

Physiological and physical characteristics of Italian elite badminton players

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Aim. The aim of this study was to establish physical and physiological characteristics of elite Italian male badminton players and to determine whether these attributes discriminate them from elite Malaysian players as Asian still dominate at all major international tournaments.

Methods. Three Italian badminton players (age 20.3±1.5; world ranking 114±19) competing at international level were tested. Height, body mass (BM), percentage of body fat (%BF) and fat free mass (FFM kg) were measured. An incremental test on treadmill was performed to evaluate V'O₂max. A series of vertical jump tests that included Countermovement jump high (CMJ_h), Squat jump high (SJ_h), Drop jump high (DJ_h) and time contact (DJ_{tc}) were evaluated to assess muscular characteristics. One-repetition maximum on squat exercise (1-RM) were employed for the determination of lower body maximal strength. Data were then compared with published data of twelve Malaysian elite players (age: 24.6±3.7; world ranking: 6±3). Standardized changes in the mean of each measure were used to assess magnitudes of effects between Italian and Malaysian players. Standardized changes of 0.00–0.19; 0.20–0.59; 0.60–1.19; and ≥1.20 were interpreted as trivial, small, moderate, and large effects, respectively.

Results. Data are expressed as mean±SD. Italian respect to Malaysian players are shorter (1.74±0.04 vs 1.76±0.06 m; ES -0.30, small) and lighter (65.7±4.0 vs 73.2±7.6 kg; ES -1.31, large). Italians have lower %BF (7.8±0.8 vs 12.5±4.8; ES -1.71, large) and FFM (60.7±3.3 vs 63.6±5.8 kg; ES -0.64, moderate). For physiological measures Italians show higher V'O₂max values (65.6±2.9 vs 56.9±6.7; ES 1.81, large). CMJ_h, SJ_h and DJ_h results were similar between Italian and Malaysian players (CMJ_h: 46.3±2.5 vs 46.3±5.4 cm; ES 0.00, trivial - SJ_h: 43.7±1.0 vs 42.7±5.2 cm; ES 0.32, small – DJ_h: 34.6±3.2 vs 34.4±5.5 cm; ES 0.05, trivial). However DJ_{tc} was lower in Italians respect to Malaysians (0.18±0.01 vs 0.23±0.01ms; ES -5.00, large). Absolute strength during the squat exercise was lower in Italian respect to Malaysian players (131.6±7.6 vs 143.2±17.3 kg; ES -0.93 moderate) but when maximal strength was normalized for body mass no differences were found between Italians and Malaysians (2.00±0.08 vs 1.98±0.35 kg · kg⁻¹ BM).

Conclusion. This study shows that elite male Malaysian badminton players are slightly taller and heavier than Italian players. However, Italians have similar neuromuscular characteristics and higher aerobic values respect to Malaysians. This suggests that, at the high level of the sports, when players have reached high level of fitness, differences in performance could result from other factors such as technical, tactical and/or psychological abilities.

References

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