

The Relationship Between Performance and Body Composition of Acrobatics and Tumbling Athletes

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Balance and equilibrium are critical components of performance execution in Acrobatics and Tumbling (A&T). Therefore, the aim of this study was to identify if body composition affects the balance and equilibrium of Acrobatics and Tumbling athletes in Division II. Body mass index (BMI), fat and skeletal muscle percentage of top and base A&T athletes from Fairmont State University were assessed using an impedance device (InBody 570). Equilibrium was measured by the time holding a handstand in seconds. Results were compared between top and base positions by independent t-test, and associations between variables tested by Pearson correlation. BMI and fat percentage were higher in base athletes when compared to tops, whereas the percentage of skeletal muscle was higher in tops ($p < 0.05$). When associating equilibrium in seconds with the variables, skeletal muscle mass was positively associated with equilibrium ($r = 0.46$, $p < 0.05$) and percentage of fat negatively associated ($r = -0.47$, $p < 0.05$). There was no association between BMI and the equilibrium test. Thus, strategies to increment skeletal muscle mass and the decrease of body fat could be an important asset to improve equilibrium and balance of A&T athletes thus improving performance.