Associations between the Sedentary Behavior and Cardiovascular Risk Factors in Adults of 40-49 year

Jiashi Lin¹, Xiaoyue Yang¹, Yi Yan¹,²
¹.Jimei University
².Beijing Sports University

Objective Large amounts of pieces of evidence suggest sedentary behavior (SB) might have a negative impact on all-cause mortality, cardiovascular disease, and metabolic system. Our aim is to explore the associations between sedentary behavior and cardiovascular risk factors in adults of 40-49 year.

Methods Participants (N=372) were adults 40-49 years old who had a survey by using adult sit-Q-7d. The indexes of body mass index (BMI) and Waist circumference (WC) were measured as per standard protocols and blood pressure measured using an automated sphygmomanometer (Carescape V100; GE Healthcare, UK) following five minutes seated rest. HDL cholesterol (HDL-C), LDL cholesterol (LDL-C), triglycerides (TG) and fasting plasma glucose (FPG) were assessed for blood sampling of venous blood following an overnight fast (Cholestech LDX; Alere Inc, USA). We analyzed data in 2 h/day and 1 h/day as segmentation criteria of sitting time were classified as 8 groups (0<2, 2-4, 4-6, 6-8, 8-10, >10 h/day) and 10 groups (<1, 1-2, 2-3, 3-4, 4-5, 5-6, 6-7, 7-8, 8-9, >9 h/day). Statistical analyses were performed using STATA software 15.0 (STATA Corp, College Station, TX). We performed multiple linear regression models adjusting for health-related confounders to assess the associations between SB of difference range and risk factors of cardiovascular disease.

Results (1) When the sitting time as category criteria in 2 h/day, the relationship of LDL-C (β=0.651, 95%CI=0.069 to 1.232, P=0.028) and HDL-C (β=0.129, 95%CI=0.013 to 0.245, P=0.028) to sitting time in segment of 6-8 h/day were statistically significant after adjustment for relative factor of risk; and the same in TC (β=0.932, 95%CI=0.244 to 1.620, P=0.008) to sitting time in segment of 8-10 h/day; (2) When the sitting time as category criteria in 1 h/day, in 3-4 h/day segment, the index of BMI (β=1.550, 95%CI=0.025 to 3.074, P=0.046) had a significant rise; in 7-8 h/day segment, the index of LDL-C (β=0.919, 95%CI=0.155 to 1.683, P=0.019) also had a significant rise; as well as, in 8-9 h/day segment, the index of TC (β=1.531, 95%CI=0.497 to 2.565, P=0.004) had a highly significant. (3) As has mentioned above, the threshold for each segment of sitting time for the index of LDL-C in 7-8 h/day segment and the index of TC in 8-9 h/day.

Conclusions This study suggests that (1) the different category criteria of sitting time, for categories criteria in 1 h/d or 2 h/d, will help reduce the risk of Cardiovascular risk in some degree and determining to their dose-response relationships. (2) For the 40-49 year adult of health, the sitting time threshold is less than 7 h/d, in order to decrease the detrimental effects on metabolic markers associated with cardiovascular disease and metabolic system. (3) As well as the sitting time threshold is less than 3 h/d for adding to the negative aging effect on risk of cardiovascular markers.