This is My Abstract Title – *Describing Visceral Fat via Girth and Skinfold Measurements*

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ABSTRACT

While girth ratios (GR), such as waist-to-height ratio (WHtR) and waist-to-hip ratio (WHR), and body fat percentage (BF%) have been widely used to describe visceral fat (VF), the applicability of skinfold (SF) measurements has been given less attention for the same purpose. PURPOSE: This study examined the associations between BF%, GR, SF, and VF. METHODS: Sixty healthy participants (38 males and 22 females, age = 21.23 ± 4.37 years, BMI = 24.87 ± 3.02 kg/m2, BF% = 19.70 ± 7.28%) participated in the study. Girth ratios, including WHtR and WHR, were assessed using a Gulick tape specifically at the level of the navel and slimmest part of the waist. SF thickness was assessed using a Lange skinfold caliper at 5 different regions, including the navel, upper abdomen, axillary, lumbar, and subscapular. Dual-energy X-ray absorptiometry was used to determine VF. A Pearson correlation was utilized to examine the associations among BF%, GR, SF, and VF. RESULTS: Females' VF (33.9 ± 16.9 cm2) was significantly correlated with BMI (23.9 ± 3.7 kg/m2, r = .451, p = .035) and BF% (26.6 ± 5.3%, r = .590, p = .004), while males' VF (49.6 ± 10.9 cm2) was not correlated with BMI (25.4 ± 2.4 kg/m2, r = -.021, p = .899) nor BF% (15.7 ± 4.8%, r = -.084, p = .616). In addition, WHR (.85 ± .04) was correlated with VF in males (r = .462, p = .004), while WHtR (.47 ± .06) was correlated with VF (r = .616, p = .002) in females. When participants were clustered into two groups based on BMI (< 25 or ≥ 25 kg/m2), VF was correlated with the WHR in males (n = 18) with a BMI ≥ 25 kg/m2 (r = .522, p = .026) and in women (n = 14) with a BMI < 25 kg/m2 (r = .567, p = .035). However, males (n = 20) with a BMI < 25 kg/m2 and women (n = 8) with a BMI ≥ 25 kg/m2 had no correlations between VF and any GR or SF measurements. Although there was no correlation between VF and SF in males, VF in females was correlated with SF at the anterior slimmest part of the waist (16.1 ± 4.9 mm, r = .450, p = .035), iliac crest (14.0 ± 5.4 mm, r = .527, p = .012), and subscapular (14.0 ± 5.3 mm, r = .51, p = .018). CONCLUSION: BF% has a greater correlation with VF in females than in males, while WHR (a marker of body fat distribution) better explains VF in males. In addition, SF only held a degree of applicability within females. Furthermore, fat content seems to play a more important role in females when assessing VF content, while fat distribution seems to be more important in males.