



Mid Atlantic Regional Chapter of the American College of Sports Medicine

46th Annual Scientific Meeting, November 3rd - 4th, 2023
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 12



Muscular Fitness and Throwing Qualities in Collegiate Ultimate Frisbee

Taylor R. Keiser, Luke Haile, Andrea J. Fradkin, Joseph L. Andreacci, Commonwealth University of Pennsylvania – Bloomsburg, Bloomsburg, PA

PURPOSE: To compare measures of muscular fitness and throwing quality between collegiate ultimate frisbee athletes and collegiate non-players. **METHODS:** Forty-eight college students (23 women; 25 men) volunteered to participate in this study. Students were categorized as experienced ultimate frisbee players (UF) (n = 15, 2 women) or non-players (NP) (n = 33, 21 women) using a questionnaire. UF consisted of collegiate club ultimate frisbee players and/or students with at least 6 months of ultimate frisbee experience. NP consisted of exercise science students who have little to no prior experience with ultimate frisbee (less than 6 months). During visit 1, percent body fat (%BF) and body mass (BM) were measured using a Tanita Bioelectrical Impedance Analyzer. Wingspan was measured using a wall-mounted measuring tape. Grip strength was measured using a Grip-A hand grip dynamometer. Upper body muscular endurance was measured using the FitnessGram cadence push-up test. During visit 2, disc throwing accuracy and distance were measured using a throwing test consisting of targets at different ranges (5m, 15m, 25m). Subject characteristics, fitness assessments, and throwing measures were compared between UF and NP using independent samples *t*-tests. **RESULTS:** Statistically significant differences were found between UF and NP for height (177.8 ± 9.9 vs. 168.0 ± 9.8 cm, $p = .003$), BM (83.5 ± 16.7 vs. 68.8 ± 13.9 kg; $p = .003$), BMI (26.4 ± 4.4 vs. 24.1 ± 3.0 kg·m⁻², $p = .04$), wingspan (180.9 ± 11.6 vs. 167.5 ± 14.9 cm, $p = .003$), grip strength (42.8 ± 7.8 vs. 34.6 ± 10.2 kg, $p = .008$), 5m accuracy (9.3 ± 1.0 vs. 7.4 ± 2.5 throws, $p = .006$), 5m distance (11.1 ± 1.8 vs. 9.2 ± 1.4 m, $p < .001$), 15m accuracy (3.0 ± 1.6 vs. 1.1 ± 1.3 throws, $p < .001$), 15m distance (21.6 ± 2.6 vs. 17.3 ± 3.8 m, $p < .001$), 25m accuracy (1.1 ± 1.2 vs. 0.5 ± 0.1 throws, $p < .001$), and 25m distance (27.4 ± 1.7 vs. 21.3 ± 5.4 m, $p < .001$), respectively. Values were similar between UF and NP for age (21.9 ± 2.3 vs. 21.5 ± 2.0 , $p = .593$), %BF (22.6 ± 8.5 vs. 24.3 ± 8.2 ; $p = .501$), and upper body muscular endurance (19.3 ± 7.2 vs. 20.6 ± 9.0 push-ups; $p = .608$), respectively. **CONCLUSION:** UF had greater height, BM, BMI, wingspan, grip strength, as well as all throwing accuracy and distance measures when compared to NP. However, no differences were found for age, %BF, and upper body muscular endurance. Future studies should aim for closer male to female and UF to NP ratios with larger sample sizes. Future studies should also measure additional variables, including but not limited to throwing velocity, running speed, vertical jump height, and differences between UF position players (e.g. handler, cutter). **SIGNIFICANCE/NOVELTY:** Ultimate frisbee is a sport which has been gaining in popularity, particularly in the United States among college student populations. However, very little research has studied the fitness levels and throwing characteristics of these athletes.