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Handgrip Strength Positively Correlates With Percent Fat Free Mass in Students at Messiah College

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Anthropometric measures are important in understanding components of health in individuals. Handgrip dynamometry is used to measure handgrip strength as an indicator of overall body strength. Fat free mass provides a more accurate assessment of body composition than other measurements, such as body mass index. Calculating fat free mass and handgrip strength may provide markers for potential issues related to malnourishment and sarcopenia.

PURPOSE: Determining if there is a positive correlation between handgrip strength and fat free mass may enhance the ability of handgrip strength to be an indicator for those conditions. **METHODS:** An observational study of 45 college aged students (M=17, F=28) was conducted to determine the relationship between fat free mass and handgrip strength. Percent fat free mass was measured using a medical body composition analyzer. Handgrip strength was measured (in pounds) by a digital smart handgrip dynamometer. The average of three trials was recorded for each hand, and the two values were averaged together. **RESULTS:** A moderate, positive correlation between percent fat free mass and handgrip strength was found ($r=0.47$). **CONCLUSION:** A positive correlation between fat free mass and handgrip strength may enhance the ability of handgrip strength to be an indicator for sarcopenia and malnourishment. Further research testing a larger group of subjects in this population may provide evidence for a stronger positive correlation between handgrip strength and percent fat free mass.