The purpose of this study was to examine the relationship between body composition, specifically percent body fat (%BFF), determined by hydrostatic weighing versus sleep quality, specifically sleep duration and efficiency. Seven kinesiology students from the University of Texas at Arlington participated in this study, in which body fat percentages were assessed using hydrostatic weighing methods. Additionally, waist-to-hip ratio and BMI were calculated from measurements of waist and hip circumferences, as well as height and weight. These results were compared to sleep data obtained from Fitbit trackers worn for three nights. A sleep assessment questionnaire was completed to provide additional information regarding sleep patterns. An examination of the means indicated that there is very little association between body composition and quality of sleep, but a moderate association between sleep duration and the values of body fat percentage and waist-to-hip ratio.

**Results**

The correlation analysis indicated a weak positive linear relationship between body fat% and sleep efficiency (r=0.27) and a moderate negative linear relationship between BMI and sleep duration (r=-0.61) with a weak positive relationship between BF% and the PSQI score (r=0.17). There appeared to be no relationship between waist-to-hip ratio and sleep efficiency (r=-0.13, respectively). The analyses also revealed a moderate positive linear relationship between BMI and the PSQI score (r=0.58).

**Conclusions**

The results of this study suggest that there is only a weak relationship between sleep efficiency and values of body fat percentage, BMI, PSQI score and waist-to-hip ratio. Analysis indicated a moderate relationship between body fat percentage and sleep duration, as well as waist-to-hip ratio with sleep duration. These results indicate very little association between body fat percentage and quality of sleep, but a moderate association between sleep duration and the values of body fat percentage and waist-to-hip ratio. These results might lead one to say that sleep duration is much more a factor in body composition than sleep efficiency, if sleep is indeed a factor at all. The fact that there was not a high correlation between any measures in this study calls into question the effect of sleep on body composition. Further studies could also employ the use of DEXA, which may give more accurate body fat percentages.