

Original Research

Muscular Fitness and All-Cause Mortality: Prospective Observations

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Background: The beneficial effects of cardiorespiratory fitness on mortality are well known; however, the relation of muscular fitness, specifically muscular strength and endurance, to mortality risk has not been thoroughly examined. The purpose of the current study is to determine if a dose-response relation exists between muscular fitness and mortality after controlling for factors such as age and cardiorespiratory fitness. *Methods:* The study included 9105 men and women, 20–82 years of age, in the Aerobics Center Longitudinal Study who have completed at least one medical examination at the Cooper Clinic in Dallas, TX between 1981 and 1989. The exam included a muscular fitness assessment, based on 1-min sit-up and 1-repetition maximal leg and bench press scores, and a maximal treadmill test. We conducted mortality follow-up through 1996 primarily using the National Death Index, with a total follow-up of 106,046 person-years. All-cause mortality rates were examined across low, moderate, and high muscular fitness strata. *Results:* Mortality was confirmed in 194 of 9105 participants (2.1%). The age- and sex-adjusted mortality rate of those in the lowest muscular fitness category was higher than that of those in the moderate fitness category (26.8 vs. 15.3 per 10,000 person-years, respectively). Those in the high fitness category had a mortality rate of 20.6 per 10,000 person-years. The moderate and high muscular fitness groups had relative risks of 0.64 (95% CI = 0.44–0.93) and 0.80 (95% CI = 0.49–1.31), adjusting for age, health status, body mass index, cigarette smoking, and cardiorespiratory fitness when compared with the low muscular fitness group. *Conclusions:* Mortality rates were lower for individuals with moderate/high muscular fitness compared to individuals with low muscular fitness. These findings warrant further research to confirm the apparent threshold effect between low and moderate/high muscular fitness and all-cause mortality.

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