DETERMINATION OF QUANTITATIVE CHANGES OF PROGRAMMED WORK AT ATTENDEES IN BASKETBALL SCHOOL

Behudin Bajgorić[1], Žarko Bilić[2] and Danijela Bonacin[3]

[1] Ministry of education, Zenica, Bosnia & Herzegovina
[2] Faculty of sciences, University of Mostar, Bosnia & Herzegovina
[3] Faculty of education, University of Travnik, Bosnia & Herzegovina

Abstract

The main purpose of this paper is to provide a modest contribution to the knowledge of the changes that occur at the primary school student (12-14 years), under the influence of training in the school of basketball, which are nevertheless included in regular classes, and physical and health education. This study is an attempt to determine kvantativnih changes in the space of some morphological characteristics, basic - motor and situational - motor skills under the influence of the quarterly program of basketball.

Key words: *transformations, morphology, motor skills, quantitative changes*

Introduction

If we want to make significant progress and a step forward in creating future generations of boys and girls basketball, which will be much better compared to the currently selected with, you have to start with quality-selection and systematic work (transformation process) from earliest youth. It is believed that a high level of motor and functional abilities as a functional morphological prerequisite for effective teaching and learning of new movement structures in all age categories. The influence of a program depends on the degree of complexity of the training unit, the connection between the volume of the transformation process, the energy and information orientation program and the circumstances in which the procedure takes place. It is believed that a high level of motor skills is a precondition for effective learning new motor structures, training and successful use of basketball.

Methods

Research subject
The subject of this research is the effects of the quarterly scheduled work on the transformation of the analyzed morphological characteristics, basic-motor and situational-motor skills in the school basketball, ages 12-14 years, which are in addition covered and regular teaching physical and health education.

Research problem
The problem in this study is whether under the influence of training programs in basketball, ie three-month program to reach kvantativnih changes in morphological characteristics, basic-motor and situational-motor abilities.

Research aim
The main objective of this study was to determine the quantitative changes in the morphological characteristics and the basic-motor and situational-

motor skills, students school basketball, under the influence of programmed work. ie the transformation process.

Hypothesis
Based on the wording of the case and the research problem , research objectives , and the results of previous studies , the general hypothesis of this paper could be formulated as follows: H - is expected to be a training program for a period of three months, a positive impact on the quantitative improvement of these morphological characteristics , basic motor skills and situational - motor abilities of participants in school basketball.

Compared to the general hypothesis can be set and the following specific hypotheses: H - 1st It is expected that under the influence of basketball training result in significant positive changes kvantativnih defined morphological characteristics .H - 2nd It is expected that under the influence of basketball training result in significant positive changes kvantativnih defined basic - motor skills.H - 3rd It is expected that under the influence of basketball training result in significant positive changes kvantativnih defined situational - motor skills.

Examinees sample
The study was conducted on a sample of 108 girls, boys aged 12 -14 years, the sports star is a selection of pioneering age.

Sample of variables
When selecting variables that are supposed to shed light on the problem set, the subject and aim of the study, we took into account that they meet basic psychometric properties (validity, objectivity, sensitivity, ...). With this choice of variables is appropriate age women, and with this objective and appropriate material and spatial conditions.

Morphological area
To assess morphological dimension subjects applied the following variables: body height, body mass, leg length, arm length, shoulder width, the width of the pelvis, arm span, hand length, hand width and length of the foot.

Motor area
For the assessment of basic motor skills were applied variables that students know because they were tested in a regular classroom. The sample of variables for assessing basic motor skills: Sprint from a standing start to 20 yards, two foot jump from place to place, two foot jump from a running start, foot tapping, envelope test, side steps, hand tapping, deep forward bend on the bench, jump with both feet long jump from place to place, sit-lying, hand grip and run at 20 m, back and forth with progressive acceleration.

Specific abilities
For the assessment of situational-motor abilities, players will apply the following test battery: Turning the ball around the hull 24 seconds, turning the ball around the entire body 24 seconds, throwing basketballs out of the breast with both hands, throwing a basketball above his head with two hands in step , moving into position odbranbenom sideways, forward and back for 24 seconds, moving the reversing face the basket, slalom dribbling, change of direction in dribbling, shooting a five external position for 24 seconds and dribble the racket with rubble under the basket.

Measurement methods and training programme
Research in the area of motor skills are executed in the sports hall. The temperature during the measurements was in the range of 18 to 220C. All measurements carried out by the same group of timekeepers and they consist of professors and teachers of physical education and basketball coaches who were previously trained for it. Tests are planned in a way that is completely off greater impact fatigue resulting preceding tests.

Programmed physical training activity that is carried out in this study is multidimensional. Used the analytical and synthetic methods of work, the essence of the realization of the experimental program applied in this research is the application of situational methods. The structural part of the training is conducted according to the available theory and practice that treats methods of working age categories with players aged 12-14 years. The program of work was carried out for three months, which is 4 classes a week of training with a total of 50 units.

Data analysis
Data obtained by measuring and testing will be processed using the software system for multivariate data analysis. To identify significant quantitative changes of these morphological characteristics, basic motor skills and situational-motor abilities of participants in school basketball. Will apply: SSDIF model (Bonacin, 2010).

Results and discussion

Table 1. Obliquely rotated factors of difference between measurement and correlation of factors

	PX1	PX2	PX3	PX4	PX5
AVIT	-0.01	**0.85**	0.16	0.05	-0.03
AMAS	0.00	0.27	-0.41	**0.79**	-0.25
ADUN	0.04	**0.81**	0.10	0.07	0.06
ADUR	-0.02	**0.79**	-0.06	-0.02	0.16
ABAK	-0.01	0.07	0.14	**0.81**	0.00
ABIK	0.06	-0.14	0.25	**0.74**	0.03
ARRU	-0.02	**0.82**	0.20	0.01	-0.22
ADSA	0.01	0.20	**0.62**	0.26	0.27
ASSA	0.12	0.21	**0.79**	-0.13	0.02
ADST	-0.24	0.06	**0.62**	0.14	-0.32
M20V	**0.95**	0.03	-0.03	-0.03	0.17
MSVM	**-0.95**	-0.11	0.09	0.02	-0.11
MSVZ	**-0.95**	-0.12	0.10	0.08	-0.12
MTAN	**-0.58**	-0.10	-0.08	0.08	0.44
MTUP	**0.55**	-0.03	0.07	-0.12	-0.47
MKUS	**0.57**	-0.02	-0.09	0.01	-0.37
MTAR	**-0.64**	-0.12	0.02	0.25	0.26
MPRK	**-0.89**	-0.03	0.09	-0.03	0.04
MSDM	**-0.84**	-0.04	0.10	0.01	0.10
MPTL	**-0.95**	0.02	0.06	-0.08	-0.15
MDIN	**-0.64**	-0.04	0.20	0.04	0.26
MSAT	**-0.95**	0.01	-0.04	0.05	-0.08
OLT2	**-0.91**	0.03	-0.02	-0.07	-0.02
OLTC	**-0.90**	0.01	-0.04	-0.06	0.03
BKLF	-0.20	-0.01	0.03	-0.13	**0.70**
BKLG	**-0.72**	0.14	-0.14	-0.01	0.22
KOS2	**-0.85**	0.01	-0.01	-0.06	0.04
KPS2	**-0.63**	0.31	-0.05	-0.24	0.06
SDFF	**0.66**	-0.08	0.05	0.03	-0.28
PSDF	**0.64**	-0.03	0.02	0.02	-0.38
SPSS	**-0.63**	0.06	-0.16	0.00	0.41
SIK2	**-0.68**	0.06	-0.16	0.00	0.37
	PX1	PX2	PX3	PX4	PX5
PX1	1.00	-0.15	-0.03	-0.14	-0.37
PX2		1.00	0.19	0.28	0.28
PX3			1.00	0.27	-0.09
PX4				1.00	0.15
PX5					1.00

There were made correlations from the selected variables, basically just condensation on a smaller number of factors, so we now can further discuss the factors differences. Factor solution in fact tell us in which direction changes took place for the whole group of the whole treatment and we talk about what are the effects achieved even in latent space. Promax factors (Bonacin, 2010) talk about partial effects that can be achieved. It is evident that obtained five Promax factors, which means that the total treatment caused five different types of effects. First by far the most important that can be noted is that which can be seen along the motor shaft and the motor situational shaft, with exception of throwing the ball with a chest that has a special story. Thus, the first and most important effect is achieved and that is the latent sense visible integration of complete motor - general and situational, and it is the primary effect, and that was the aim of treatment. Another direction in which things have turned out is such that the distinction in relation to longitudinal morphologic dimensions, defined by the body height, leg length, arm length and arm span, all of which very accurately describes longitude dimensions. The third partial effect is described in the third Promax factor is extremely interesting because it contains information on three variables which are: length fist, hand width and length of the foot.

The real question to be asked why these three variables are allocated, perhaps the answer can be found in the fact that all three represent the growth of micro segments of bone, and it is precisely in the distal parts of the locomotor system (hands and feet). It does not fall under the longitudinal dimension, nor the transversal dimensions, especially at this age, and especially with the girls.

Table 2. Rezultati SSDIF analize kvantitativnih promjena

	A	D	S	R	P(an)
AVIT	1.27	4.32	2.30	**0.62**	0.00
AMAS	0.44	-1.08	0.57	0.15	0.00
ADUN	0.53	-3.39	1.75	**0.47**	0.00
ADUR	0.34	1.86	1.60	**0.43**	0.00
ABAK	0.23	3.34	1.71	**0.46**	0.00
ABIK	0.21	17.42	1.92	**0.52**	0.00
ARRU	1.26	1.01	2.25	**0.61**	0.00
ADSA	0.12	-0.90	1.86	**0.50**	0.00
ASSA	0.08	-10.33	1.58	**0.43**	0.00
ADST	0.17	17.50	1.98	**0.53**	0.00
M20V	-0.26	-0.38	-1.25	**-0.34**	0.00
MSVM	3.79	0.49	1.06	**0.29**	0.00
MSVZ	4.08	-0.49	1.03	**0.28**	0.00
MTAN	1.95	1.28	1.12	**0.30**	0.00
MTUP	-1.09	1.38	-0.92	**-0.25**	0.00
MKUS	-0.59	0.20	-0.86	-0.23	0.00
MTAR	1.66	-0.48	0.82	0.22	0.00
MPRK	1.95	0.65	1.22	**0.33**	0.00
MSDM	7.17	0.02	0.96	**0.26**	0.00
MPTL	2.50	0.21	1.15	**0.31**	0.00
MDIN	3.01	-0.24	1.04	**0.28**	0.00
MSAT	8.50	-0.20	1.01	**0.27**	0.00
OLT2	3.50	0.33	1.16	**0.31**	0.00
OLTC	3.45	-0.04	1.06	**0.28**	0.00
BKLF	0.67	-0.25	0.56	0.15	0.00
BKLG	10.79	-0.10	0.89	**0.24**	0.00
KOS2	1.34	0.12	1.15	**0.31**	0.00
KPS2	0.42	2.08	1.09	**0.29**	0.00
SDFF	-1.19	0.75	-1.02	**-0.27**	0.00
PSDF	-1.11	-0.12	-0.91	**-0.25**	0.00
SPSS	1.10	1.08	1.09	**0.29**	0.00
SIK2	1.02	1.26	1.00	**0.27**	0.00
M2	13.79				
Ht	1489.45				
F	33.06				
DF1	32				
DF2	76				
P	0.0000				

(A = differences of means, D = discr. coefficients, S = standardized projections, R = structure function, P (an) = probabilities analysis of variance, M2 = Mahalanobis distance, Ht = Hotelling T test, F = f-test, DF1, 2 = degrees of freedom, P = probability)

What needs to be further explained in relation to the size of the ball is the scope of basketball for all official competitions of women 724-735 mm, because that obviously plays a tremendous role and is actually favored treatment and as a special dimension. Fourth Promax is pure transversal dimension as described with biacromial and bicristal range, that is shoulders and pelvis width associated with a measure of mass. Fifth Promax factor is a that fifth way to locate the effects of this treatment, represnts a single factor (been described by a single variable) – described with throwing the ball from the chest. The answer of this effect is probably in the fact that it is if not the most, then certainly the optimal motion in basketball, which is in ball communication between

players by passing a ball on a middle or at a bigger distance. It is the structure of simplest, most logical action and provides enough power for throwing the ball, and also sufficient accuracy and is certainly good enough reason why this effect is achieved in this way. So the recapitulation in the area of quantitative effects can be summarized as follows: Treatment caused such effects that can be treated in five different directions. We are talking about the directions in which of these five lines of the development going on. There are integrated and affect genetic base and normal biological growth and development characteristics of childrenand were going in 5 of these routes. Results based on the indicators in Table 2 shows that under the influence of treatment in a sample student there have been many quantitative changes. The structure of discriminative function noticeable shows two sets of variables affected. First set all belong to morphological area and are of the order of magnitude of 0.50 - 0.60 and are in fact critical to the description of the overall changes. So morphological variables or rather a more or less natural growth and development may be supported with exercise in essence growth and development. All other variables are the motor and belong to another block and with order app. Of 0.20 – 0.30, and such of their projections on the discriminant function actually moderate magnitude, it does not mean they are not important, therefore, contribute significantly to the overall change but individually less for the entire an order of magnitude less than morphology. In all this, most important are the two variables in the morphological space. First one is mass, which naturally increases when the body height increases. Second – longitudinal dimension where it is quite certain that the rapid growth and development is very likely to produce a relative mass loss and the relative weight in this context. Motor variable throwing the ball from a chest, whose position has caused a marked specificity, is very likely situational in terms of specific motor or situational tests, such as basketball, which means it possesses a particular specificity that can look for genetic reasons, for reasons of history, human development, and who knows how all the girls might like these, and certainly belong to the closest specifics of basketball as a game and not be ruled out that it is so important motion in basketball that it just all students had to learn. Translation coefficient, i.e., displacement of individual variables, shows that the most obvious are the situational variables and the same situation is with the coefficients of expansion (dispersion). In the example variables results shows the shift of about 125%, which means that the whole group was more accurate. However, not all pupils are equally advanced and therefore dilation increased significantly (2.66) compared to the first measurement. Therefore, those students who were initially better, are more advanced, and the difference between them and those poorer increased. This means that within the overall sample there is a distinct ability to adapt to the applied specific basketball assignments and hence different final levels of achievement.

Table 3. Analysis of translation and dilation

	MEAN-	MEAN-2	DELTA	TL	VAR-1	VAR-2	DT
AVIT	159.90	161.18	1.27	1.01	39.27	37.78	0.98
AMAS	48.73	49.17	0.44	1.01	110.94	109.03	0.99
ADUN	91.94	92.47	0.53	1.01	18.78	18.58	0.99
ADUR	69.86	70.20	0.34	1.00	11.64	11.54	1.00
ABAK	34.56	34.79	0.23	1.01	3.58	3.64	1.01
ABIK	26.37	26.58	0.21	1.01	4.92	4.92	1.00
ARRU	160.33	161.58	1.26	1.01	51.61	50.63	0.99
ADSA	18.39	18.51	0.12	1.01	1.37	1.37	1.00
ASSA	7.84	7.91	0.08	1.01	0.19	0.20	1.02
ADST	24.12	24.29	0.17	1.01	1.46	1.47	1.00
M20V	4.34	4.08	-0.26	0.94	0.07	0.11	1.24
MSVM	25.23	29.02	3.79	1.15	18.55	33.69	1.35
MSVZ	26.25	30.32	4.08	1.16	23.51	42.00	1.34
MTAN	39.40	41.35	1.95	1.05	11.76	14.65	1.12
MTUP	27.72	26.63	-1.09	0.96	5.61	7.46	1.15
MKUS	11.13	10.55	-0.59	0.95	0.89	1.31	1.21
MTAR	35.85	37.51	1.66	1.05	12.72	20.41	1.27
MPRK	39.86	41.81	1.95	1.05	52.42	57.43	1.05
MSDM	158.96	166.13	7.17	1.05	274.34	425.05	1.24
MPTL	16.31	18.81	2.50	1.15	11.81	16.02	1.16
MDIN	22.22	25.22	3.01	1.14	21.07	30.33	1.20
MSAT	33.69	42.19	8.50	1.25	90.96	224.00	1.57
OLT2	20.81	24.31	3.50	1.17	10.69	16.17	1.23
OLTC	21.20	24.65	3.45	1.16	9.59	16.37	1.31
BKLF	7.09	7.76	0.67	1.10	0.95	1.38	1.20
BKLG	83.96	94.76	10.79	1.13	128.16	296.38	1.52
KOS2	14.45	15.80	1.34	1.09	1.76	3.33	1.37
KPS2	4.00	4.43	0.42	1.11	0.08	0.23	1.70
SDFF	19.78	18.59	-1.19	0.94	4.61	7.00	1.23
PSDF	20.21	19.11	-1.11	0.95	1.73	3.62	1.45
SPSS	0.88	1.98	1.10	2.25	0.20	1.40	2.66
SIK2	1.12	2.15	1.02	1.91	0.22	1.31	2.43

(MEAN-1, 2 = means, DELTA = difference TL = coefficient of translation, VAR1, 2 = variance, DT = coefficient of expansion, marked changes greater than 10%)

In general, and translation and dilation achieved mainly in the specific motor skills, which is the aim of the treatment was rudimentary. The significance of this research is the modeling and structuring of different programs working with younger age categories in basketball, especially with the age of 12-14 years in modern basketball require the most serious, the most thorough and most professional approach. esults of this study will serve coaches in dealing with this same age selection of basketball in solving important problems that impose daily. The results obtained in this study can be used, except for such purposes as other similar comparisons of researching.

Conclusion

In the area of quantitative changes in the morphological characteristics, basic motor-skills and situational-motor abilities were obtained five factors difference, which means that the treatment caused changes in up to 5 lines, which can be identified in quantitative terms. Obliquely rotated factors show that the total treatment caused five different effects. Quarterly basketball program led to a positive transformation in almost all the morphological characteristics and the basic - motor skills and situational- motor abilities - accordingly accepted hypothesis H , H-1 , H-2 , H–3.

References

Bajgorić, B. (2007). *Efekti programiranog rada na transformaciji morfoloških obilježja, bazičnih motoričkih sposobnosti i situaciono-motoričkih sposobnosti kod polaznica košarkaške škole*. /Magistarski rad/, Sarajevo: Fakultet sporta i tjelesnog odgoja.

Bala, G. (1986). *Kvantitativne metode u fizičkoj kulturi*. Novi Sad: Fakultet za fizičku kulturu.

Blašković, M. (1982). Analiza pouzdanosti i faktori valjanosti situaciono motoričkih testova u košarci. *Kineziologija, 14*(5).

Bonacin, D. (2004). *Uvod u kvantitativne metode*. Travnik: Edukacijski fakultet.

Findak, V. (1999). *Planiranje, programiranje, provođenje i kontrola procesa vježbanja*. Kineziologija za 21.stoljeće, Zagreb: Fakultet za fizičku kulturu.

Hadžikadunić, M. (1998). Uticaj programiranog vježbanja na neke antropometrijske karakteristike motoričke i funkcionalne sposobnosti, *Homosporticus, 1,* 9-16.

Malacko, J. (2000). *Osnove sportskog treninga*. Beograd: Sportska akademija,

Milanović, D. (1996). Kineziološka dijanostika bazičnih i specifičnih sposobnosti sportaša, Zbornik radova treće konferencije o sportu Alpe – Jadran, Rovinj, 1996. (pp.26-29; 35-39).

Milanović, D., Jukić., I., & Dimitros, I. (1994). Uticaj programiranog treninga na promjene u motoričkim sposobnostima mladih košarkaša. *Kineziologija, 4*(1-2), 33-43.

Mikić , B. (1999). *Testiranje i mjerenje u sportu*. Tuzla: Fakultet za fizičku kulturu.

Rađo, I ., & Wolf, B. (2002). *Kvantitativne metode u sportu*. Sarajevo: Fakultet za sport.

ODREĐIVANJE KVANTITATIVNIH PROMJENA PROGRAMIRANOG RADA
S POLAZNICAMA ŠKOLE KOŠARKE

Sažetak

Osnovna svrha ovog rada jeste da pruži skroman doprinos u spoznaji promjena koje se dešavaju kod učenica osnovne škole (12 - 14 godina), pod utjecajem treninga u školi košarke, a koje su pored toga obuhvaćene i redovnom nastavom tjelesnog i zdravstvenog odgoja. Ovo istraživanje predstavlja pokušaj utvrđivanja kvantativnih promjena u prostoru nekih morfoloških karakteristika, bazično - motoričkih i situaciono - motoričkih sposobnosti pod utjecajem tromjesečnog programa košarke .

Ključne riječi: *transformacije, morfologija, motorika, kvantitativne promjene*