

## The Association Between Body Mass Index and Back Muscle Endurance Among University Students

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### ABSTRACT

Many studies have suggested that body mass index (BMI) have a negative impact on back muscle endurance. To determine the association between BMI and back muscle endurance among university students and to establish a reference value of the Sorensen test. A total of 200 healthy university students (100 males and 100 females) aged between 18 to 24 years old were enrolled in this study. Demographic data and basic anthropometric measurements (weight, height and BMI) were taken. Then, participants performed the Biering-Sorensen test to measure their back-muscle endurance level and recorded as isometric holding time (IHT). Pearson correlation analysis and independent t-test were used to investigate the association between BMI and IHT; and the association between gender and IHT respectively. The significance level was set at  $p < 0.05$ . The mean IHT of all participants was  $92.73 \pm 35.378s$ . The mean IHT of BMI categories was  $105.59 \pm 45.39s$  in underweight,  $97.67 \pm 32.08s$  in normal weight,  $85.24 \pm 31.59s$  in overweight, and  $64.20 \pm 22.64s$  in obese. There was a moderate negative correlation between BMI and IHT ( $r = -0.316$ ,  $p < 0.001$ ). The mean IHT of a male was  $91.35 \pm 31.83 s$  while the female has a mean IHT of  $94.11 \pm 38.71 s$ . However, gender difference on IHT was not statistically significant ( $p = 0.582$ ). The higher the BMI, the lower the IHT. UTAR students have relatively poorer back muscle endurance level.