Moderate-to-vigorous physical activity as a mediator between sedentary behavior and cardiometabolic risk in Spanish healthy adults: A mediation analysis

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Background: Public health strategies for cardiovascular prevention highlight the importance of physical activity, but do not consider the additional potentially harmful effects of sedentary behavior. This study was conducted between 2010 and 2012 and analyzed between 2013 and 2014. The aim of the study was to analyze the relationship between sedentary behavior and cardiometabolic risk factors in the Spanish adult population and to examine whether this relationship is mediated by moderate-to-vigorous physical activity (MVPA). Methods: The cross-sectional study included 1122 healthy subjects belonging to the EVIDENT study. Sedentary behavior was objectively measured over 7 days using Actigraph accelerometers. We assessed waist circumference (WC), triglycerides-to-HDL-C ratio (TG/HDL-C), and mean arterial pressure (MAP), and undertook homeostasis model assessment (HOMA-IR). Linear regression models were fitted according to Baron and Kenny procedures for mediation analysis. Results: TG/HDL-C and HOMA-IR were significantly higher in adults who spent more minutes in sedentary activities after adjusting for potential covariates. However when MVPA was added to the ANCOVA models as covariate the effect of sedentary time on HOMA-IR disappeared. In addition, MVPA acted as a full mediator of the relationship between sedentary time and HOMA-IR. In contrast, subjects with lower levels of MVPA presented worse cardiometabolic profiles than those from higher MVPA categories, even after
controlling for sedentary time and other potential confounders. Conclusions: These results suggest that both MVPA and sedentary time should be considered when developing cardiometabolic risk guidelines. Trial registration: NCT01083082. © 2015 García-Hermoso et al.

Insulin resistance
Mediation analysis
Moderate-to-vigorous physical activity
Sedentary lifestyle

glucose
high density lipoprotein cholesterol
insulin
triacylglycerol
HDL-triglyceride
high density lipoprotein
high density lipoprotein cholesterol
triacylglycerol
actimetry
adult
aged
alcohol consumption
Article
blood pressure measurement
body mass
cardiometabolic risk
cross-sectional study
female
homeostasis model assessment of insulin resistance
Cardiovascular Diseases
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