Cardiorespiratory fitness and its association with adiposity indices in young adults

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Abstract

Decreased cardiorespiratory fitness (CRF) is now considered an important risk factor for cardiovascular disease. Local studies in this regard are lacking. Current study was conducted to evaluate CRF in young adults and relate the findings with adiposity indices observed.

A cross-sectional study was conducted of 133 medical students (53 males and 80 females, aged 17-24) recruited from Jinnah Medical & Dental College, Pakistan, between August 2015 and February 2016. Queen's College Step Test was conducted to measure CRF and maximal oxygen uptake (VO_2 max) evaluated. Body composition was assessed by body mass index, body fat, visceral fat and waist circumference. Associations of VO_2 max and adiposity were analyzed.

According to body mass index (Asian cutoff = 23kg/m^2), non-obese and obese were 56.4% and 43.6%, respectively. Mean (standard deviation) VO_2 max (ml/kg/min) of males and females was 55.41 (9.45) and 39.91 (3.14), respectively, the gender difference being highly significant ($p<0.001$). Quartiles of VO_2 max showed strong inverse relationship between body composition and VO_2 max; obese individuals having low VO_2 max (1st quartile) and normal weight individuals having high VO_2 max (4th quartile). Pearson's correlation performed showed highly significant negative correlation between adiposity indices and VO_2 max, greatest for body fat in males ($r = -0.600$, $p<0.001$) and waist circumference in females ($r = -0.319$, $p=0.004$).

The results indicate low CRF in young females and a strong inverse relationship between fitness levels and adiposity in young adults of both genders. Improving these parameters in our young population may prevent the development of chronic non-communicable disease in later life.

Keywords: Cardiorespiratory fitness, Adiposity, VO_2 max, Exercise, Body mass index, Step test.

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I completed my Ph.D. with major interest in Physiology. I am Assistant Professor in The Karachi Institute of Biotechnology and Genetic Engineering, KIBGE. My several projects are in progress. I am also involved in teaching, supervising M.S/Ph.D. students. I am also active member of many professional societies. I have attended several national and international training workshops/ conferences.

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