Relationships between Body Composition and Game Day Training Load in Ice Hockey Players

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ABSTRACT

Body composition can impact physical activities and exercise performance. However, relationships between body composition and workload during ice hockey games remain unknown. **PURPOSE**: To examine relationships between body composition and game day training load in ice hockey players. **METHODS:** Eleven highly-trained ice hockey players (10 males, 1 female; mean ± standard deviation; age, 21.73 ± 1.34 yrs.; height, 179.93 ± 8.49 cm; body mass, 76.87 ± 14.38 kg, body fat percentage [BFP]: 18.0 ± 7.9% [mean ± SD]; fat-free mass index [FFMI]: 19.8 ± 2.2 kg/m2) participated in the study. First, participants visited the laboratory to assess their body composition by dual-energy X-ray absorptiometry and 3-dimensional optical imaging. Then, participants wore a player tracking device to monitor training load during an entire ice hockey game. Pearson correlations were utilized to assess relationships between selected body composition (body fat percentage [BFP], fat-free mass index [FFMI]) and training load metrics (average heart rate [HR], training impulse [TRIMP]). **RESULTS:** No statistically significant correlations between the selected body composition and training load variables were observed. Correlation coefficients were negative for the relationship between BFP and TRIMP ($r = -0.46$, $p = 0.15$) and between BFP and HR ($r = -0.49$, $p = 0.12$). In contrast, correlation coefficients were positive for the relationship between FFMI and TRIMP ($r = 0.57$, $p = 0.07$) and between FFMI and HR ($r = 0.49$, $p = 0.12$). **CONCLUSION:** With no statistically significant associations between training load and body composition, BFP and FFM might not impact workload in the ice hockey players during the game. However, further investigation will be necessary to establish this finding more definitively, due to the utilization of a single game's training load and a modest sample of players.