Fat-Fit Index on Predicting Cardiovascular Outcomes in College Aged Students

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ABSTRACT

Globally, 70% of all deaths annually occur from chronic diseases due to lifestyle risk factors such as obesity and low physical activity. These modifiable factors contribute to the result of chronic cardiovascular disease, respiratory disease, and diabetes. Body Mass Index (BMI) is a common measurement used to predict risk obesity. Furthermore, maximum oxygen consumption (VO2) is used to measure an individual's cardiorespiratory fitness. Fitness Fat Index (FFI) has been suggested to measure chronic disease risks. FFI represents an individual's cardiorespiratory fitness (CRF) divided by their waist to height ratio (WHR). Higher FFI is associated with cardiovascular disease and the reduction of all-cause mortality. FFI has been suggested as superior to BMI and VO2 in predicting health outcomes. The ability of FFI to predict measures of cardiovascular outcomes in college aged students is unknown. **PURPOSE**: The purpose of this study was to examine if FFI is superior to BMI or VO2 in predicting cardiovascular outcomes in college aged students. **METHODS**: 217 total college-aged subjects (20.9 ± 3.5) with an average BMI of 25.2 ±4.9 completed the study. BMI, FFI measurements were performed and VO2 max test was conducted. Pulse Wave Velocity (PWV), augmentation pressure (AP), augmentation index (AIX), brachial systolic blood pressure (BSBP), brachial diastolic blood Pressure (BDBP), central systolic blood pressure (CSBP), and central diastolic blood pressure (DBP) were measured. Hierarchical regression analysis was used with age entered in the first block and the predictor variables of BMI, VO2, and FFI were individually entered in the second block. **RESULTS:** After adjusting for age, BMI explained more of the variance on outcomes of AP (R^2 change 5.9%, $p<0.001$), PWV (R^2 change 9.1%, $p<0.001$), BSBP (R^2 change 4.8%, $p<0.001$), and CSBP (R^2 change 4.4%, $p<0.001$) than VO2 or FFI. VO2 explained more of the variance on the outcome of AIX (R^2 change 6.7%, $p<0.001$) than BMI or FFI. FFI explained more of the variance on outcomes of BDBP (R^2 change 9.0%, $p<0.001$) and CDBP (R^2 change 7.6%, $p<0.001$) than VO2 or BMI. **CONCLUSION**: This study found that FFI was not superior to BMI or VO2 on most CV outcomes. Within the population of healthy college students, BMI may be adequate to predict CV health.