EP9

Longitudinal Exercise Capacity Change is Associated with Cardiovascular Risk Profile Alterations

Leshem-Rubinow, Eran; Steinvil, Arie; Shmueli, Hezzy; Shapira, Itzhak; Zeltser, David; Berliner, Shlomo; Rogowski, Ori
Tel Aviv Sourasky Medical Center, Internal Medicine "D" and "E", Tel-Aviv, Israel

Background: Higher metabolic equivalents (METS) categories during cardiorespiratory fitness testing are significantly associated with lower cardiovascular disease (CVD) risk factors. We questioned whether exercise capacity change over time will be associated with changes in CVD risk profile among a subpopulation of relatively healthy individuals.
Methods: We enrolled attendees of a health screening program between September 2002 and November 2010. Only individuals attending more than once and preforming cardiorespiratory fitness testing at least twice during the study period were included in the analysis.
Results: Data regarding 3511 individuals (2402 males and 1109 females) with 2 different metabolic equivalents (METS) assessments were analyzed. Median (25th - 75th percentiles) time difference between cardiorespiratory fitness testing was 2.9 (2.0 - 4.2) years. We found negative correlations with the change in weight (r=0.177), with the change in resting heart rate, systolic and diastolic blood pressure measurements, as well as with the change in fasting glucose, triglycerides and low-density lipoprotein cholesterol (LDL-C). In addition, we found negative correlation with inflammatory markers such as hs-CRP and white blood cell count. Following adjustment for age, change in resting heart rate (fitness surrogate) and change in weight, only the correlations with the change in triglyceride and LDL-C remained significant.
Conclusions: In a large cohort of apparently healthy individuals, longitudinal change in exercise capacity measured by METS, was inversely associated with a change in resting heart rate, blood pressure, glucose, triglycerides and LDL-C levels but not with HDL-C. The association with the change in triglycerides and LDL-C was independent from the change in weight and fitness (resting heart rate).