ABOUT PROGNOSTIC VALUE OF INDICATORS OF MOTOR ABILITIES IN YOUNG GYMNASTES

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ABSTRACT

In this article, an attempt is made to determine the level of interconnection and mutual influence of anthropometric indicators with motor fitness in the age aspect. Particular attention is paid to the problem of the significance of the studied factors and the growth of the special preparedness of young gymnasts.

Keywords: Longitudinal observation, correlation, physical qualities, physical fitness, anthropometric indicators, integral indicators.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

In order to conduct an effective, scientifically-based selection, as well as to implement an individual approach to training, it becomes necessary to obtain a reliable forecast of changes in the level of physical qualities and functional systems of the body, both for individual stages of long-term preparation and for the entire sports path. Data on the prognostic value of indicators of motor abilities in athletes is currently insufficient. This is noted in the textbook on the theory and methodology of physical education (4), and in a number of selection works (1,3,5,6). The existing information about the forecast of the development of the motor abilities of gymnasts (2,7,8,10,11,) require further clarification and confirmation.

The study of stable characteristics is the basis for the development of test programs for selection in the process of many years of training.

In connection with the foregoing, the task was set to determine the degree of stability of the individual level of development of some indicators of motor abilities in gymnasts 9-13 years old in connection with the substantiation of their prognostic value.

Organization of the study: The study involved young gymnasts from the specialized the children's youth sports school of the Olympic reserve№14 of the Olympic reserve in Tashkent, whose qualifications ranged from I junior category to candidates for master of sports. Examinations of 9-11-year-old gymnasts were conducted for 3 years and 12-13-year-old gymnasts for 2 years. Due to the large current dropout rate of students, which ranged from 25% to 38% annually in different groups, the accelerated longitudinal observation method was used to study the stability of indicators. Recorded indicators of physical development, physical and special-motor. Preparedness. As the analysis of the literature and the results of preliminary studies have shown, these factors largely determine the success in learning.

The results of the study: Physical development. Anthropometric measurements were carried out according to the standard methodology of the Research Institute of Anthropology VV Bunak, 1941). The results of the relationship between repeated measurements of anthropometric indicators are presented in table. 1. There is a high and stable ¬ correlation

between repeated measurements of skeletal dimensions (body length, arms, legs, shoulder width and pelvis), as well as body weight. A somewhat smaller, but also high interrelation was found between repeated measurements of the girth of the body (circumference of the chest, girth of the shoulder and thigh).

Table 1: The relationship between repeated measurements of physical development in gymnasts 9-13 years old

Indicator	Measuring	Age of years					
		9		11		13	
		2	3	2	3	2	3
1.Length of a body(cm)	1 2	0,919	0,896 0,940	0,954	0,901 0,882	0,924	0,887 0,727
2.Length of a hand (cm)	1 2	0,879	0,894 0,909	0,919	0,849 0,945	0,881	0,799 0,655
3.Length of aleg (cm)	1 2	0,863	0,791 0,840	0,859	0,840 0,827	0,904	0,697 0,544
4.Widthofshoulders (cm)	1 2	0,833	0,935 0,928	0,889	0,946 0,931	0,818	0,827 0,677
5.Width of a basin (cm)	1 2	0,820	0,807 0,720	0,872	0,662 0,821	0,946	0,798 0,777
6. Chestcircumference (cm)	1 2	0,871	0,749 0,770	0,906	0,596 0,528	0,882	0,791 0,553
7. Grasp of a shoulder (cm)	1 2	0,837	0,853 0,867	0,822	0,877 0,739	0,838	0,905 0,764
8. Grasp of a hip (cm)	1 2	0,862	0,802 0,826	0,776	0,830 0,852	0,695	0,802 0,773
Weight (kg)	1 2	0,908	0,934 0,924	0,953	0,911 0,918	0,840	0,765 0,499

It should be noted that there was no sharp decrease in stability in the period from 12 to 14 years. Obviously, the effect of the processes of puberty, which are to be activated at this time, does not yet have a marked effect on the manifestation of stability of individual levels of development of skeletal body size. The high level of stability of skeletal, as well as oversized body sizes of gymnasts in the age period from 9 to 14 years shows high reliability of prediction of their development in this age range. Correlation between repeated measurements of anthropometric indices is a reference for characterization of stability of physical and specific preparation indices.

Physical preparation: The relationship between repeated measurements of force (integral indicator of relative strength of leading muscles of shoulder, muscles of torso extenders and hand flexors), speed-force preparation and flexibility was investigated, the results of which are shown in Table 2.

The relationship between repeated measurements of the integral measure of relative strength in most cases is characterized by high values after a year and average values after two years of occupation in the period from 9 to 12 years. At the age of 13, this relationship is significantly reduced.

There is a reliable level of relationship between repeated measurements of speed-force preparation. At 9 years of age, the stability of individual tests is low, at 10 years of age it increases to medium and high levels, and at 13 years of age it decreases again. Stability of the integral indicator of rapid-force readiness is evident at a higher level than individual tests. Dynamics of change revealed stability of individual tests, as well as integral indicator of speed-force preparation are the same.

Stability of tests characterizing the development of flexibility in gymnasts is one-time. The high stability of the individual level, which is fairly stable from 9 to 13 years of age, is observed in Tests I and 6. At a lower level and less stable in different age groups, stability appears in tests 2 to 5. At the age of 13, there is a significant decrease in the stability of these tests. At that, more sharp decrease of stability takes place in tests characterizing passive flexibility (2.5) than in tests which characterize the level of active flexibility (3.4). The higher stability of tests 1 and b can be explained by the fact that the development of mobility in the vertebral column and shoulder joints is obviously more limited by the genotype than in hip joints. Analysis of the relationship between repeated measurements of the integral measure of flexibility in gymnasts indicates that there is a high and steady level of stability from 9 to 13 years of age. Thus, despite the decline in stability in individual tests, in general, individual trends in flexibility with age persist.

The study of the relationship between repeated measurements showed that there is stability of the individual level of physical preparation, and therefore the possibility to predict its development. Integral indicators of high-speed preparation and flexibility than individual tests have higher prognostic value.

Table 2: Relationship between re-measurements of physical preparedness
Gymnasts 9 - 13 years old

Indicator	Measuring	Age of years				
		9	10	11	12	13
		2 3	3 3	2 3	2 3	2 3
Strength training:						
1Relative Strength (conditionalunit)	1 2	0,761 0,618 0,592	0,6630,628 0,805	0,787 0,556 0,431	0,7600,705 0,675	0,774 0,717 0,445
High-speedpowerreadiness:						
1. Run 20 m (sec)	1 2	0,470 0, 417 0,753	0,635 0,502 0,662	0,663 0,676 0,555	0,7860,777 0,515	0,690 0,670 0,472
2.Jumpup (cm)	1 2	0,491 0,464 0,691	0,700 0,698 0,646	0,740 0,477 0,760	0,8030,777 0,466	0,7620,622 0,447
3. RopeClimbing (sec)	1 2	0,496 0,559 0,829	0,503 0,589 0,562	0,685 0,507 0,738	0,4590,554 0,444	0,7710,515 0,435
4. Integratedindicator (point)	1 2	0,508 0,763 0,559	0,8450,765 0,783	0,790 0,777 0,651	0,840 0,824 0,557	0,779 0,771 0,449
Flexibility (stretches on the muscles)						

1. Bridge (points)	1 2	0,664 0,595 0,796	0,706 0,668 0,820	0,904 0,831 0,865	0,766 0,637 0,777	0,716 0,815 0,544
2. Twine (cross)	1 2	0,687 0,439 0,463	0,765 0,846 0,937	0,582 0,627 0,695	0,805 0,278 0,569	0,801 0,773 0,471
3. leg holding to the side (points)	1 2	0,532 0,409 0,701	0,768 0,790 0,901	0,903 0,780 0,839	0,743 0,542 0,779	0,714 0,677 0,699

In general, the results of studies carried out to study stability of individual level of development of physical qualities of gymnasts of 9 - 13 years are consistent with the results of studies in other sports, as well as with earlier studies carried out in gymnastics (5.7.8.10.11).

The results of correlation analysis between repeated measurements of special-motor preparation are shown in Table 3. It can be seen from the table that the trusted level of the relationship between the results of repeated testing of the ability to distinguish amplitude after a year of classes is evident in all groups of gymnasts in the period from 9 to 13 years. In 9 - 11 years, the close nature of this relationship is slightly higher than in 12-13 years of age. Correlation between data measurements in two years in a group of 9-year-olds is characterized by low level and absence of a relative level of relationship in groups of 10 and 11-year-olds. The revealed nature of the relationship shows that the prediction of individual manifestations of amplitude difference is difficult for two years to come. The forecast of development is possible only for the next year, the reliability of which will be higher 10 the age of 11.

The analysis of the relationship characterizing the stability of the economic level of development of the ability to distinguish between countries showed that after a year of occupations in 9 years this relationship is at a low level, and from 10 to 13 years - at an average level. After two years, the stability of the individual level of development increases slightly in the group of 9-year-olds and decreases in the group of 10 and 11-year-old gymnasts. In general, the level of stability revealed indicates the possibility of predicting the development of the ability to distinguish time by two years in the age of 9 - 11. The reliability of the forecast in a year will be higher than in two years of classes.

Table 3: Relationship between repeated measurements of special-motor Preparation at gymnasts of 9 - 13 years

Indicator	measurment	AGE				
		9	10	11	12	13
		23	23	23	22	22
Distinction of an ampoule	1 2	0,379 0,367 0,524	0,610 0,152 0,500	0,638 0,453 0,542	0,432	0,368
Diving of time	1 2	0,3100,552 0,598	0,716 0,430 0,731	0,577 0,532 0,734	0,663	0,570
Distinguishing muscle effort	1 2	0,4870,365 0,471	0,475 0,118 0,464	0,701 0,318 0,497	0,501	0,237

Speed реакции	1 2	0,491 0,3040,652	0,649 0,383 0,592	0,523 0,693 0,525	0,573	0,032
Integral indicator	1 2	0,507 0,601 0,684	0,794 0,657 0,704	0,847 0,819 0,795	0,588	0,143

The relationship between the results of repeated testing of the ability to distinguish muscle forces shows that the stability of its individual level of development is observed only for the next year of occupations, the degree of which is highest at the age of 11. Correlation between results of repeated measurements after two years is characterized by low level in 9 years and absence of statistically significant level in 10 and 11 years of age. The identified relationship shows the possibility of forecasting in-dividend manifestations of the ability to distinguish mouse efforts only for the next year of classes in the period from 9 to 12 years. The forecast for two years ahead will be difficult.

The relationship between the results of repeated testing of a simple visual-motor reaction shows that the forecast of its development is possible for the next year in 9-12 years and for two years in 11 years. The reliability of one-year trial is highest in 10-12 years.

Thus, of the individual indicators of specific preparation, the most predictive value is the indicator of the ability to distinguish time.

The nature of the detected stability of the indicators, the method for distinguishing amplitude, muscle forces and reaction speed makes it possible to consider that these indicators do not have a sufficiently high prognostic value by comparison with anthropometric indicators or by physical preparation indicators. However, the catalytic value of the studied indicators of special-motor preparation can be increased by the application of the integral indicator. It can be seen from Table 3 that the relationship between the repeated measurements of the integral index of the ability to distinguish amplitude, value, muscle forces and reaction speed is significantly higher than the individual indices. At the age of 9 and 12, this relationship is at an average level, and at a high level at the age of 10 and 11. In this way, the integral indicator of special-engine readiness has more stability of the specific level of development, and therefore more prognostic value.

As has been shown above, the integral performance of high-speed preparation and flexibility also has a higher prognostic value than other tests.

It is known that influence of individual predisposition to any type of activity manifests itself in pain degree through general (integral) indicators of different sides of motor activity of athletes. For example, the integrated indicator of relative force (a significant amount of groups of muscles means) is hereditarily caused more, than indicators of relative force of separate groups of muscles (1,5,7,8). The sensitivity as the raised to perception of external influences is specific feature of the person which is caused by individual properties of nervous system, being , as we know, congenital (1,3,5,9).

Correlation analysis of the results of repeated measurements of physical and motor-specific indicators showed that the higher level of stability of these indicators is in the age period of 10 - 12 years, and the lower - in the age of 9 and 13 years. The lower reliability of the forecast of indicators of speed-force and special-motor preparation in 9 years can be explained by the fact

that at this time there is a high rate of growth of these indicators, as a result of which there is a rank constant in groups of gymnasts by the level of their development. However, it should be noted that extreme levels (high and low) retain this consistency. Therefore, if orientation in the forecast is carried out to extreme levels of development of abilities, then reliability of their forecast will be common even in 9 years.

The reduction in the reliability of the prognosis of 13 years depends primarily on the features of puberty. It should be noted that the biological age between 13 and 14 years is 2 times higher than between 12 and 13 years. Many authors (1,3,8,9,11) have found that the processes of puberty, which occur differently in different people, significantly increase the uneven development of the body, thus affecting the manifestation of motor abilities. A marked influence on the manifestation of stability of the individual level of indicators of physical and special-engine preparation in 13 years is the current selection, as a result of which I mainly cut out those who occupy the low level of their development. Thus groups of gymnasts on the level of physical and specially-motor preparation become more homogeneous. Therefore, the effect of the preparation factor on the manifestation of a stable, individual level increases, reducing it.

The following conclusions can be drawn from the studies carried out.

1. Individual indicators of motor abilities have different prognostic value in the field of specialized training from 9 to 13 years. In general, the highest prognostic value is found in sce-flight and girth dimensions, as well as body weight, relative strength of studied muscle groups, mobility in the vertebral column and shoulder joints. A little lower is the prognostic value of indicators of speed-force preparation, mobility of in-line joints, ability to spread time, the forecast of which is also possible for two years. Lower prognostic value of indices is the method to distinguish amplitude on the basis of kinesthetic sensations, muscle forces and speed of visual reaction, sufficient reliability of prediction of which is possible only for a year of occupations.

2. Integral indices of force, speed-force, special-motor preparation and flexibility of the field give higher prognostic value, investigator, are of greatest interest for selection.

3. Reliability of prediction of indicators of physical and special and motor preparation in different age periods from 9 to 13 years changes. The most favorable for prediction of relative strength is the period c9 to 12 years, speed-force preparation - from 10 to 12 years, flexibility - from 9 to 12 years, specially-motor preparation - from 10 to 12 years. In general, the age period from 10 to 12 years can be considered favorable for the prediction of most motor abilities.

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