THE RELATIONSHIP OF MORPHOMETRIC SIGNS OF THE PHYSIQUE OF BASKETBALL PLAYERS WITH INDICATORS OF PHYSICAL FITNESS

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INTRODUCTION

Women's sport in the modern world is quite popular, but not in all regions of the globe its development is uniform, and not in all countries women can equally engage in it. This is due to the different level of development of economic, social, technical and other factors that have a decisive influence on the position of women in society and sports (N.Yu. Melnikova, 1999, Lubysheva, 2001, T. Sokha, 2002, Shakhlina L.G., 2003) At present, the importance of the structure of physical fitness in game sports has been established, in particular, it is necessary to consider it in the aspect of suitability for improving the educational process. The obtained results provide an opportunity to get an answer to a number of questions of modern development and popularization of game sports, in particular basketball, its implementation in the system of school physical education and sports training of young and adult basketball players (M.G. Tkachuk, Dyusenova, 2009). Our study is devoted to the importance of morphometric indicators of physique in the manifestation of certain physical qualities, the development of which is influenced by either hereditary or environmental factors at the stages of many years of sports training.

Objective: To study the correlative relationships between the morphometric features of the physique of basketball players aged 16-18 and indicators of physical fitness.

Research methods: The object of the study was 15 basketball players with high sports qualifications - 1 athlete has the qualification of ISMC (masters of sports of international class, 7 girls-masters of sports, 4 - kmc, and 3 athletes had - 1 category. All examined athletes are members of the national team Almalyk Mining and Metallurgical Combine (AGMK) 1. The assessment of physical development was carried out on the basis of anthropometric research methods, in accordance with the requirements set forth in the manual of E. G. Martirosov, 1982.

1. Of the anthropometric features, we have identified indicators of total body size - this is the length and body weight, chest circumference: of the partial sizes - MRI or mass-height index, the length of the upper and lower extremities, of the girth sizes - the circumference of the pelvis, shoulder and hip.

2. The level of physical fitness was determined using the correct pedagogical tests, which have received recognition among leading experts and coaches, taking into account the age of the basketball players.

3. To find out the reliability of the relationship of morphometric signs of the physique of basketball players with physical fitness indicators, methods of mathematical statistics were used, in particular, the method of correlation analysis.

Research results and discussion: As mentioned above, the task was set: to establish significant correlative relationships between morphological features of physique and some parameters that characterize the physical fitness of girls - basketball players. It is known that in basketball, one of the informative features in the selection for basketball is the length of the body, which is caused not only by external, but also primarily by genetic factors. According to B.A. Nikityuk, 1996, long-body sizes are rigidly determined and determined by 90 - 92%, and the significance of environmental factors is insignificant. But practical experience confirms that, especially in women's teams of basketball

players, dressed with tall athletes, undersized also successfully perform. The level of sportsmanship of a basketball player taller than 200 cm is determined primarily by somatic parameters. In athletes whose body length varies between 165 - 170 cm, it is caused to a greater extent by functional capabilities and, in particular, by indicators of the cardiorespiratory system. Such large differences in terms of body length occur only at the level of the highest sportsmanship. Indicators of the cardiorespiratory system relate to the body's energy supply system and are also an indicator of physical performance and level of fitness.

To assess the physical fitness of basketball players, we have selected adequate tests characterizing the level of development of the physical qualities of basketball players. A comparative characteristic of the correlation matrices for indicators underlying physical capabilities and for parameters determining the morphological features of the physique of basketball players aged 16-18 showed that, under the influence of training loads, higher values of correlation coefficients for certain attributes were revealed (Table 1) . So in the 30m run, correlative relationships were found between almost all body indices, except for the shoulder girth. A high correlation was established for long-body sizes with high-speed qualities, which are manifested in running 30 m, running 100 m. So, in the 30-meter run, the correlative relationship with the body length was r = -0.80, with the length of the upper limbs r = -0.82, with the length of the lower limbs r = -0.82. A high correlative relationship was also established in the 100m race - with the length of the limb body r = - 0.77, with the length of the upper limbs r = -0.60, and the length of the lower limbs also amounted to r = -0.67.

Running at 800m marks such a physical indicator as endurance. A high correlation was established between running at 800m and body length at r = -0.91, the length of the upper limbs was r = -0.77 and the length of the lower limbs r = -0.84 (Table 1). Interdependence has been established for all length sizes and hip circumference, which is highly significant in all types of running. The obtained data can be considered as evidence of improving the interdependence of the parameters of the motor function and physique of basketball players. When considering individual functional parameters, it should be noted that during the pedagogical experiment, the correlation between the results of maximum power in watts with the PWC-170 test and the indicators of most somatic parameters significantly increased: in particular, a moderate correlation from r-0.33 to r - 0.52 was established along the length body, upper limb length and pelvic girth. However, a high correlative relationship of maximum power in watts was detected by body weight - r-0.80, hip circumference - r-0.84, lower limb length - r-0.65, MRI - by mass-height characteristic - r-0.69, and shoulder girth - r-0.61 . High correlative interdependence is also characteristic of high jumps. Thus, the r-0.84 correlation was established for body length and high jumps, the length of the lower extremities was r-0.86, the length of the upper limbs was r-0.79, and the hip circumference was r-0.75. For other indicators, the established correlative relationship is above average, is also regarded as a positive indicator. Indicators of changes in the seven parameters of physical fitness can be regarded as a positive effect of the effects of the training process.

CONCLUSION

Given the age of the group of basketball players that we studied, which is the initial stage of the youthful period, which lasts up to 21 years, we can assume that growth processes due to biological patterns will continue. This means that the values and correlative relationships between indicators of physical fitness and physique will increase in the process of age-related formation of motor functions under the influence of physical activity of the training process.

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Correlations between indicators of physical development of a functional state and physical fitness in 16-17 year old basketball players

Motor tests	Performance Engine Qualities	**Anthropometric indicators**							
		body height	length top limbs	length lower limbs	weight	MRI	pelvic girth	hip circumference	shoulder girth
		176.58±10	77±2.33	95±2.6	64,53±10	362.8±47.8	92,25±7	52,1±4,5	23,33±2,5
1. 30m running	4.16 c		**r=-0,82**	**r=-0,82**	**r=-0,67**	**r=-0,46**	**r=-0,66**	**r=-0,72**	r=-0,49
2. 100m running (speed)	$x_{ср}$=12.39	**r=-0,77**	**r=-0,60**	**r=-0,67**	r=-0,41	r=-0,2	r=-0,43	**r=-0,61**	r=-0,27
3.800m running (endurance)	$x_{ср}$=2мин.30с	**r=-0,91**	**r=-0,77**	**r=-0,84**	r=-0,45	r=-0,16	r=-0,54	**r=-0,66**	r=-0,39
4. Maximum load power in watts at PWC-170	$x_{ср}$= 650.70	**r=0.336**	**r=0.52**	**r=0.65**	**r=0.80**	**r=0,69**	**r=0,41**	**r= 0,84**	**r= 0,61**
5.IPC (maximum consumption. Oxygen)	$x_{ср}$= 4.35 л/мин	r=0,17	r=0,22	r=0,10	r=0,24	r=0,27	r=0,33	r=0,44	r=0,39
6. Jump up from the spot (speed-power qualities)	$x_{ср}$=58.89 см	**r=0,84**	**r=0,79**	**r=0,86**	**r=0,67**	**r=0,45**	**r=0,64**	**r=0,75**	r=0,52
7. Throwing stuffed ball Z kg (m)	**r**=0,160	**r**=0,130	**r**=0,080	**r=0,352**	**r**=0,190	**r=0,388**	**r=0,450**	**r=0,676**	**r=0,393**