The aims of the present article are to systematically review and meta-analyze the existing evidence on: 1) differences in physical activity (PA), sedentary behavior (SB), cardiorespiratory fitness (CRF) and muscular strength (MST) between metabolically healthy obesity (MHO) and metabolically unhealthy obesity (MUO); and 2) the prognosis of all-cause mortality and cardiovascular disease (CVD) mortality/morbidity in MHO individuals, compared with the best scenario possible, i.e., metabolically healthy normal-weight (MHNW), after adjusting for PA, SB, CRF or MST. Our systematic review identified 67 cross-sectional studies to address aim 1, and 11 longitudinal studies to address aim 2. The major findings and conclusions from the current meta-analysis are: 1) MHO individuals are more active, spend less time in SB, and have a higher level of CRF (yet no differences in MST) than MUO individuals, suggesting that their healthier metabolic profile could be at least partially due to these healthier lifestyle factors and attributes. 2) The meta-analysis of cohort studies which accounted for PA (N = 10 unique cohorts, 100% scored as high-quality) support the notion that MHO individuals have a 24\%–33\% higher risk of all-cause mortality and CVD mortality/morbidity compared to MHNW individuals. This risk was borderline.
significant/non-significant, independent of the length of the follow-up and lower than that reported in previous meta-analyses in this topic including all type of studies, which could be indicating a modest reduction in the risk estimates as a consequence of accounting for PA. 3) Only one study has examined the role of CRF in the prognosis of MHO individuals. This study suggests that the differences in the risk of all-cause mortality and CVD mortality/morbidity between MHO and MHNW are largely explained by differences in CRF between these two phenotypes. © 2018 Elsevier Inc.

Cardiorespiratory fitness
Cardiovascular disease
Exercise
Metabolically healthy normal-weight
Metabolically healthy obesity
Metabolically unhealthy obesity
Mortality
Muscular strength
Obesity
Physical activity
Sedentary behaviors
aerobic exercise
all cause mortality
cardiorespiratory fitness
cardiovascular disease
cardiovascular mortality
cardiovascular risk
coronary artery disease
human
hyperlipidemia
ischemic heart disease
meta analysis
muscle strength
obesity
phenotype
physical activity
prognosis
Review
risk reduction
sedentary lifestyle
systematic review
energy metabolism
fitness
health status
healthy lifestyle
metabolically benign obesity
metabolism
pathophysiology
phenotype
risk factor
Cardiorespiratory Fitness
Energy Metabolism
Health Status
Healthy Lifestyle
Humans
Muscle Strength
Obesity, Metabolically Benign

Phenotype

Physical Fitness

Prognosis

Risk Factors