4. Sports Physiology

51 PHYSIOLOGICAL PROFILES OF ELITE BADMINTON PLAYERS: ASPECTS OF AGE AND GENDER

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In order to evaluate the physiological profile of elite badminton players, 54 males and 26 females, members of Czech senior and junior national teams had been examined by an incremental maximum treadmill exercise test (with constant 5% inclination, increment 1 km/h per min) at the end of the preparatory period. VO_2max in junior male players (n=29, mean age 17.2± (SD 1.2) years) and in senior male players (n=25, 21.3±2.2 years) attained 64.6±4.3 and 63.2±3.7 ml/kg/min, respectively. In female players, there were also no differences in VO_2max in junior (n=16, 17.6±0.8 years) and senior (n=10, 24.5±2.5 years) players: 54.9±2.5 and 55.2±2.6 ml/kg/min, respectively. The players were subdivided into internationally (IP) and nationally (NP) ranked subgroups. A comparison had shown that both male and female IP had lower body fat ($p<0.05$) than NP. Male IP also exhibited higher forced vital capacity, maximum pulmonary ventilation and a higher maximum tidal volume ($p<0.05$) than in NP. Both male and female IP and NP were not different in VO_2max maximum running speed or T_{vent}. The study indicates that elite badminton is associated with relatively low body fat and lean body build, both in males and females. Maximum treadmill exercise test in badminton players may provide basic physical condition data necessary to elite performance (eg, VO_2max above 60 and 52 ml/kg/min, in male and female player, respectively). However, the results of laboratory treadmill testing seem to be a poor predictor with regard to the ability relative to internationally and/or nationally badminton game-play performance.