Malsor Gjonbalaj,
Bahri Gjinovci
University of Prishtina, "Hasan Prishtina" (Prishtina, Kosovo)

ANTHROPOMETRIC AND MOTORIC COMPARISONS BETWEEN THE TWO VOLLEYBALL TEAMS IN PRISHTINA

Introduction

In relation to the structure of movements, volleyball is within the group of complex poly-structural sports. Through the game of volleyball it is achieved the transformation of anthropological characteristics as those morphological, cognitive and conative, especially those motoric ones and situational motoric.

In enhancing of sports results, in today's time the quantity of (volume and intensity) of work is not the only decisive criteria, but also the quality of work (changing the stereotype of the work, the elimination of redundant movements, the rationalisation of the game with its elements, etc..).

All these circumstances and factors mentioned stimulated me that through this paper and through methods for processing of results, to try and give a true and factual picture of the situation, with particular emphasis on the evaluation of some anthropometric and motoric characteristics to the players of both volleyball clubs from Prishtina.

The main problem which is is treated in this paper is the verification of the situation and differences between these players of the two clubs, through the results arising from variables that I have chosen for this purpose.

The purpose of the paper is to diagnose the morphological and motor status of players for both clubs, and then based on the results gained for the anthropometric status we can make an comparisons analysis..

METHODS

In this research there are 30 players involved (15 from each team) of both volleyball clubs from Prishtina. That are VC " Prishtina" and VC "Prishtina 1".

It must be emphasized that all players are fully fit to attend regular exercises within their clubs.

V.C "Prishtina" attend in the Volleyball Super Ligue of Kosova and V.C "Prishtina 1" atend in the first ligue of Kosovo. The both Volleyball clubs have exercise 5 times during the week.

Volleyball Club "Prishtina":
- Average age of players is 27 years and 1 month,
- exercise volleyball in average of 12 years and 3 months,
- play volleyball average 10 years and 8 months,
- With other sports activities there are 68 % treated players that deal with is.
Volleyball Club "Prishtina I":

- Average age of players is 25 years and 2 month,
- exercise volleyball in average of 10 years and 2.5 months,
- play volleyball average 9 years and 1.5 months,
- With other sports activities there are 37 % treated players that deal with is.

Based on the purpose of the research, the sample of the variable consists of 14 measuring instruments (variables). Out of them 8 from anthropometry, 4 from motor and 2 by situational motor. And they are: body weight, body height, leg length, thigh circumference, calf circumference, abdominal adipose tissue, redness hand width, length fasciitis, Crouch on the bench, the jump on the length from the spot, Hand Taping in the bank, Jogging 20 meters (High Start), Passing the ball from different positions (5x4m), Jogging at the different angles (4x5m).

For processing of the results in this research the following methods were used:

Mid arithmetic, variance, standard deviation, standard error of the arithmetic average, coefficient of variance, maximum score, minimum score, T-test, according to Pearson correlation coefficient, and hypothesis testing on the validity of the r-s at 0:05 levels of safety stairs.

RESULTS

Table 1. STATISTICAL ANALYSIS OF ANTHROPOMETRIC VARIABLES FOR V.C "Prishtina "

		$\overline{x}$	S^2	DS	$S\overline{x}$	KV %	Mmax	Mmin
1.	APT	7404.16	6672.74	81.68	23.60	11.03	930	640
2.	ALT	1914.33	2098.38	45.80	13.23	2.58	1943	1690
3.	AGJK	999.83	798.63	28.26	8.16	2.82	1035	935
4.	APKO	557.16	661.30	25.71	7.43	4.61	604	513
5.	APK	355.75	1386.85	37.24	10.76	10.46	406	260
6.	AIDHB	8.33	26.88	4.77	1.37	57.26	22	4
7.	AGJKD	71.75	19.85	5.18	1.28	6.25	78	61
8.	AGJSH	263.5	86.58	9.30	2.68	3.52	287	253

Through the methods for finding of the distribution results, we can conclude that the variables 2, 3, 4, 7 and 8, have symmetric distribution of the mid arithmetic's. The small value of the coefficient variance percentage gives us that the group in these variables was more homogeneous. In variable of the *abdominal adipose tissue* and *body weight* of the group of players have been more heterogeneous and have a greater distribution of the mid arithmetic's, with a higher percentage of the variance coefficient (57.26 and 11.03 value).

Table 2. *STATISTICAL ANALYSIS OF MOTOR VARIABLES FOR V.C. "Prishtina"*

		$\bar{x}$	V	DS	$S\bar{x}$	KV %	Rmax	Rmin
1.	MPB	48.58	41.40	6.43	1.85	13.23	58	32
2.	MKGJV	231.25	171.35	13.09	3.78	5.66	250	210
3.	MTDB	22.66	12.72	3.56	1.02	15.71	29	18
4.	MV20m	3.16	0.03	0.18	0.05	5.69	2.89	3.7
5.	MPTP	4.22	0.06	0.25	0.07	5.92	3.61	4.57
6.	MVKN	6.54	0.08	0.29	0.08	4.43	6.0	7.02

As far as the distribution of results in motor variables for V.C "Prishtina", a greater homogeneity of the group is noticed in the variables 2, 4, 5 and 6, which tells us that this group of individuals in these variables do not differ significantly from each other. While, in the variables 3 and 1, and MTDB and MPB, it is noticed a significant variability in what is proved with higher values of the variance coefficient. Based on the distribution measurements of the distribution results, respectively to the standard deviation values to the average arithmetic's we can assume that almost in all motor variables there is a symmetric distribution of results.

Table 3. *STATISTICAL ANALYSIS OF ANTHROPOMETRIC VARIABLES FOR V.C "Prishtina 1"*

		$\bar{x}$	S^2	DS	$S\bar{x}$	KV %	R max	R min
1.	APT	689.41	4827.91	69.48	20.03	10.07	840	615
2.	ALT	1885.75	2952.85	54.34	15.70	3.14	1934	1630
3.	AGJK	964.08	1004.07	31.68	9.15	3.28	1045	916
4.	APKO	546.75	1222.68	34.96	10.02	6.39	626	500
5.	APK	364.41	278.74	16.69	4.82	4.58	395	347
6.	AIDHB	8.75	4.52	2.12	0.61	24.22	13.5	6
7.	AGJKD	73.66	18.22	4.26	1.23	5.78	85	69
8.	AGJSH	264.25	88.18	9.39	2.71	3.55	286	248

In the table 3. There are basic statistical parameters given of anthropometric variables V.C. "Prishtina1" In all variables, the measurements of distribution of results are not mainly clustered around the average arithmetic, which we can assume for the abnormal distribution of results. Even on the basis of the coefficient of variability of relevant variables, it is noticed emphasized differences of subjects. The group is not homogeneous in the variable of *abdominal adipose tissue* AIDHB with V.C. = 24.22. A significant variability is shown in the *body weight* variable APT. Such variability is also presented at the volleyball players of "Pristina 1".

***Table   4.** STATISTICAL ANALYSIS OF MOTOR VARIABLES FOR V.C. "Prishtina 1"*

		$\overline{x}$	S^2	DS	$S\overline{x}$	KV %	Rmax	Rmin
1.	MPB	43.41	56.57	7.52	2.17	17.32	59	30
2.	MKGJV	224	473.5	21.76	6.28	9.71	288	195
3.	MTDB	21.58	5.90	2.43	0.70	11.26	26	18
4.	MV20m	3.37	0.04	0.22	0.06	6.25	2.84	3.79
5.	MPTP	4.33	0.05	0.23	0.06	5.31	4.06	4.83
6.	MVKN	6.63	0.16	0.40	0.11	6.03	6.03	7.45

As it can be seen from the table above, when comparing with the distribution of results of anthropometric dimensions, at the motor variables V.C. "Prishtina 1" we have a more symmetrical distribution of results, namely at the variables 2, 4, 5, and 6, which confirms the low value of the rate variance coefficient, as well as the measurement of results distribution - standard deviation (DS). While, in the variables MPB and MTDB we do not have a symmetrical distribution of the average arithmetic, which is confirmed also by the high value of the rate variance of coefficient. This heterogeneity of the group into these two variables is determined by individuals with very good results and in the other hand individuals with poorer results.

INTERPRETATION OF VALUES T-test

		$\overline{x}_1$	$\overline{x}_2$	T-test
1.	APT	7404.16	689.41	3.15
2.	ALT	1874.33	1825.75	4.53
3.	AGJK	999.83	964.08	5.58
4.	APKO	557.16	546.75	1.59
5.	APK	355.75	364.41	- 1.40
6.	AIDHB	8.33	8.75	- 0.49
7.	AGJKD	71.75	73.66	- 2.06
8.	AGJSH	263.5	264.25	- 0.37
1.	MPB	48.58	43.41	3.46
2.	MKGJV	231.25	224	1.89
3.	MTDB	22.66	21.58	1.66
4.	MV20m	3.16	3.37	- 4.67
5.	MPTP	4.22	4.33	- 2.04
6.	MVKN	6.54	6.63	- 1.28

By analyzing the values obtained by means of the method of T - Test, at the level of 0:05 or 95% of reliability, the results with value of 2.17 and onwards are with significant statistical value. It is noticed that in the space of anthropometric dimensions there are valid statistical differences which appear between the two clubs, and that in the variables: ***body weight*** at the value of 3.15, ***body height*** at the value of 4.53 and ***leg length*** at the value of 5:58. All significant changes in the above mentioned variables

are for the good of V.C. "Prishtina". Changes in ALT and AGJK variables are determined by longitudinal factor which is important in the game of volleyball. Also in the space of motor dimensions, on the basis of the results achieved with the help of T-test, there are valid statistical changes presented in the variables of ***crouching on the bench*** at the value of 3:46 and ***jogging 20 m*** with value of -4.67. It is well known that fast players have a great advantage in: counterattacks, quick defense, etc. Both changes are in the favour of VC "Prishtina"

Table 5. *THE REGISTER OF THE CORELATIONS OF ANTHROPOMETRIC AND MOTOR VARIABLES OF BOTH CLUBS*

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1.	APT	1.00													
2.	ALT	.58	1.00												
3.	AGJK	.51	.94	1.00											
4.	APKO	.83	.42	.42	1.00										
5.	APK	.45	.30	.40	.57	1.00									
6.	AIDHB	.86	.45	.45	.85	.59	1.00								
7.	AGJKD	.34	.34	.46	.18	.38	.10	1.00							
8.	AGJSH	.89	.59	.59	.83	.54	.93	.22	1.00						
9.	MPB	-.23	-.37	-.44	-.31	-.31	-.10	-.40	-.32	1.00					
10.	MKGJV	.46	.16	.12	.17	.04	.33	.52	.31	.00	1.00				
11.	MTDB	.16	.05	.07	-.01	.12	.34	.19	.26	.42	.66	1.00			
12.	MV20m	.24	.41	.38	.42	.46	.43	.02	.36	.17	.10	.43	1.00		
13.	MPTP	.33	.21	.23	.13	.16	.16	.11	.26	-.52	-.07	-.49	-.59	1.00	
14.	MVKN	.02	.44	.57	.21	.28	.04	.05	.18	-.67	-.57	-.64	-.71	.52	1.00

Testing of the hypothesis on the validity of the correlation coefficient in the level of safety stairs 0:05. Significant correlations at the level of 0:05 probabilities are the correlations with the value over 0:56. In the table 5, it is presented registry of correlations of anthropometric and those motor variables of the clubs. If we analyze the values obtained in the registry table of correlations, we can see that in most of the anthropometric variables are obtained higher correlative values between the space of morphological dimensions. These high values are especially evident at the variables: AGJSH, APT and AIDHB in relation to the other anthropometric variables. In the space of motor variables, a significant correlation is achieved in the MVKN variable with the variables of flexibility test, explosive power, frequency of movements of the legs and fast running in 20 m.

CONCLUSION

It is known that the researching of problems of anthropometric dimensions and the motor skills in the field of sports kinesiology requires a multidimensional study approach to this nature of problems. From the research variables which we have presented to realize our goal, such an approach it is required. The results obtained in

this research, the verifying of the hypotheses set forth earlier, enable us to conclude that the goal set out in this research to a large extent is achieved. The statistical methods with which the results have been processed can explain the condition of anthropometric and motor characteristics. With the help of T-test we came to the conclusion that valid statistical differences (between the two clubs which have been subject to research) has, in the space of anthropometric and motor dimensions on behalf of VC "Prishtina".

So, with the help of correlation (according to Pearson) we saw the inter-correlative relations anthropometric variables, and concluded that these relations are at a high level of connection for both clubs. In the area of motor these correlations were weaker. Whereas, the connectivity between anthropometric and motor variables was based only on one correlation for both clubs. These weak inter-correlative relationships are reflected due to the morphological variability and psychophysical abilities of players. Results obtained from anthropometric and motor variables give us a clear picture on the factual situation of morphological characteristics and motor skills for players of these two clubs.

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Introduction: The increase in sports results today not only identifies the quantity (volume and intensity) of the work put in, but also the quality (changing the stereotypical notion of effort, eliminating redundant movements, rationalizing the sport in all elements etc). All of these circumstances and factors referred in this paper are stimulated through practical methods for processing positive results and aiming to present a realistic and factual reflection of the current condition, particularly emphasizing the evaluation of several anthropometric and motor characteristics of the players in both volleyball clubs from Prishtina. Methods: These methods are elaborated among arithmetic methods, variance, standard deviation and standard error of the arithmetic

mean, the coefficient of variance, the maximum and minimum score test, the score in accordance to the Pearson correlation coefficient-whereas the instruments measured 14 variables such as anthropometric 8, 4 motors and 2 situational. The main purpose to which is addressed in this paper is verifying the situation and the differences between the players in two of the clubs by analyzing the results from the variables I have chosen. Results: The results show that there is a significant differentiation between one volleyball group to the other in terms of motor, anthropometric and situational. This is proven by the results of the data based on the parameters abovementioned. Discussion: Results acquired on in the research, verifies the hypotheses which sets forth previously, it helps to us to understand that the main goal in this research has largely been achieved. Statistical methods that have been processed results may explain the state of anthropometric and motor characteristics. Moreover, with the help of T-test we came to understand the valuable statistical differences between two clubs which have been subject to research. These results are best justified considering the fact that the first group of fallow this year was much more successful than the second group. In the current discussion on the results obtained from anthropometric and motor variables give us a clear picture of the actual situation on morphological characteristics and motor skills, the players of these two groups/clubs. References: Bompa T (2000) Periodization: Theory and Methodology of Traning. Ilinois, USA. Frohreich H, Irmgard D, Konzag K (1992) Voleyball Spielend Trainieren. Berlin, Germany. Tahiraj E, Rexhepi F (2010) Some main morphological characteristics and locomotive-technical of national teams at the grand prix 2010 in volleyball (women). 14-symposium for the sport to Physical Education in young people, Ohrid, Macedonia. Kostic R (2000) Theory and Methodology of Sports Training Volleyball games, Nis, Serbia.

    "Dan", 4. april 2014.

НАУЧНИ СКУПОВИ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ ДАНАС ПОЧИЊУ РАД

Свечано отварање у 16

Свечано отварање II. међународне научне конференција о трансформационим процесима у спорту „Спортска достигнуħа" и десетог Конгреса Црногорске спортске академије под називом „Трансформациони процеси у спорту", обавиħе се данас у 16 часова у згради Ректората Универзитета Црне Горе. Гостима ħе се, између осталих обратити проф. др Предраг Мирановиħ, ректор УЦГ и министри из Владе РЦГ – просвјете и спорта Славољуб Стијеповиħ и науке Сања Влаховиħ. На овогодишњој конференцији учествоваħе 63 научника који ħе излагати своје радове, док је укупно на радовима 138 аутора и коаутора. Одмах након свечаног отварања предвиħена су пленарна предавања проф. др Зорана Милошевиħа са Факултета спорта и физичког васпитања и доц. др Селчука Акпинара са Департмана за спорт Невшехир Хаци Бекташ Вели Универзита.   Т.Б.