

## Cardiorespiratory Fitness in College Students of Uttar Pradesh, India

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### Abstract

Present study was undertaken to (i) evaluate  $VO_2\max$  among college students of Uttar Pradesh, (ii) compare the data with other reports and (iii) compute prediction norms for  $VO_2\max$ . Seventy five Male and seventy five female college students of 19 – 24 years having middle class socioeconomic background were recruited by random sampling from Institute of Dental Sciences, Bareilly, Uttar Pradesh, India.  $VO_2\max$  was determined by Queen's College step test (QCT). Physical parameters were significantly correlated ( $P < 0.001$ ) with  $VO_2\max$  in both the sexes and they were (except age) significantly higher among males. Followings are the prediction norms for  $VO_2\max$  from body height which showed maximum value of correlation coefficients.

Males :  $VO_2\max$  (L/min) =  $0.17 \times$  body height (cm) – 26.439 [  $r = 0.91$ , SEE = 0.028 ]

Females:  $VO_2\max$  (L/min) =  $0.14 \times$  body height (cm) – 20.549 [  $r = 0.86$ , SEE = 0.051 ]

The results indicated better cardiorespiratory fitness among males than female college students of Uttar Pradesh, India, because of higher values of all the physical parameters in males.

**Key Words:**  $VO_2\max$ , QCT, Sedentary, Indians, Norms

### Introduction

Maximum oxygen uptake or  $VO_2\max$  has been internationally accepted as the best parameter to evaluate cardiorespiratory fitness. Direct measurement of cardiorespiratory fitness in terms of  $VO_2\max$  is restricted within the well equipped laboratory because of its exhausting and difficult experimental protocol (Fox, 1973). Among various indirect protocols (Fox, 1973; Das and Bhattacharya, 1995; Kline et al., 1987; Siconolfi et al., 1982; Mcardle et al., 1972) the Queen's College step test or QCT is the simplest one and has already been established as the best indirect method to evaluate cardiorespiratory fitness in young Indian individuals (Chatterjee et al., 2006).

There is dearth of data on  $VO_2\max$  among sedentary college students of Uttar Pradesh, India. The present study was therefore conducted to:

- (i) Evaluate  $VO_2\max$  in college students of Uttar Pradesh, India.
- (ii) Compare the data with reports from India and abroad, and
- (iii) Compute prediction norms for  $VO_2\max$  in the studied population.

### Materials and Methods

#### Selection of Participants

Male (N=75) and female (N=75) healthy sedentary students from the middle class socioeconomic background, having age range of 19 to 24 years were recruited for the study on the basis of random sampling from the Institute of Dental Sciences, Bareilly, Uttar Pradesh, India. The experimental protocol was fully explained to participants to allay their apprehension and ensure maximum co-operation. They had a light breakfast 2–3 hours before the test and refrained from any energetic physical activity for that period. The participants had no history of any major disease and did not follow any