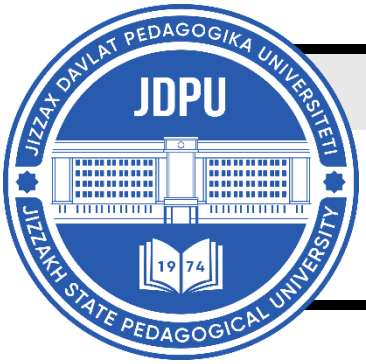
DOI: https://doi.org/10.37547/mesmj-V5-I2-32 Pages: 228-232

MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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COMPARATIVE ASSESSMENT OF BODY INDICATORS FOR HIGHLY QUALIFIED ATHLETES SPECIALIZING IN CYCLIC SPORTS

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ABOUT ARTICLE

Key words: somatometric indicators, cyclic sports, ectomorphic and endomorphic components

Received: 15.02.24
Accepted: 17.02.24
Published: 19.02.24

Abstract: The article considers a comparative assessment of the physique indicators of highly qualified athletes specializing in cyclic sports. Studies have shown that morphological characteristics that have prognostic significance at the initial stages of a long–term training process and retain their informativeness as athletes compete in cyclic sports increase in athletic skill include: body length and weight, chest circumference, thigh length, lower leg, thigh and lower leg muscle mass, and the somatotype most appropriate to the needs of this specialization includes - ecto-mesomorphic somatotype.

INTRODUCTION

Until now, in sports morphology, most studies have traditionally been devoted to solving problems of the classical direction of constitutionalology, in particular to the study of the constitution as a marker of the pace and development of the body, its reactivity to various influences, general performance, and the development of individual physical qualities [1, 2, 3, 6] . The somatotype, being a morphological expression of the constitution, is a marker of the motor and some functional capabilities of the body [4,7]. However, studies devoted to the study of the relationships of certain anthropometric characteristics in connection with types of sports specializations, highlighting

similarities and differences, have not been fully disclosed, which was the rationale for conducting this study.

The aim of the study:

Comparative assessment of the relationships between anthropometric and somatometric indicators in highly qualified athletes competing in cyclic sports.

RESEARCH METHODS.

To assess the physical development of athletes specializing in cyclic sports, anthropometric measurements were taken of 28 track and field athletes specializing in middle-distance running, 70 swimmers, 10 cyclists. In addition, somatometric and somatoscopic methods were used to diagnose the somatotypes of athletes and determine the component composition of body weight. Measurements were carried out on the basis of total and partial body sizes in accordance with the provisions and requirements set out in the manual of Safarova D.D., 2021 [5].

Research results and discussion.

Of the total dimensions, body length in the three specializations under consideration is approximately the same and ranges from 174.98 ± 0.91 cm to 175.84 ± 0.74 cm. However, greater mass is typical for cyclists, whose weight is 68.17 ± 1.58 kg compared to track and field athletes, for whom the values were 75.6±1.01 kg, and for swimmers - 67.38±0.87 kg. Significant differences were found in chest circumference. Thus, for swimmers, the chest girth reaches 96.5 ± 1.42 cm, for cyclists - 9.3 ± 0.05 cm, and the smallest girth is noted for track and field athletes - 91.6 ± 0.05 cm.

Indicators of total body sizes of athletes specializing in high-speed sports

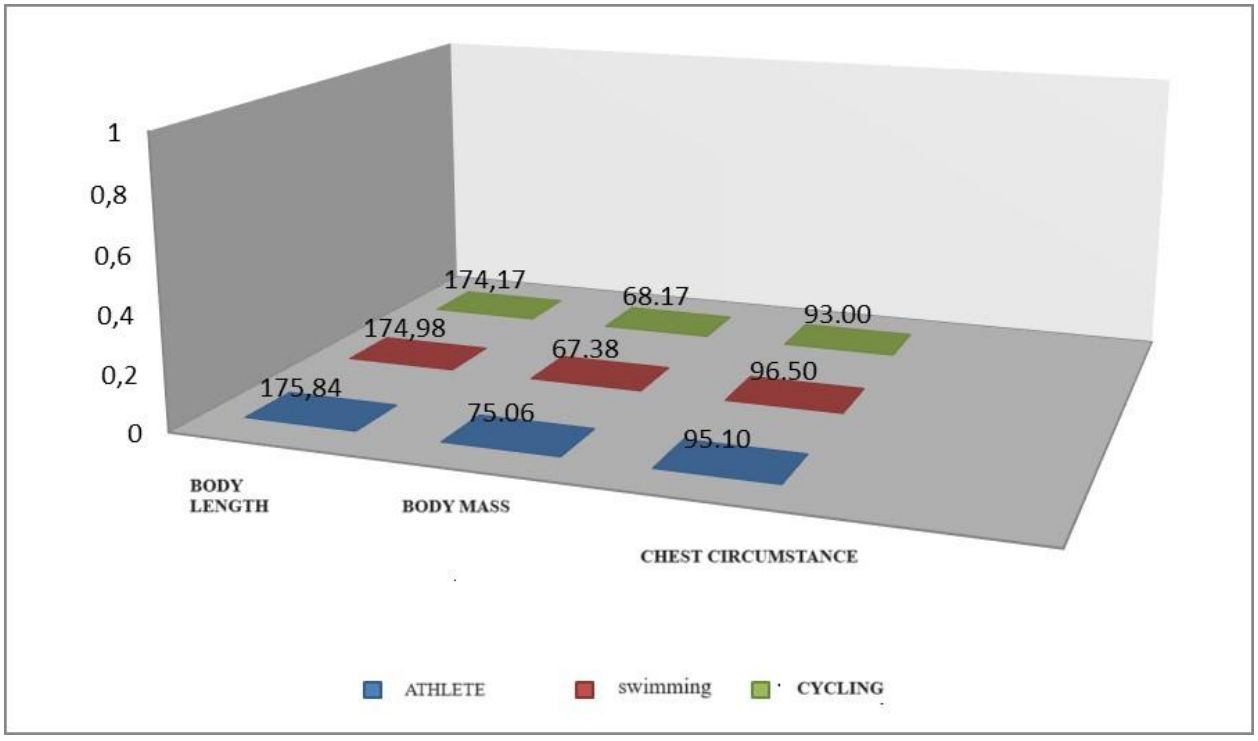

Table 1

Indicators of total body sizes of athletes specializing in high-speed sports

Signs	Options	Contingent of subjects n=108		
		Track and field athletes (running) n=28	**Swimming n=70**	**Cycling n=10**
Body length	M±m (cm) Dispersion deviation	**175,84±0,74** **5,45±0,50** **3,01±0,29**	174,98±0,91 58,09 7,62	174,17±1,26 15,18 3,98
Body mass	M±m (cm) Dispersion deviation	**75,06±1,01** **6,70±0,52** **8,7±0,81**	67,38±0,87 53,62 7,32±0,58	68,17±1,58 25,14 5,01±0,50
Chest circumference	M±m (cm) Dispersion deviation	**95,10±5,89** **3,93±0,42** **3,9±0,46**	96,50±0,45 24,02 3,80±0,40 1	93,00±1,33 7,15 4,20±0,46

When comparing total sizes in the compared specializations, in particular in terms of body weight, the highest values of quadratic deviations for track and field athletes were 8.7 ± 0.81, for swimmers - 7.32 ± 0.58, for cyclists - 5.01 ± 0, 50, which indicates that this indicator is variable and will continue to change.

When assessing the physical development of athletes in cyclic sports, significant differences in the values of anthropometric indicators were revealed. The most pronounced differences between the examined groups were in girth and transverse dimensions, as well as in the quantitative distribution of subcutaneous fat. The coefficient of variability for some anthropometric characteristics is characterized by the highest values among athletes, in particular for swimmers and track and field athletes. Based on the values of total and partial body sizes, the group of examined cyclists appears to be more homogeneous.

When characterizing partial body sizes, three groups of characteristics should be distinguished. Group I of characteristics is characterized by relative stability in the values of indicators. In the three specializations under consideration, the indicators of such characteristics as the girth of the head, neck, forearm, thigh, and the thickness of the fat folds on the scapula are almost identical. Group II of characteristics is characterized by slight fluctuations in the arithmetic average values and in the values of the standard deviation: these are the length dimensions of the shoulders. For cyclists, the shoulder length is 32.33±0.94 cm, for track and field athletes – 33.55±2.63; for swimmers – 35.63±3.21; the length of the forearm is 26.68±1.25, 28.29±2.31 and 28.78±2.18 cm, respectively. The girth dimensions of the shoulder range from 29.53±4.02 cm for athletes to 32.64± 3.49 cm for cyclists; shins - with average values of 36.13±4.20 (l/atl) 36.52±2.15 for swimmers and 38.22±1.47 cm for cyclists. With practically the same shoulder width among athletes and swimmers - 44.71 ± 3.41 and 44.73 ± 3.63 cm, this figure is slightly higher among cyclists and amounts to 46.00 ± 2.83 cm. Slight variability is also evident in the diameters of the sagittal sternal, pelvic crest, distal part of the shoulder, thigh, the thickness of the fat folds on the side and the back of the lower leg. Group III

of characteristics is characterized by significant fluctuations in the average values. It has been established that large deviations in a number of indicators are characteristic only of cyclists, while track and field athletes and swimmers have almost identical indicator values. For example, the length of the thigh in track and field athletes and swimmers is 45.65±5.34 cm and 45.53±5.66 cm, respectively; while the length for cyclists reaches 54.33±2.05 cm.

The opposite ratio is typical for the tibia length indicator: for track and field athletes and swimmers the values are 42.97±4.21 cm and 42.66±4.04 cm, respectively , and among cyclists the value of this indicator is much smaller and amounts to 37.33 ± 2.49 cm. A sharp difference was also revealed in the abdominal girth indicators. Thus, for the sample of athletes and swimmers, the values are approximately the same - 76.68 ± 1.88 cm and 77.03 ± 5.47 cm, and for cyclists - 70.32 ± 2.00 cm. Table 2 shows quantitative indicators of the distribution of athletes' somatotypes

Table 2

Specialization	**Number of athletes examined**	**Degree of expression of components**		
		Endo	**Mezo**	**Ecto**
Cycling	10	3,1	5,84	2,8
Athletics	41	2,4	2,6	2,9
Swimming	27	3,2	3,7	2,7

The wide range of fluctuations in the score calculation of the mesomorphic component from 2.6 to 5.84 allows us to consider that it is the most variable structure, subject to the influence of physical activity, and, therefore, has greater trainability. Cyclists have the maximum degree of development of the muscular component (mesomorphy). The ectomorphic and endomorphic components of body composition are under significant genetic control. The greatest elongation of the body is typical for track and field athletes, and slightly lower values for cyclists, and then for swimmers.

Table- 3

Distribution of athletes' somatotypes by category

Specialization	**Number of athletes examined**	**Somatotype category (%)**			
		Endo-meso	**Ecto-meso**	**Endo-ecto**	**Meso-ecto**
Cycling	10	44%	56%	-	-
Athletics	41	34,2%	60%-	-	15. 8%-
Swimming	27	56%	33,3%	10,7%	-

In the examined sample of athletes, the dominant somatotype for cyclists and track and field athletes was the ectomesomorphic somatotype, which occurred in 56% to 60% of cases, and for swimmers the dominant somatotype was the endomesomorphic type. In terms of somatotype, cyclists also represent a fairly homogeneous group compared to swimmers and track and field athletes.

CONCLUSIONS.

Morphological characteristics that have prognostic significance at the initial stages of a long-term training process and retain their informativeness as the sports skills of athletes competing in cyclic sports increase include: body length and weight, chest circumference, length of the thigh, lower leg, muscle mass of the thigh and lower leg, and The somatotype that most corresponds to the needs of this specialization is the ecto-mesomorphic somatotype.

REFERENCES

1. Дорохов Р.Н. Основы и перспективы возрастного соматотипирования. «Теория и практика физической культуры» 2000, № 9, стр. 10

2. Коган О.С. – Медико-биологические проблемы спортивного отбора профессионалов. //Теория и практика физической культуры, Т.8, 2003, с. 43-47.

3. Никитюк Б.А. Конституциональные аспекты интегральной антропологии. II Интегративная биосоциальная антропология М., 1996, 220 с.

4. Руненко С.Д., У.А. Таламбум, У.У. Ачкасов – Исследование и оценка функционального состояния спортсменов, /уч. пособие Москва, «Профиль -2С», 2010. - 72 с.

5. Сафарова Д.Д. Спортивная морфология –Ташкент, Изд-во «Ilmiy texnika axborot press”, 2021, 248 с.

6. Сологуб Е.Б., В.А.Таймазов, Афанасьева И.А. - Спортивная генетика –СПб: изд-во Политехн.унив-тета, 2017. – 166с.

7. Шуров В.А., Елизарова Н.Е., Гребнюк Л.А. – Функциональные и структурные свойства мышц нижних конечностей у спортсменов с различной направленностью тренировочного процесса. //Теория и практика физической культуры, 2004, №4, с. 24-40.