated the effects of behavioral factors (i.e., physical activity, sedentary behavior, and sleep) on successful weight loss maintenance using subjective instruments (e.g., questionnaires) primarily among European ethnicities. This study aimed to explore objectively measured physical activity as well as sedentary and sleep behavior that could contribute to weight loss maintenance among Japanese adults. Eligible participants comprised adults who had undergone intentional weight loss of  $\geq 10\%$  of their initial body weight. They simultaneously wore tri-axial accelerometers on their waists and sleep monitors on their non-dominant wrists consecutively for two weeks to obtain various physical activities and sedentary

and sleep variables. Associations between the degree of weight loss maintenance and activity, sedentary, and sleep variables were investigated using multiple linear regression analyses after allowing for potential confounding factors. The final sample for analysis comprised 25 adults (16 women) with a mean body mass index of 23.4 kg/m<sup>2</sup>. The median value for the maintained weight loss rate ( $[\text{maximum weight} - \text{current weight}] / \text{maximum weight} * 100$ ) was 12.5%. Compared with those who maintained a weight loss of < 12.5%, those who maintained a weight loss of  $\geq 12.5\%$  showed a tendency for a longer total sleep time (adjusted mean difference: 66.1 min, 95% confidence interval: -14.0, 146.3,  $P=0.10$ ). The remainders for the other behavioral variables did not differ between the two groups. In conclusion, compared with those with lower weight loss maintenance, those with greater weight loss maintenance tended to have a longer total sleep time. However, further studies are required with a larger sample size to allow for sufficient statistical adjustment.

## 要 旨

本研究では、身体活動、座位行動、睡眠を客観的に測定し、日本人における減量後の体重維持の成功要因を探索することを目的とした。対象者は10%以上の減量を経験した成人男女とした。身体活動と座位行動は左腰部に装着した活動量計で、睡眠は非きき腕手首に装着した睡眠計を用いて2週間にわたって計測した。最高体重と現体重の差から算出した体重維持率と身体活動、座位行動、睡眠の関連を線形回帰分析により検証した。分析対象者は25人（女性16人）で、平均 body mass index は 23.4 kg/m<sup>2</sup>、体重維持率の中央値は 12.5%であった。体重維持率が中央値未満に比べ、中央値以上で総睡眠時間が長い傾向にあった（調整平均値差：66.1分、95%信頼区間：-14.0, 146.3分、 $P=0.10$ ）。その他の変数と体重維持率に顕著な関連は認められなかった。減量後の体重維持率が高い者は睡眠時間が長い傾向にあることが示唆された。本研究は対象者数が十分でないため、今後さらなる検証が必要である。