© Eurasian Journal of Sport Science 2022; 2(1): 116-119
https://eajss.uz

Factors affecting the special endurance of the body structure of football players aged 18-19 years

Pulatov Sirozhiddin Nuritdinovich[1]

[1]Uzbekistan state university of physical education and sport, Chirchik, Uzbekistan

Abstract

Purpose: To study the effect of changes in the body of players aged 18-19 on a special level of endurance at different stages of the annual cycle.

Methods: Pedagogical control, pedagogical testing, anthropology, mathematical and statistical methods were used in the experiment.

Results: One of the components of the player's performance is the structure of the body. The analysis showed the following: 12% of the players had a normal fat mass, and 16% of the players had an average level. In 72% of the players, the amount of fat mass significantly exceeded the norm. At the same time, the highest percentage of fat mass (16% - 19.5%) was recorded in goalkeepers. The midfield players also had fat mass coefficients exceeding the regulatory requirements, but in fact it is the players in this role who will have to determine the speed and pace of the team's attacking movements.

Conclusion: Analysis and generalization of literary sources have shown that body composition is directly related to the performance and health of football players. 12% of the players had normal body fat, 16% had moderate body fat, and 72% had significantly higher body fat than usual and had a slight increase in muscle mass and a slight decrease in fat content during the competition.

Keywords: Body structure, special endurance, young players, stages of the annual cycle, training process.

Introduction

The spread of competitions of different levels in the modern football requires a high level of different training of players of different teams. In addition to having excellent technical and tactical skills, the advantage in the match is given to teams that are able to achieve high efficiency of movements with increased fatigue. This is possible in conditions of a high level of development of physical qualities, which is the key to the effectiveness of team, group and individual actions. Many scientific works of specialists in sports theory are devoted to the physical, functional and psychological improvement of players (1, 5, 10, 11). Nevertheless, the trends in the development of modern football require constant improvement of methods of physical training of athletes. This is relevant for all stages of long-term training, especially at the stage of sports specialization, when the coaching staff is faced with the task of forming a reserve for qualified football.

Training the physical qualities of players is considered one of the important aspects of sports training. When educating young football players as mature players, experts believe that paying attention to the physical training of young football players, strengthening their health and harmonious development, acquiring a variety of skills will be an excellent basis for mastering the technique and tactics of playing football.

The physical condition of the players is an important factor not only in the success of our clubs, but also in the success of our national teams. Playing football requires a high level of development of special physical qualities. Repeatedly fast running and acceleration, power wrestling, kicking the ball, precise execution of techniques cannot be effectively performed without the ability of the athlete's body to withstand fatigue for 90 minutes of playing time. According to experts, the level of development of special endurance largely determines the effectiveness of competitive activity of football players (2, 4).

An analysis of the performance of the youth national team of Uzbekistan shows that the level of special endurance of young football players is not high enough. Young players cannot maintain a high level of motor activity in international-level games throughout the game. This, in turn, negatively affects the effectiveness of the execution of game techniques, and in general, their successful execution in a particular official tournament (2).

One of the reasons for this is that the nature of competitive activity of young players has not yet been sufficiently studied at the stage of sports formation. It is at this age that the transition from youth football to adult football takes place, and the effectiveness of their subsequent competitive activity depends on the level of special endurance.

In the literature that we can use, both the data recorded in the official games about the movement of 18-19-year-olds with different intensity and different speed, and the data recorded in the process of participation, are scarce. There is also little convincing information about the amount of movement in the submaximal power zone that characterizes their specific level of endurance. There is also very little information about the body composition of young football players, although it has a great connection with the specifics of the training of a young player, his adaptation to environmental conditions, as well as professional activities and sports activities.

Methods

Bioimpedance measurement was used as a research method (3). The structure of the body of young players was studied by measuring various components based on the method of reactive resistance of body tissues. Four “Tanita” analyzers were used, 8 contacts - two on each arm (tool handles) and two on the sole of the foot. Methods of assessing the body composition of athletes are widely used by specialists, since the structure of the body correlates with the special performance of the athlete. The test was attended by the players of the “Bunyodkor” youth team.

Results and discussion

According to F. A. Jordanskaya, weight is an integral characteristic that does not allow assessing real shifts in the athlete's body under the influence of physical exertion (9). Real changes are reflected in the dynamics of the level of development of muscle and fat components, which in turn indicates the activity of protein synthesis and energy metabolism and is an integral marker of flexible shifts in all body systems.

At the same time, any decrease in muscle composition indicates a lack of energy resources in the athlete's body and their accumulation or non-recovery before the end of the current and suppression of protein synthesis.

An increase in fat content reduces the total amount of energy in the body, and also leads to a decrease in performance and deterioration of recovery.

Changes in the muscle and fat components under the influence of physical exertion reflect the direction and severity of structural shifts in the athlete's body under the influence of physical exertion and the basic nature of energy supply, i.e. labile morphological indicators of a person can serve as markers of adaptation to muscle tension activity (6).

Methods of assessing the body composition of football players are widely used by specialists, since the body composition is closely related to the athlete's performance (13,16). Body composition analysis is useful for short- and long-term evaluation of athletic performance, dietary interventions, injury prevention, abdominal obesity and the general health of athletes (1, 8, 14). The results of leading athletes can be negatively affected by a very high and very low percentage of body fat (17). Create aerobic training techniques while promoting experienced players, and high levels of fat can be mechanically and metabolically harmful to athletes (7, 15).

Figure 1 shows the dynamics of the body mass index of young football players aged 18-19 years, as well as the average group indicators of muscle and adipose tissue mass. In the picture below, the fat mass of players during the tournament is 14.8%, and during the training period - 15.4%. In the data on muscle mass, we recorded 57.2% in the competition period and 55.9% in the training period. However, during the competition period, the data on body length practically did not change, and during the preparatory period, the dynamics of change was also observed in the indicators 168.4-168.2 obtained by body weight. This is 67.6% during the competition period and 68.1% during the preparation period.

The data of dynamic observations of the ratio of the masses of muscle and fat components in the total body weight allow us to establish some general patterns of the ratio of these indicators in certain training periods of 18 -19-year-old football players.

The relative stability of athletes' body weight during training and competition periods is a general trend. At the same time, a characteristic feature is the relative stability of muscle and fat mass during the training period, while small changes are noted during the competition period. For example, fairly stable average group indicators of muscle mass with moderate values of fat content during the

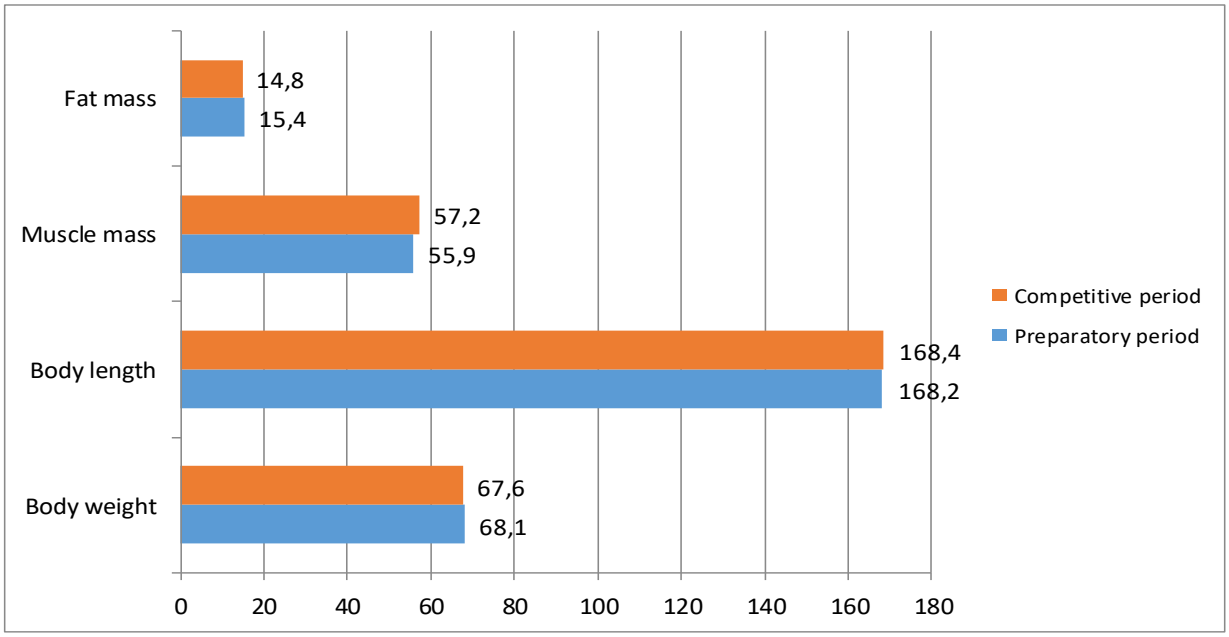


Table 1. Dynamics of average group indicators of the body composition of young football players aged 18-19 years in the annual cycle.

training and competition periods indicate that the morphological structures of athletes do not adapt to the physical and competitive loads of this period. By the competition period, there is an increase in body weight due to a slight increase in the content of more muscles and a slight decrease in fat content. This may indicate an imbalance in nutrition and a mismatch in the size and direction of physical activity.

One of the components of the player's performance is the structure of the body. The analysis showed the following: 12% of the players had a normal fat mass, and 16% of the players had an average level. In 72% of the players, the amount of fat mass significantly exceeded the norm. At the same time, the highest percentage of fat mass (16% - 19.5%) was recorded in goalkeepers. The midfield players also had fat mass coefficients exceeding the regulatory requirements, but in fact it is the players in this role who will have to determine the speed and pace of the team's attacking movements.

Excessive fat layer inside the muscles worsens their contractile properties, disrupts intermuscular coordination, which negatively affects the accuracy of technical techniques. The presence of excess fat mass reduces the reaction speed, speed and explosive abilities of players, which leads to injuries, primarily to injuries of the articular apparatus and a decrease in the athlete's performance, which ultimately affects the effectiveness of game modes and the outcome of the game as a whole.

These data indicate that the values of physical activity do not correspond to the caloric content of the players' diets.

Conclusion

- Analysis and generalization of literary sources have shown that body composition is directly related to the performance and health of football players.
- 12% of the players had a fat mass index, 16% of the players had an average level, and 72% of the players had a fat mass significantly higher than normal;
- A small increase in muscle mass and a slight decrease in the fat component during the competition;
- Excessive consumption of foods high in protein and animal fats and low in carbohydrates reduces the level of endurance of players;
- Smaller in size and intensity of physical exertion, as well as significantly less load in competitive games, indicate an imbalance in nutrition, the magnitude and direction of physical exertion.

References

Volkov V.V., Radchich I.YU., Seluyanov V.N. (2015) Differencirovannyj podhod k opredeleniyu aerobnoj rabotosposobnosti atletov, zanimayushchihsya krossfitom [A differentiated approach to determining the aerobic performance of athletes involved in crossfit]. *Evrazijskij soyuz uchenyh*. № 8-3 (17). pp. 136-139.

Guba V.P. (2013) Teoriya i metodika futbola [Theory and methodology of football]. *Uchebnik Sovetskij sport.* pp. – 208.

Iordanskaya F.A. (2013) Monitoring fizicheskoj i funkcional'noj podgotovlennosti futbolistov v usloviyah uchebno-trenirovochnogo processa. [Monitoring of the physical and functional readiness of football players in the conditions of the educational and training process] . *Sovetski sport*. pp. 180.

Iseev SH.T. (2019) Ispolzovanie innovacionnyh metodov kontrolya fizicheskoj podgotovlennosti futbolistov [The use of innovative methods for monitoring the physical fitness of football players]. «Olimpijskoj» sbornoj. «YUқori yutuқli sportni rivozhlantirishning dolzarb muammolari» *Halқaro ilmij-amalij konferenciya materiallari*. Toshkent.

S.G. Aleksandrov, D.V. Belinskij (2018) Istoriya, teoriya i metodika fizicheskoj kul'tury i otdel'nyh vidov sporta [History, theory and methodology of physical culture and individual sports: workshop for university students]. *Praktikum dlya studentov vuzov* .pp. 116. Krasnodar.

Koshbahtiev I. A. (2017) Model'nye harakteristiki futbolistov vysokoj kvalifikacii [Model characteristics of highly qualified football players]. *Yosh olim.* №25. pp. 208-210.

Martirosov, E. G. (2006) Tekhnologii i metody opredeleniya sostava tela cheloveka [Technologies and methods for determining the composition of the human body]. *Nauka.* pp. 247.

Miroshnikov A.B., Sidorov E.P., Laptev A.I. (2017) Aerobnaya rabota v silovyh vidah sporta, kak profilaktika gipertonicheskoj bolezni [Aerobic work in power sports as a prevention of hypertension. In the collection]. *Dostizheniya i perspektivy razvitiya materialy VI Vserossijskoj nauchno-prakticheskoj konferencii s mezhdunarodnym uchastiem*. pp. 142-147.

Miroshnikov A.B., Smolenskij A.V. (2017) Fizicheskaya aktivnost' pri korrekcii vesa tela: fokus na myshcy i zhirovuyu tkan (obzor literatury) [Smolensky A.V. Physical activity in body weight correction: focus on muscle and adipose tissue (literature review)]. *Terapevt*. № 8. pp. 4-9.

A. Zavarov. (2015) Futbol dlya nachinayushchih. Osnovy i pravila [Football for beginners. Basics and rules] . Moskva. *LitRes,* 2015. pp. 250.

Yakimova L.A. (2017) Teoriya i metodika fizicheskoj kul'tury i sporta: uchebno—metodicheskoe posobie [Theory and methods of physical culture and sports: teaching aid]. Krasnodar: *KGUFKST* . pp. 72.

Boileau RA, Horswill CA. (2000) Body composition in sports: Measurement and applications for weight gain and loss. In: Exercise and Sport Science. W.E. Garrett Jr and D.T. Kirkendall, eds. Philadelphia: Lippincott Williams & Wilkins. pp. 319-338.

Gabbett T, Ryan, P. (2009) Tackling technique, injury risk, and playing performance in high-performance collision sport athletes. Int J Sports Sci Coach 4. pp.521-533.

Kemper GLJ, Van van Der der Sluis A, Brink MS, Visscher C, Frencken WGP, Elferink-Gemser MT. (2015) Anthropometric injury risk factors in elite-standard youth soccer. *Int J Sports Med.* pp. 1112–1117.

Milsom J, Naughton R, O'Boyle A, Iqbal Z, Morgans R, Drust B, Morton JP (2015). Body composition assessment of English Premier League soccer players: a comparative DXA analysis of first team, U21 and U18 squads. *J Sports Sci. pp.* 414: 1–8.

Nikolaidis PT. (2015) Can maximal aerobic running speed be predicted from submaximal cycle ergometry in soccer players? The effects of age, anthropometry and positional roles. Adv Biomed Res. 4. pp. 226.

Stanforth PR, Crim BN, Stanforth D, Stults-Kolehmainen MA. (2014) Body composition changes among female NCAA division 1 athletes across the competitive season and over a multiyear time frame. *J Strength Cond Res* 28. pp. 300-307.

AUTHOR BIOGRAPHY

Sirozhiddin Nuritdinovich



PULATOV

Employment

Senior lecturer at Uzbekistan state university of physical education and sports

Degree

MD

Research interests

Soccer science, Physical education, Theory and methodology of football

E-mail:

sirojiddinpulatov90@gmail.com