Abstract

Title: Body composition changes during ontogenesis in youth football

Objectives: The aim of the work was to identify and compare changes in body composition during ontogenesis in youth categories in football.

Methods: Due to our work, a research group was created, which included 4 different age categories. It was a category U12 - U15. U12 (n = 15), U13 (n = 18), U14 (n = 19), U15 (n = 16). He is a player of an elite Czech club. The selection of probands and age categories was intentional. Body composition measurements were performed with a multi-frequency bioimpedance analyzer (Tanita MC-980MA, Tanita Corporation, Japan). The biological age was estimated as follows. The equations of Mirwald et al. (2002). Y: -9.236+(0.0002708*Leg Length and Sitting height interaction) – (0.001663*Age and Leg Length interaction) (0.007216 Age and Sitting Height interaction) + (0.02292*Weight by Height ratio). The players were divided into two groups according to the degree of maturity (before 1, circa 2 (PHV)). Group 1 included players from (> -1 before PHV) and group 2 - circa PHV (-1, +1).

Results: The changes in the basic somatometric indicators - body weight and body height were as follows. Body weight: U12 (38.2 kg), U13 (41.4 kg) + 8%, U14 (46 kg) + 11%, U15 (55.1 kg) + 20%. Body height: U12 (148.4 cm), U13 (154 cm) + 4%, U14 (160.2 cm) + 4%, U15 (171.5 cm) + 7%. The compared TS parameters were: Fat mass: U12 (17.7%), U13 (17.4) - 0.3%, U14 (14.9%) - 2.5%, U15 (15.9%) + 1 %. FFM: U12 (31.2 kg), U13 (33.9 kg) + 9%, U14 (39 kg) + 15%, U15 (46.9 kg) + 20. Muscle mass on lower limbs: U12 PL (5,1 kg) and NPL (4.9 kg), U13 PL (5.5 kg) + 8% and NPL (5.3 kg) + 8%, U14 PL (6.7 kg) + 22% and NPL (6.6 kg) + 25%, U15 PL (7.8 kg) + 16% and NPL (7.5 kg) + 14%.

Conclusion: Our results show a declining trend in the proportion of fat mass during ontogenesis, while an increasing trend was shown in the proportion of non-fat mass and muscle mass in the lower limbs. The process of managing the training process should take into account the individual differences of the players and he process of managing the training process should take into account the individual differences of the players and it is more than necessary to individualize the training process in order to develop the movement abilities and skills as effectively as possible.

Keywords: socccer, muscle mass, fat mass, motor skills