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Research Article

THE INFLUENCE OF ANTHROPOMETRIC AND MOTOR VARIABLES IN TEST OF SITUATIONAL ACCURACY TO CADET PLAYERS OF BASKETBALL GAME

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Abstract

It is known that the important factor in game between players is to score as many points, but as it is known, accuracy (precision) is one of the major motor dimensions and most important for the basketball game. The purpose of this project is to confirm the influence of anthropometric and motor variables in some situational accuracy tests, typical of the basketball game at young players.
Methodology of this research: this research consists of active players (men) of 14-15 year old. The total number of entities that have been tested in this research is 84 divided into 7 teams with 12 players. The variables for anthropometric measurements are treated with 11 variables and 8 motor tests of the basic character as the predicate variables, while 3 variables as a criterion are taken from the typical motor situation of the basketball game. Through procedures of analysis of regression, the impact of anthropometric variables and motor tests on the accuracy of the situation of the basketball game was examined. From treated analysis of the criteria tests, in those predictors we can say that in the situational accuracy tests on cadet players, the influence was on the variables of the longitudinal skeleton dimension as well as the flexibility of the muscles of the body. Therefore, we can conclude that the longitudinal skeleton dimensions and body muscle flexibility have influenced the successful realization of situational accuracy in basketball game.

Keywords: Anthropometry, motor, analysis of regression, accuracy.

Introduction

Basketball is a complex sport where each player adjusts the technical and tactical space individually with teammates within the team (Trninić, 2008). If 15-year-old boys can be considered that their biological maturity is equal to the 17-year-old, as well as those with biological maturity who do not exceed 13 years of age, so it is reasonable to expect that the coach will set the requirements according to their biological age and not according to the wishes of the whole group regardless of the age to respond to requests in the training process (Trninić, 2006). According to a research the effects of important tasks in basketball, depend to large extent on the specific of morphological structure of the basketball player, the dominant role of body muscle mass, because of the fact that the basketball game has character of actions and movements during the game.
The high percentage of regression analysis speaks of the good selection of basic tests and its importance in the impact of assessing the situational motor skills needed in the basketball game (Brekalo, M. M., Kristijan Blažević, S. Kostovski Ž. Crnjac D. 2013). It is known that the most important factor in the game between the bins is to score as many points, but as it is known, accuracy (precision) is one of the main driving and important dimensions for the basketball game, it is also extremely sensitive of the moving dimensions during the activity of young basketball players. From the treated analysis of the variables criterion on those predictors we may say that in situational accuracy variables of junior league players influence an explosive force (Kryeziu, A. 2013). Regression analysis shows that the throwing of the ball depends on body mass. Anthropometric parameters affect the accuracy of the high throwing priority for basketball players (Visnapuu M, Jürimäe T. 2008).

In this research we will examine the study on the impact of anthropometric variables and basic motor tests with some testicles of precision (precision) and situational of young basketball players.

Purpose of Research

The purpose of this paper is to certify the impact of anthropometric and motor variables on some of the accuracy tests typical for the young basketball player.

Research methods
Sample entities

This paper consists of active players (males) of age 14 – 15 years old who play in cadet's league, some of them are incorporated from pioneer's league who will play in cadet's league Basketball Federation of Kosovo.
Total number of entities that are tested in this paper is 84, which are divided in 7 teams with 12 players. Tested teams of Mitrovica Region are: Basketball Club B.C "Mitrovica ", Basketball Club B.C "Trepça" from Mitrovica, and Basketball Club B.C "Vushtriabasket "from Vushtri. While the Pristina Region are those temas: Basketball Club B.C " Collage Universi ", Basketball Club B.C " Fatosat ", Basketball Club B.C " Albabasket ", and Basketball Club B.C " Probasket " all those clubs from Pristina. Instruments for measuring anthropometric variables have treated 11 variables. Whereas, motor space with situational motor are treated 8 tests motor into basic character, and 3 of typical situational motor of basketball game.
Variable samples
Instruments for measuring anthropometric variables have treated 11 variables. Whereas, motor space with situational motor are treated 8 tests motor into basic character, and 3 of typical situational motor of basketball game.
Predictor variables:
ABADWE - Body Weights, ABADHE - Body height, ALENGL - Length of leg, AFOOLE - Foot length, AFOOTW - Foot width, AARMCI - arm circumference, ATHICI - Thighs circumference, ACALCI - Calf circumference, APALML - Palm length, APWOFI - Palm width with open fingers, AARMLE - Arms length.
MJUHIP - Jump high above the place, MJUPSH - Jump from the place with the step height, MJULEP - Jump length from the place, MSRU20 - Speed running 20 m (higher start), MPROAR- Profound warp (flexibility), MMEDCH - Throwing the medicine ball from the chest, MABDMU- Abdominal muscles, MTTEST-T- Agile test**.**

Criterion variables:
MBDSHO - Ball dribble and shooting in 30 sec, MSHO2P- Shooting for 2 points, MFRESH - Free shooting.

Methods for completing the Results
Data analysis was finished by using the statistical software program SPSS 21.0 version of Windows. For the influence of predictive variables on those criteria it was used the regression analysis.

Results and Discussion

Table 1. MBDSHO - Ball dribble and shooting in 30 sec.

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.628[a]	.394	.214	1.04830	.394	2.189	19	64	**.010**
a. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013									
b. Dependent Variable: VAR00022									

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.704	19	2.405	2.189	.010[b]
	Residual	70.332	64	1.099		
	Total	116.036	83			
a. Dependent Variable: VAR00022						
b. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.628	6.382		1.195	.236
	ABADWE	.036	.048	.393	.754	.453
	ABADHE	-.066	.045	-.484	-1.453	.151
	ALENGL	.078	.055	.359	1.439	.155
	AFOOLE	.076	.144	.092	.530	.598
	AFOOTW	-.108	.248	-.066	-.436	.664
	AARMCI	-.027	.058	-.092	-.458	.648
	ATHICI	-.098	.074	-.468	-1.331	.188
	ACALCI	-6.354E-005	.090	.000	-.001	.999
	APALML	.052	.175	.053	.296	.769
	APWOFI	-.157	.112	-.212	-1.407	.164
	AARMLE	.017	.034	.148	.489	.626
	MJUHIP	.025	.076	.135	.327	.745
	MJUPSH	-.029	.074	-.160	-.390	.698
	MJULEP	.003	.007	.055	.351	.727
	MSRU20	.413	.414	.138	.997	.322
	MPROAR	.005	.003	.364	1.790	**.078**
	MMEDCH	.008	.021	.044	.376	.708
	MABDMU	.040	.041	.132	.965	.338
	MTTEST	-.170	.148	-.194	-1.152	.254
a. Dependent Variable: VAR00022						

In table number 1. are the results of regression analysis, where as a criterion is taken the dribble ball variable of throwing in basket for 30 sec, while as predictors are taken 11 variables of anthropometric space and 8 tests of motor space.

By analyzing table 1 we may note that the multiply correlation is (R=39) which explains about 21% of common variability between system of predictive variables and the criterion.

This correlation is important at the level of P = .010. In the rest of the total variability (62%) is under the influence of unknown factors and not included in this space.

If the predictive variables are analyzed, we may see MPROAR- Profound warp (flexibility) has important statistical influence in prediction of the result of the criterion variable.

Based on the partial regression coefficients, influence has had profound warp (Beta = .364) and it is important in level of **0.78;** it shows that the flexibility of muscles has a positive influence in dribble ball of throwing in the basket for 30 sec.

Table 2. MSHO2P - Shooting for 2 points

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.531[a]	.282	.069	1.30932	.282	1.323	19	64	.201
a. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013									
b. Dependent Variable: VAR00023									

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.094	19	2.268	1.323	.201[b]
	Residual	109.716	64	1.714		
	Total	152.810	83			
a. Dependent Variable: VAR00023						
b. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013						

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.478	7.971		.311	.757
	ABADWE	.004	.060	.036	.063	.950
	ABADHE	.163	.056	**1.048**	2.893	**.005**
	ALENGL	-.127	.068	**-.508**	-1.870	**.066**
	AFOOLE	.161	.180	.169	.893	.375
	AFOOTW	.051	.310	.027	.166	.869
	AARMCI	-.006	.073	-.017	-.077	.939
	ATHICI	-.003	.092	-.012	-.032	.974
	ACALCI	-.040	.112	-.099	-.356	.723
	APALML	-.324	.219	-.287	-1.478	.144
	APWOFI	-.213	.139	-.251	-1.531	.131
	AARMLE	-.061	.042	-.474	-1.437	.156
	MJUHIP	.091	.095	.427	.950	.346
	MJUPSH	-.024	.092	-.117	-.262	.794
	MJULEP	-.012	.009	-.237	-1.380	.172
	MSRU20	.371	.517	.108	.717	.476

	MPROAR	.004	.003	.245	1.105	.273
	MMEDCH	.012	.026	.060	.477	.635
	MABDMU	-.022	.051	-.065	-.435	.665
	MTTEST	-.023	.185	-.023	-.125	.901
a. Dependent Variable: VAR00023						

In table no. 2 are given the results of the regression analysis, where as the criterion is taken the shooting variables for 2 points while as predictor there are 11 anthropometric space variables and 8 test of the motor space. By analyzing this table we see that multiple correlation is (R = 28), which explains about 69% of the common variability between the system of predictive variables and the criterion. This linkage is important at P = .201 level. The rest of the total variability (53%) is under the influence of unknown factors and not included in this space. If we look at the influence of each predictive variable on that criterion it is seen that two variables have significant statistical impact ABADHE - Body height dhe ALENGL - Length of leg. So the body height variables with the regression coefficient value (Beta = 1.048) are significant at P = .005. The other variable: the length of leg with the regression coefficient value (Beta = -508) has a statistical effect on the criterion of low confidence level P = .066.

Table 3. MFRESH- Free shooting

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.570[a]	.325	.124	1.23657	.325	1.621	19	64	**.078**
a. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013									
b. Dependent Variable: VAR00024									

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.090	19	2.478	1.621	**.078[b]**
	Residual	97.863	64	1.529		
	Total	144.952	83			
a. Dependent Variable: VAR00024						
b. Predictors: (Constant), VAR00020, VAR00001, VAR00018, VAR00003, VAR00016, VAR00015, VAR00019, VAR00010, VAR00005, VAR00014, VAR00009, VAR00004, VAR00006, VAR00017, VAR00008, VAR00011, VAR00002, VAR00007, VAR00013						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.831	7.528		.110	.912
	ABADWE	-.029	.057	-.276	-.502	.617
	ABADHE	.077	.053	.510	1.452	.151
	ALENGL	-.159	.064	**-.651**	-2.473	**.016**
	AFOOLE	.276	.170	.298	1.624	.109
	AFOOTW	-.454	.293	-.246	-1.548	.127
	AARMCI	.018	.069	.057	.268	.790
	ATHICI	.009	.087	.038	.102	.919
	ACALCI	.006	.106	.014	.054	.957
	APALML	.496	.207	**.452**	2.399	**.019**
	APWOFI	-.176	.132	-.212	-1.334	.187
	AARMLE	-.009	.040	-.076	-.236	.814
	MJUHIP	.101	.090	.490	1.126	.264
	MJUPSH	-.124	.087	-.616	-1.420	.160
	MJULEP	-.001	.008	-.027	-.164	.870
	MSRU20	-.297	.488	-.089	-.609	.545
	MPROAR	.003	.003	.226	1.054	.296
	MMEDCH	-.038	.025	-.188	-1.541	.128
	MABDMU	.033	.049	.098	.676	.502
	MTTEST	-.110	.175	-.112	-.632	.530
a. Dependent Variable: VAR00024						

In table no. 3 are given the results of regression analysis, where as a criterion is obtained free shooting variables and as predictor (predictor) there are 19 variables of anthropometric and motor space. By analyzing this table we see that multiple correlation is (R = 57), which explains about 12% of the common variability between predictive variables system and criterion. This linkage is low in P = .078 level. In the rest of the total variability (57%) is under the influence of unknown factors and not included in this space. If we analyze the prediction variables we see that the variable ALENGL - Length of the leg of the APALML - Palm length has a significant statistical effect in predicting result of the criterion variable. Based on the partial regression coefficients, the influence has had the Length of Leg (Beta = -651) and is significant at .016. Also the Palm length with the coefficient value (Beta = .452) has an impact on the criterion variable at the level of reliability .019.

Conclusion

In this research we have treated 84 basketball players of 14-15 years old +- 6 months who play in the cadet league. For the tested players we have applied twenty-three variables, nineteen of which are predictors, while the other three belong to the test criteria. If we take in consideration the results of this research we may conclude that the main objectives of this research have been achieved. Through the procedures of regression analysis, the impact of anthropometric variables and motor tests on the accuracy of the situation of the basketball game was examined. From the analysis of criterion tests in those predictors we may say that in situational accuracy tests in cadet league the influence have had the variables of the longitudinal skeleton dimension as well as the flexibility of the body muscles. Therefore we may say that longitudinal skeleton dimension and flexibility of the body muscles have affected the successful realization of the situation accuracy in basketball game.

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