

THE ANALYSIS OF THE ANTHROPOMETRICAL FEATURES AND MOTORIC SKILLS OF YOUNG FOOTBALLERS AND STUDENTS OF THE AGE 11-12 YEARS OLD (\pm 6 MONTHS)

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Abstract

Introduction: In this paper are included 80 children of the age 11-12 years old (\pm 6 months), males and 40 of them regularly trains three times a week by one hour in their clubs called FC “Liria”, FC “WINNER”, and FC “A&N” from Prizren. The other 40 children are students of elementary school “Abdyl Frashëri” also from Prizren whose primary physical activity is classes of physical education in the school curriculum. *The purpose* of this research is to make the differences between these two groups in the anthropometrical and motoric space. In this research paper are included 5 anthropometrical variables, 4 basic motoric variables and three specific motoric analyses. *Methods:* T-test and factorial analysis. The data analysis enabled the conclusion that the featured objectives through the propounded hypothesis are reached. According to the hypothesis H1: It was expected to appear distinctions in some features of anthropometrical space between these two treated groups, but there weren't shown any differences. H2: It was expected to appear distinctions* in the most of motoric skills results, and they were verified completely. H3: It was expected to extract two elements in anthropometrical space and next two other elements in motoric space and the group factorize was partly verified. *Conclusion:* This practical research paper approach a real state of physic statement of anthropometrical and motoric skills of young footballers from Prizren teams.

Keywords: Analysis, anthropometrical features, motoric variables.

Introduction

According to the large numbers of people who play football, we can say that this game is one of the most popular sport in the world, including active football playing, or teachers and coaches, managers and groups of fans (Brahimi, S. and Birçe, B., 2000; Gjinolli, E., 2001). The different movements, turns, abilities and other football activities make football interesting not only for the fans that like football but for professional and scientific opinion of football also.

The Purpose of Research

The main purpose of this professional and scientific research paper is to note the distinguishing of the students who play football and students who don't do it. Furthermore, the aim of this research is to note these qualifications as latent structure attestation of researched spaces.

Methods

In this research sample are included children that belong to two categories, one of which continuously play football in football schools such as: FC “Liria”, FC “Winner”, and FC “A&N”

from Prizren, and the other groups of children who don't play football continuously but just play football at SHFMU "Abdyl Frasher" school in Prizren and they play football two times a week. In that sample are included 80 children from the age of 11/12 years old (± 6 months), males. It is worth to say, that the children who train continuously have an average of 14 months every three times a week per hour (Selimi, M., 2001). The variable sample contains 5 anthropometric variables, 4 basic motoric variables and 3 specific motoric variables. The measurements are made according to the International Biologic Program instructions (IBP).

The anthropometrical chosen variables have been: 1. APESHA. - In body weight; 2. ALARTE. – The body high; 3. APERKR. –The arm perimeter; 4. APERKO. -The thigh perimeter; 5. APERKE. -Fibula perimeter.

The basic motoric variable: 1. MFLTRU- The body flexibility; 2. MKVGJA- Long distance jump; 3. MMUTBA- The abdominal muscles; 4. MVR50M – The sprint 50 m from the high start. The specific motoric variables: 1. MPUNTO – The ball act; 2. MUSLLA – The ball lead in 20m slalom; 3. MUGHYS – The ball lead in half round way.

In this research paper are used these statistical methods: T-test and the factorial analysis.

Results and Discussion

The information is elaborated through the statistic program SPSS 22.0 for windows, in which are used two statistic methods: T-test (independent samples T-test) and factorial analysis. In the chart number 1 are results from T-test method through group 1 – children from football clubs: FC "Liria", FC "Winner" and FC "A&N" from Prizren and group 2 – children- students from elementary school "Abdyl Frasher" from Prizren in the anthropometric space.

According to the chart number 1, in which are reflected differences between the groups in anthropometric space we note that the existing differences are not from the same statistical level, so the further analysis of them is not necessary.

Table1. T-test in to the anthropometric space

| Variablat | Grupet | N | Mean | Std. Deviation | Std. Error Mean | t-test for Equality of Means | | |
|-----------|--------|----|-----------|----------------|-----------------|------------------------------|--------|-----------------|
| | | | | | | t | df | Sig. (2-tailed) |
| APESHA | 1 | 40 | 386,5500 | 82,57582 | 13,05638 | ,323 | 78 | ,747 |
| | 2 | 40 | 380,5250 | 84,05797 | 13,29073 | ,323 | 77,975 | ,747 |
| ALARTE | 1 | 40 | 1472,4250 | 74,67258 | 11,80677 | -,074 | 78 | ,942 |
| | 2 | 40 | 1473,6250 | 71,21246 | 11,25968 | -,074 | 77,825 | ,942 |
| APERKR | 1 | 40 | 208,3000 | 27,20501 | 4,30149 | ,194 | 78 | ,847 |
| | 2 | 40 | 207,0500 | 30,47315 | 4,81823 | ,194 | 77,017 | ,847 |
| APERKE | 1 | 40 | 302,0250 | 32,84969 | 5,19399 | ,003 | 78 | ,997 |
| | 2 | 40 | 302,0000 | 33,04620 | 5,22506 | ,003 | 77,997 | ,997 |
| APERKO | 1 | 40 | 425,2500 | 60,63753 | 9,58764 | 1,010 | 78 | ,316 |
| | 2 | 40 | 411,3250 | 62,68251 | 9,91097 | 1,010 | 77,914 | ,316 |

On the chart number 2, are given the results from T-test method through the group “1” of the children-students from football clubs: FC “Liria”, FC “Winner”, and FC “A&N”, from Prizren between the children – students from group “2” Elementary school “Abdyl Frashëri” also from Prizren in the motoric space.

According to the results given on the second chart we can see that there are important statistic distinguishes in four variables between the tested groups. The existing distinguishes are in the two levels of statistic importance, an in 0.05 and 0.01.

The important statistic distinguishes between the groups exist through the variables:

MFLTRU with the value $t = -2.177$ with the value $sig = .033$ to the probability level $p = .05$ and heel to group “2”.

MPUNTO with the value of $t = 3.720$ with the value $sig = .000$ in the level $p = .01$ si heel to the group “1”.

MUSLLA with the value $t = -5.334$ with the value $sig = .000$ the level $p = .01$ as a result heel to players group according to the given duty where the positive result is in the shorter time measured in the tenth of second of chronometer.

MUGHYS with the value $t = -4.172$ on $sig = .000$ value on the level $p = .01$ and as a result heel to the group of players, always according to the given duty and the positive result is in the shortest time measured to the tenth part of second of the chronometer

Table 2. T-test in to the anthropometric space

| Variables | Groups | N | Mean | Std. Deviation | Std. Error Mean | t-test for Equality of Means | | |
|-----------|--------|----|----------|----------------|-----------------|------------------------------|--------|-----------------|
| | | | | | | t | df | Sig. (2-tailed) |
| MFLTRU | 1 | 40 | 40,1750 | 6,46445 | 1,02212 | -2,177 | 78 | ,033 |
| | 2 | 40 | 43,0250 | 5,17631 | ,81845 | -2,177 | 74,442 | ,033 |
| MKVGJA | 1 | 40 | 160,1250 | 18,40734 | 2,91046 | 1,343 | 78 | ,183 |
| | 2 | 40 | 154,4500 | 19,37213 | 3,06300 | 1,343 | 77,797 | ,183 |
| MMUTBA | 1 | 40 | 29,5750 | 8,50607 | 1,34493 | ,758 | 78 | ,451 |
| | 2 | 40 | 27,7750 | 12,38586 | 1,95838 | ,758 | 69,093 | ,451 |
| MVR50M | 1 | 40 | 8,7900 | ,59538 | ,09414 | -1,923 | 78 | ,058 |
| | 2 | 40 | 9,0625 | ,66961 | ,10587 | -1,923 | 76,947 | ,058 |
| MPUNTO | 1 | 40 | 5,8250 | 4,72249 | ,74669 | 3,720 | 78 | ,000 |
| | 2 | 40 | 2,6750 | 2,52564 | ,39934 | 3,720 | 59,623 | ,000 |
| MUSLLA | 1 | 40 | 11,5577 | 1,27304 | ,20128 | -5,334 | 78 | ,000 |
| | 2 | 40 | 13,5865 | 2,04079 | ,32268 | -5,334 | 65,360 | ,000 |
| MUGHYS | 1 | 40 | 17,9332 | 1,61174 | ,25484 | -4,172 | 78 | ,000 |
| | 2 | 40 | 19,9595 | 2,61502 | ,41347 | -4,172 | 64,894 | ,000 |

In the 3 and 3.1 chart are given the gained results from factorial statistical analysis method in the anthropometric space.

In the chart number 3 appeared the feature main root (LAMBDA) and the partial and cumulative contribution for general explaining of variables. According to the Hotteling method and criterion

GK (GUTMAN-KAISER) is given an important component, which explains 75.037 of general variable. The feature given root explains 75.037 % of general system variable.

Table 3. The main characteristic roots in the anthropometric space

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|----------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,752 | 75,037 | 75,037 | 3,752 | 75,037 | 75,037 |
| 2 | ,622 | 12,441 | 87,478 | | | |
| 3 | ,387 | 7,747 | 95,225 | | | |
| 4 | ,174 | 3,480 | 98,706 | | | |
| 5 | ,065 | 1,294 | 100,000 | | | |

Chart number 3.1 shows us the matrix of the main component with one factor, and variable communion. The main component with feature root $\lambda=3.752$ explains 75.037 % of general variable. According to the results on this chart we can see that the variables have achieved important projections with the value from .729 to .961.

Those elements can be defined as:

➤ **The longitudinal skeleton, capacitance and heft body factor**

Table 3.1. The main component and communion

| | Component |
|--------|-------------|
| | 1 |
| APESHA | ,961 |
| ALARTE | ,729 |
| APERKR | ,910 |
| APERKE | ,793 |
| APERKO | ,916 |

The charts 4, 4.1, 4.2, 4.3 and 4.4, shows the results given by statistical analysis in motoric space. The chart number 4 shows the feature main roots (LAMBDA) and their partial and aggregation contribution (%). According to the Hotteling and criterion GK method (GUTMAN-KAISER), are given two main components who explain 58.284 of general variances.

The first root explains 41.585 % of the general variance of the system. The second one explains 16.699 % of general variable.

Table 4. The main characteristic roots, the partial and the cumulative contribution

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings ^a |
|-----------|---------------------|---------------|----------------|-------------------------------------|---------------|---------------|--|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total |
| 1 | 2,911 | 41,585 | 41,585 | 2,911 | 41,585 | 41,585 | 2,277 |
| 2 | 1,169 | 16,699 | 58,284 | 1,169 | 16,699 | 58,284 | 2,312 |
| 3 | ,891 | 12,730 | 71,014 | | | | |
| 4 | ,781 | 11,153 | 82,167 | | | | |
| 5 | ,639 | 9,124 | 91,291 | | | | |
| 6 | ,378 | 5,404 | 96,695 | | | | |
| 7 | ,231 | 3,305 | 100,000 | | | | |

The main component

On the chart number 4.1 is shown the main components matrix with two elements. The first main component with its root $\lambda=2.911$ shows 41.585 % of general variable. The second component with its root $\lambda=1.169$ shows 16.699 %. In the main component beside the body flexibility all the other motoric variables have realized important projections from -.526 to .847. and the highest projection realized the ball leading of half round with .847. In the second component the most important projections have reached variables such as: flexibility and abdominal muscles, .478 and .503

Table 4.1. The main component

| | Component | |
|--------|--------------|-------------|
| | 1 | 2 |
| MFLTRU | ,376 | ,478 |
| MKVGJA | -,677 | ,394 |
| MMUTBA | -,526 | ,503 |
| MVR50M | ,725 | -,424 |
| MPUNTO | -,562 | -,330 |
| MUSLLA | ,691 | ,456 |
| MUGHYS | ,847 | ,187 |

The parallel projection matrix of variables on factors

For having the full information of latent structure from the investigated space, the main components are transformed in to the sloping solutions called “**OBLIMIM**”. As a result of these transforming are given three matrixes, and they are: Parallel projections MATRIX of variables in to the factors, orthogonal projections matrix and intercorrelative matrix between the factors. It’s biggest importance of latent space explanation is parallel projections matrix of variables in to the factors. According to the chart 4.2, the fast factor determines the body flexibility and specific motoric variables as ball acting, ball slalom leading and ball leading on half round **-.624 due .810**. According to the realized projections of first factor it can be interpreted as:

➤ **Body’s flexibility factor and ability of leading and handling the ball**

On the second factor the higher projections are realized by these variables: long jump from the place, abdominal muscles and 50 meters running **.751 due -.811**. According to these projections this factor can be defined as:

➤ **Speed and power factor**

Table 4.2. Parallel projection matrix of variables in to the factors

| | Component | |
|--------|--------------|--------------|
| | 1 | 2 |
| MFLTRU | .635 | ,161 |
| MKVGJA | -,081 | ,756 |
| MMUTBA | ,104 | ,751 |
| MVR50M | ,085 | -,811 |
| MPUNTO | -,624 | ,079 |
| MUSLLA | ,810 | -,055 |
| MUGHYS | ,678 | -,378 |

The orthogonal projection matrix of variables in to the factors.

According to the chart 4.3 given results from orthogonal projection matrix of variables in to the factors do not change from the results of parallel projection matrix. The same variables are: as body flexibility ball acting, ball slalom leading and ball round leading which realize the higher projections from the first factor **.588 due .826**. Besides, from the second factor the higher projections also are realized the same variables as in the parallel projection matrix: long jumping from the place, abdominal muscles and 50 meters running **.721 due -.836**.

Table 4.3. Orthogonal projection matrix of variables in to the factors

| | Component | |
|--------|--------------|--------------|
| | 1 | 2 |
| MFLTRU | ,588 | -,024 |
| MKGJAT | -,302 | ,779 |
| MMUTBA | -,116 | ,721 |
| MVR50M | ,322 | -,836 |
| MPUNTO | -,647 | ,262 |
| MUSLLA | ,826 | -,292 |
| MUGHYS | ,789 | -,577 |

Intercorrelative matrix between factors

Likewise, the chart 4.4 we see that the intercorrelative matrix between factors shows that is given an important correlation among factors on a value of **-.293**, so we can say that the given factors have intercommunications with each- other.

Table 4.4. The intercorrelative matrix between factors

| Component | 1 | 2 |
|-----------|--------------|-------|
| 1 | 1,000 | -,293 |
| 2 | -,293 | 1,000 |

The Analysis and Verification of Hypothesis

According to the research purpose and the given results we can check these hypotheses:

H1: We expect to see the differences of some features of anthropometric space between two training groups. **The first hypothesis is not attested.**

H2: We expect to see the differences in most motoric skills. **The second hypothesis is completely confirmed.**

H3: We expect to identify two factors in the anthropometrical space and the other two in the motoric space. **The third hypothesis is partially confirmed.**

Conclusion

According to the results given from T-test method we see the differences between the two groups from the motoric space. Those differences belong to the both statistic levels of importance .0,5 and .0.1 and also they are obvious in the four motoric variables from all the seventh which are used in this investigation.

The distinction is patency in the motoric variable of body flexibility from importance statistic level by $p = .05$ for students group. Furthermore, the distinction is patency in to the three specific motoric variables, they are the ball work, slalom ball leading and ball leading in the half- round of the three variables and the difference is in the statistic importance $p = .01$ for the group of players.

The latent structure of investigation attitude by the factorial analysis in which is given an anthropometric factor:

- **The longitudinal skeleton, capacity and body size factor.**

Also there were given two motoric factors, they are:

- **the body flexibility and skill factor of ball leading and handling.**
- **the power and speed factor.**

The value of this research paper is in the theoretical and practical aspect because of its humanity and investigative nature (Hasangjekaj B. and Kikaj, Xh., 1999). Also it can be useful and can be a challenge for more hypotheses of skills investigations and other factors that affect the football particularly and sports in general (Aliu, M., 1992).

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