THE DEVELOPMENT OF MORPHOLOGICAL DIFFERENCES AND MOTILE, BASIC AND SPECIFIC SKILLS AMONG YOUNG BASKETBALL PLAYERS

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Abstract

On the basis of the number of 66 entities aged 15-16 years, male gender, address space is composed of ten morphologic tests, as the locomotive and the space of ten tests. Factorial procedures are addressed in all morphologic tests, basic and specific locomotive, together as results have gained 5 dimensions latency: Factor of volume, mass and transversal dimensionally of the skeleton, Factor dimensionally and explosive force of longitudinal skeleton, Factor of specific speed and accuracy, Factor complex locomotive specific typical for game and basketball, Factor of speed and explosive force to the upper extremity. Such a mix of factors, may be justified because the age in question is in phase puberty, nothing is as defining the morphologic aspect, and in the locomotive, as are developing.

Key words: *basketball, morphology, motor-abilities, specific skills, factor analysis*

Introduction

In the contemporary collective sports, basketball is one the most popular sports in the world, but in nowadays it is getting to be popular even in our place. By considering the dynamics of the game and being aware of the obstacles that the basketball players can face, it will require a proper motif for a physical and tactical preparation. Realizing the experimental results with a certain number of variables, it will provide us with data, which will define the anthropological status of young people.

The objectives of research

The aim of this experiment is noticing some relevant morphological, motile and specific characteristics among young basketball players. In other words, the objective of this study can be defined as verifying the values of some morphological characteristics and at the same time verifying some motile and specific characteristic among young basketball players.

Methods

The experiment covers 66 entities of young males, around 15-16 years old, who have been practicing basketball in the city of Prishtina. The testing is done during April and May of 2015. Furthermore, the morphological tests have been done during the morning hours, whereas the motile tests have been done during the basketball practice time. The author of this study should be able to demonstrate appropriately in order to make sure for the students to realize the tests in the best way. The all tests have been done in the sports center including all primary schools in Prishtina.

Basic hypotheses

Considering the previous studies, the actual hypotheses will be based on the existence of factors and its connections at the morphological, motor, basic and specific level among young basketball players. 1) To extract the relevant morphological factors; 2) To extract the factors with relevance in the motile structure.

Variables

We use those morphological tests: In order to set the morphological area, there have been applied 10 tests, which are:BOWE - The body weight, BOHE - The body height, HALE - The hand length, LELE - The leg, length, FOLE - The food length, PALE - The palm length, PAWI - The palm width, ARPE - The arm perimeter, THIPE - The thigh perimeter, FEPE - The femur perimeter. Motor basic test were: FMSPD - The jump from the main spot to a distance, FMSH - The jump from the main spot to a highness, 20 MRU - The 20 meters running, TFPHSSM - The test for the physical strength of the stomach muscles, THMBD - Throwing the medicinal ball in a distance. Situational test were: DBHC - Dribble by hitting in the cage, FRHI - Free hitting, HICWJ - Hitting the cage with a jump, THBID - Throwing the ball in distance, GOCOD - Going and coming dribble.

Data processing

The results are elaborated in the following programs, SPSS version 21,0 and statistics, which is a version for windows. The analyses are done in the manifesto and latent area. The factorization of morphological tests and The factorization of motile, basic and specific tests.

Results

The latent characteristics of the morphology

In the first table are exposed the characteristic radixes LAMDA and the partial % and cumulative % contribution for explaining the differences in general. The characteristic radixes are ranked according to the size, which in other words shows the ranking of the latent aspect.

Table 1. Lambda and % variance

Lambda	% var	% cum
5.16	51.55	51.55
1.67	16.73	68.28
.81	8.06	76.35
.62	6.15	82.50
.50	4.98	87.48
.35	3.49	90.97
.29	2.93	93.90
.25	2.54	96.44
.22	2.20	98.64
.14	1.36	100.00

Table 2. Principal components and communalities

	1	2	H^2
BOHE	.87	-.325	.85
BOWE	.87	.25	.81
HALE	.77	-.39	.75
LELE	.79	-.36	.75
FOLE	.62	-.40	.54
PALE	.53	-.25	.35
PAWI	.72	-.11	.53
ARPE	.60	.61	.73
THIPE	.62	.64	.80
FEPE	.72	.46	.73

Table 3. Parallal projections

	1	2
BOHE	.88	.08
BOWE	.41	.65
HALE	.88	-.03
LELE	.87	.00
FOLE	.77	-.11
PALE	.59	-.01
PAWI	.61	.22
ARPE	-.08	.89
THIPE	-.09	.92
FEPE	.14	.79

Table 4. Orthogonal projections

	1	2
BOHE	.92	.45
BOWE	.68	.82
HALE	.87	.33
LELE	.87	.36
FOLE	.73	.21
PALE	.59	.24
PAWI	.70	.47
ARPE	.29	.85
THIPE	.30	.89
FEPE	.46	.85

According to Hotelling and Kaiser, it has been extracted two latent dimestions, which explain the 68% of the general variable. The first characteristic radix explains the 51% of the general variable and the second radix of the system explains the 17% of the general variable. In the second table, it is presented the matrix of main components with two factors and the communalities of the morphological tests. In the first main component, all morphological tests have realized projections with high value from .53-.86, so the body weight and height realize projections with higher value than .86. The first component with 51% of the general variable system includes the characteristics of the general factor for growing and developing normally as far as youth is concerned. On the second component with characteristic radixes like, L= 1. 673 and partial contribution of 17%, we have relevant projections with bipolar character, especially the tests which show us the length such as, body height, hand length, leg length, foot length, and palm length. All these can be projected in the positive pole with coefficient value of .24-.40. The test that measures the circulative dimensions such as, the arm, thigh and cartilage perimeter, it will project in the negative pole with coefficient from .47-.64. Moreover, the communalities have the value for the all tests with coefficient from .52-.85, where each variable depends on the communalities size and how it will present valuable information. The major significance for the right interpretation of the factors it is up to the matrix of the parallel projections. In this table, it can be noticed that high projections have realized tests, which define the longitudinal and transferal factor of the skeleton such as, the body height, hand length, palm length, leg length, foot length, and palm width with coefficient starting from .59-.88. Otherwise, this factor can be defined as the factor of longitudinal and transferal dimension of the human skeleton. Concerning the second factor, high projections have been realized by the tests, which measure the circular dimension such as, the arm perimeter, thigh perimeter, cartilage perimeter, and body weight with coefficient starting from .65-.92. Differently, this factor can be defined as, the factor of body weight and capacity. As far as the forth table is concerned, the matrix of the orthogonal projections includes orthogonal projection of the morphological tests and as a result we have two factors. The structure of this matrix does not differ that much from the parallel projections. According to the inter correlation of the latent factors, the first factor with the second factor have important correlation with coefficient .41, which results in a way that we can conclude the presence of the general factor for the development and growth of the youth. The main components serve mostly as a coordinative system for the vectors of the correlative matrix of the variables because usually it happens for them not to be interpreted as they really are. Therefore, in order to explain clearly the latent aspect, the main components were transform and as a result, we have three matrixes.

Table 5. Factor intercorrelations

	1
2	.414

The latent characteristics of the motor area

As far as the 6th table is concerned, there are obvious the LAMBDA radixes and partial % and cumulative % contribution for the explaination of the changebility in general. By choosing the correlative matrix, we win 10 characteristic radixes and the same number of characteristic vectors which according to Hotellingut method and GK criteria are showed as three motile and letant dimensions which explain the 6-% variability in general. Considering the first and statistic matrix of the factorization of the motile tests, we can notice that the first characteristic radix with the value L=3.456 , explains 34.5% of the variability in general, and the second characteristic radix for the system with the value L=1.445 and explains the 14.4% of the variability in general.

Table 6. Lambda and % variance

Lambda	% var	% cum
3.46	34.56	34.55
1.45	14.45	49.01
1.05	10.54	59.56
.98	9.81	69.35
.83	8.27	77.62
.71	7.07	84.69
.58	5.79	90.48
.42	4.21	94.69
.37	3.65	98.34
.17	1.66	100.00

Table 7. Principal components and communalities

	1	2	3	H^2
JFMSPD	.74	-.22	-.10	.61
JFMSH	.76	-.06	-.22	.64
20 MRU	-.63	.49	.21	.68
TFPHSSM	.48	.70	-.02	.72
THMBD	.39	.74	-.11	.71
DBHC	.68	-.16	-.05	.50
FRHI	-.69	.08	.09	.49
HICWJ	.255	.016	.773	.662
THBID	.395	-.191	.550	.495
GOCOD	-.622	-.211	-.169	.459

Table 8. Parallal projections

	1	2	3
JFMSPD	.76	.01	.05
JFMSH	.75	.19	-.08
20 MRU	-.86	.28	.07
TFPHSSM	.03	.84	.02
THMBD	-.01	.86	-.09
DBHC	.66	.05	.09
FRHI	-.64	-.14	-.04
HICWJ	-.15	.04	.84
THBID	.17	-.11	.65
GOCOD	-.32	-.38	-.27

Table 9. Orthogonal projections

	1	2	3
JFMSPD	.78	.20	.26
JFMSH	.77	.35	.15
20 MRU	-.78	.08	-.13
TFPHSSM	.24	.85	.15
THMBD	.16	.84	.02
DBHC	.70	.22	.28
FRHI	-.69	-.30	-.24
HICWJ	.09	.12	.80
THBID	.33	.02	.68
GOCOD	-.49	-.50	-.42

The third characteristic radix for the system with the value L=1. 054 and explains dhe 10.5% of the variability in general. Through the table 7, it is featured the matrix of the main components with three factors and communalities. In the first component are projected the variables which test the explosive force of the lower part of the body such as, jumping from a certain place to a distance, jumping from e certain place to a highness, and the 20 meter running with coefficient from .63 - .76. Next, we have tests that show repetitive force with coefficient .68, and tests that show specific speed during the basketball play. After that we have the dribble with hitting the cage and the going and coming dribble, a tests, which show resistance in the speed with coefficient that have value from -.62 - -.69. On the second component are projected the tests, which show the explosive force of the upper part of the body by throwing the medicinal ball and throwing the basketball to a distance with a coefficient from .70 – 7.4.

On the third component, the projections are realized through the tests, which show preciseness in the area of free hitting and hitting through the jump with the coefficient from .55-77. Communality towards all tests have the coefficient with the value .46-.72, but how much qualitative information will bring each variables, it depends on the volume of communality. In the structure of the motile areas, the main components are projected in the inclined solutions, rotations, and according to the normalization of the criteria (Kaiser-it) and these transformations we have came up with three matrixes: The matrix of the parallel projections, which shows parallel projections of the variable vectors to factors; The matrix of the orthogonal projections, which shows the correlative and orthogonal projections between variable vectors and factors; The correlative matrix of the isolated factors. In view of the table 8, there is showed the matrix of the parallel projections, which covers the parallel projections of the motile variables. By observing this matrix we can notice that high projections on the first factor have realized the following tests, jumping from a certain place to a distance, jumping from a certain place to a highness, the 20 meter running, which show the explosive force of the lower part of the body with coefficient starting from .75-.86. Moreover, we have the tests NTKMB and the dribble with hitting the cage which shows the specific speed during the basketball game with coefficient that has the value starting from -.64 - .66. According to these projections, the first motile factor can be defined as a complex motor factor. On the second component, the high projections have been realized by the tests, which show explosive force of the upper part of the body such as, throwing the medicinal ball, throwing the ball in a distance with coefficient from .83-.85. According to the projections showed here, the second factor could be defined as a factor with an explosive force of the upper part of the body. On the third component, high projections have realized the tests which are as a pointer of the preciseness such as, free hitting, hitting through jumping with coefficient that has the value .65 - .84. According to these projections, the third factor can be defined as a motile and situated factor of the preciseness – very typical for the basketball game. Concerning the table 9, there is showed the orthogonal projections, which contain orthogonal projections of the manifesto- motile tests, and as e result, we have three factors. According to all predictions, the structure of this matrix does not change from the parallel projections.

Table 10. Factor intercorrelations

	1	2
2	.238	
3	.280	.141

On the table 10, it is shown the correlative matrix of the motile factors and we can notice that the correlation of the factors is with coefficient from .14-.28. According to this correlation, we can conclude that motile factors possess dependence among them selves.

Analysis and verification of the hypotheses

Taking into consideration this experiment, there are two hypotheses: -The first hypothesis is realized completely and according to the results, there have been extracted two latent and morphological dimension; - The second hypothesis is also realized completely, where according to the results, there have been extracted three latent dimensions in the specific, basic and motile area.

Conclusion

According to the 66 entities, of 15-16 years old males, it has been realized the morphological aspect of consisting 10 tests, and the motile aspect consisting 10 tests. On the factorial procedure, there have been studied all morphological, motile and specific tests and as e result, we got five latent dimensions: The factor of the transversal dimensionality, capacity and volume of the skeleton, The factor of the explosive force and longitudinal dimensionality of the skeleton, The factor of preciseness and specific speed, The complex, motile, situated and typical factor of the basketball game, The factor of the speed and explosive force of the upper extremities. The interference or mixing of factors can be excused because the age we are talking about is the age of puberty where nothing is determined be that on morphological or motor level. Securing the information about the youth and their development of the morphological and motile characteristics. The aim is to expose the values of the educational process during the teaching process concerning the physical education and sport. It should be increased the number of the practice classes and compensate for other motile activities, apply in selection and orientation of youth with different sport activities and application of the new concepts in terms of scientific and professional bases of the program, methodology and adequate evaluation. On the bases of realizing the results and values, there is the need for further research and discovery of other relevant factors, which will directly influence this experiment and will serve for the best of the society. This experiment opens new perspectives in the future.

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RAZVOJ MORFOLOŠKIH RAZLIKA I OSNOVNA I SPECIFIČNA MOTORIČKA ZNANJA MLADIH KOŠARKAŠA

Sažetak

Na temelju podataka 66 subjekata u dobi od 15-16 godina, muškog spola, prostor istraživanja je sastavljen od deset morfoloških testova, kao i motoričkog prostora od deset testova. Postupci faktorizacije su izvršeni u prostorima morfoloških dimenzija, te općim i specifičnim motoričkim dimenzijama zajedno. Dobiveni rezultati 5 latentnih dimenzija predstavljaju: faktor volumena, mase i poprečne dimenzije kostura, faktor longitudinalne dimenzije i eksplozivne snage, faktor specifične brzine i točnosti, kompleksni faktor specifične motorike tipične za igru košarke, faktor brzine i eksplozivne snage gornjih ekstremiteta. Takva mješavina faktora može biti opravdano, jer je dob u pitanju, tj. faze puberteta, stoga treba uzeti u obzir definiranje morfološkog aspekta, što je povezano i s razvojem motorike.

***Ključne riječi**: košarka, morfologija, motoričke sposobnosti, specifične vještine, faktorska analiza*

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