
Abstract

Background: Studies generally describe the relationship between physical fitness and cognitive function by measuring only one or two specific cognitive tasks. In addition, in spite of the significant increase in life expectancy, the age of participants in these studies does not extend beyond a mean age of 70 years. This study was thus designed to examine the relationship between physical fitness and function in multiple cognitive domains in subjects older than those previously reported.

Methods: Thirty-eight individuals, aged 65.3 to 85.3 years, performed a graded, progressive, maximal exercise test. Based on a median score of peak VO$_2$, participants were divided into low-fitness and moderately-fit groups. Cognitive function was assessed by means of a computerized neuropsychological battery.

Results: The moderately-fit group achieved significantly better scores on the global cognitive score (U = 97, p = 0.04), and a significant correlation was found between peak VO$_2$ and attention, executive function, and global cognitive score ($r_s = .37, .39, .38$ respectively). The trend for superior cognitive scores in the moderate-fitness compared to the low-fitness groups was unequivocal, both in terms of accuracy and reaction time.

Conclusion: Maintenance of higher levels of cardiovascular fitness may help protect against cognitive deterioration, even at an advanced age. An adequately powered randomized controlled trial should be performed to further evaluate this hypothesis.