

## **Assessment of Body Fat Percent in College Males Using BOD POD, Bioelectrical Impedance Analysis and Skinfold Thickness Measurements.**

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Body fat percent was assessed in 132 of randomly-selected college males, using air displacement (BOD POD), bioelectrical impedance analysis (Body stat) and seven skinfold thicknesses at chest, triceps, subscapular, suprailiac, abdomen, thigh, and calf. Six common prediction equations were used to estimate fat % from skinfold measurements. The findings indicated that body mass and height averaged ( $\pm$  SD)  $71.3 \pm 13.9$  kg and  $170.5 \pm 5.8$  cm, respectively. The mean value for body fat % by BOD POD was  $20.8 \pm 9.8$  (4-42%). The proportions of males exceeding fat content of 25% and 30% of body mass were 35.2% and 18%, respectively. In addition, all of body fat estimation methods used in this study showed significant ( $p < 0.000$ ) differences from BOD POD. Pearson correlation analysis indicated that fat % by BOD POD strongly correlated with fat estimations by Durin & Womersley equation ( $r = 0.925$ ), followed by sum of 7 skinfold ( $r = 0.897$ ), and sum of 4 skinfold ( $r = 0.891$ ). Furthermore, Bland and Altman limits of agreements analysis exhibited a variable bias ranging from -11.3% to 4.6%, when comparing body fat % with that of BOD POD. The lowest bias was seen between BOD POD and Boileau et al. equation (-1.8%). Multiple regression analysis using BOD POD as criterion revealed that thigh, abdomen and chest skinfold thicknesses offered the best prediction equation for fat % ( $R^2 = 0.83$ ,  $SEE = 3.83\%$ ). Finally, percentiles for fat % by BOD POD and seven skinfold measurements were presented for college-aged males.