DOES PHYSICAL ACTIVITY AFFECT THE PREDICTIVE VALUE OF HEALTH-RELATED FITNESS FOR WALKING DIFFICULTIES?

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Background: Low levels of physical activity (PA), poor fitness and overweight in terms of high body mass index (BMI) tend to predict decline in mobility and physical functioning among older adults.

Purpose: Objective of the study was to analyse whether PA modifies the predictive value of selected health-related fitness (HRF) tests and BMI for self-reported difficulties in walking 2-km (WD).

Methods: Subjects were 55 to 69 years old men and women who participated in the assessment of HRF in 1996. Postal questionnaires were used to assess walking ability. Only subjects who did not report any WD in 1996 were included into the study. Occurrence of new WD was assessed by a similar question in 2002. PA level was assessed in 1990 and 1996. Subjects who on average reported vigorous PA at least twice a week between years 1990 and 1996 were regarded as vigorously active and all others as inactive. HRF testing included backwards walk for dynamic balance, one-leg squat for functional leg muscle strength and 1-km walk for walking ability and aerobic fitness. For the analyses performance in each test was divided into three fitness categories (0,1,2) based on the gender and age group specific thirds of the test scores. Performance in the three tests were combined into a summary score of HRF (0-6 points), higher scores indicating better performance. Body weight and height were measured for BMI calculations (normal weight: BMI <= 27 kg/m², overweight: BMI > 27 kg/m²).

Logistic regression analyses were used to analyse the predictive value of the independent variables. Since there were no statistically significant interactions between gender and age groups, the analysis were conducted in a combined group.

Results: PA had an independent predictive value for WD. Inactive subjects had higher risk for WD in all fitness categories and in both BMI groups than the active subjects. The risk on WD was highest among the inactive subjects who belonged to the poorest fitness third or who were overweight.

No statistically significant interactions between PA and HRF test performance or between PA and BMI were found. Regardless of the PA level the subjects in the poorest performing third in each HRF test had higher risk for WD than the subjects in the best performing third. The odds ratio (OR) of HRF summary score on WD was higher than the ORs of individual test items. Correspondingly, the overweight subjects had greater risk for WD than the leaner subjects regardless of the PA level.

Conclusions: In the present study PA did not modify the predictive value of HRF for WD among high-functioning older adults. PA, HRF and BMI were all independent predictors of WD, summary score of HRF being the most powerful predictor.

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