

Non-exercise cardiorespiratory fitness (CRF) predictive equation for Malaysian women

Abstract

The purpose of this study was to develop a predictive equation to estimate CRF from non-exercise parameters in Malaysian women. Available equations are based on Caucasian subjects and may not apply to local women. A total of 158 healthy women aged between 20-64 years were randomly divided into test group (80% of total; n=125) and cross-validation group (20% of total; n=33). Based on the reported inter-relationship between CRF, sociodemography, biophysical, lifestyle and health; data were obtained by interviewer-facilitated questionnaire. CRF measured as VO₂peak was extrapolated from the value achieved at 85% maximal heart rate (220-age) while doing an exercise test based on the modified Bruce Protocol. The extrapolated VO₂peak obtained from the submaximal test was validated against a maximal test (n=46) which achieved a moderately strong correlation of R=0.76; SEE=4.59. The test group was used to develop a model using stepwise multiple regression procedures. The predicted VO₂peak = [(age (yrs) X -0.175) + (height (m) X 28.119) + (ethnicity (0= non-Malay, 1=Malay) X -4.545) + (waist (cm) X -0.154) + 6.858]. The correlation was R= 0.75; SEE = 3.74; p= 0.001. Cross-validation procedures revealed that R= 0.69; SEE= 4.50; p= 0.001. The prediction model indicates that women who are younger, taller, have smaller waist and from the Chinese ethnic group had higher CRF.