

BODY MASS INDEX AND BODY FRAME SIZE IN A GROUP OF MEDICAL STUDENTS IN THE UNIVERSITY OF PERADENIYA

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Anthropometric studies of Asian medical students have revealed a significant proportion of students to be underweight and shorter compared to their western counterparts. This study was done to identify the type of body frame and the distribution of different body frame groups within each identified BMI class in a group of Sri Lankan medical undergraduates as similar studies have not been previously conducted.

A total of 143 medical students (male to female ratio 1:1.17) of the 2011/12 batch participated in the study. The mean age was similar in males and females. Standard procedures and equipments were used to measure elbow breadth, height and weight. BMI (kg/m^2) was calculated using height and weight. Body frame size was obtained using a table based on elbow width. Two tail unpaired 't' test was performed to compare mean values. Pearson's correlation analysis between BMI and triceps skin fold thickness, mid upper arm circumference, waist circumference and hip circumference was carried out to measure the strength of the linear relationship between paired data. Ethical clearance was obtained from the Ethical review committee, Faculty of Medicine, University of Peradeniya.

The mean BMI of $20.93 \pm 3.06 \text{ Kg/m}^2$ in males was similar to $19.36 \pm 2.83 \text{ Kg/m}^2$ in females. The mean elbow width of $6.56 \pm 0.34 \text{ cm}$ in males and $5.73 \pm 0.06 \text{ cm}$ in females was not significantly different. When classified according to the BMI cutoff values for Asians, among the males 8% were underweight, 71% were of normal weight, 17% were overweight and 5% were obese. Of the females 30% were underweight, 60% were of normal weight, 9% were overweight and 1% were obese. However, according to the WHO cut off values none were found to be obese. Hence, using Asian cut off values may be desirable than WHO cut off values. A positive and significant correlation was observed between BMI and triceps skin fold thickness ($R^2 = 0.051$, $p < 0.05$), mid upper arm circumference ($R^2 = 0.62$, $p < 0.001$), waist circumference ($R^2 = 0.631$, $p < 0.001$), and hip circumference ($R^2 = 0.651$, $p < 0.001$). The majority of the students had small body frames (75%). None of the males and 2 females had large body frames. The percentages of students with small frames in the underweight, normal and overweight categories were, 91%, 76% and 50%, respectively. A significant positive correlation was observed between elbow width and height.

The proportion of students having small body frames decreased as the BMI increased. The BMI of males and females did not differ and the majority (62%) had a body weight appropriate to height and only 1% was obese. More than one-third of American adults (35%) are obese which was considerably higher than the obese individuals in the present study.