

## THE INFLUENCE (IMPACT) OF SOME ANTHROPOMETRIC CHARACTERISTICS ON THE EXPLOSIVE STRENGTH IN YOUNG FOOTBALL PLAYERS

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(Note)

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Tetovo, Macedonia***Abstract**

*The aim of this study is the research of some anthropometric variables (predictors) and biomotoric ability (criteria) in young soccer players (14-15 ±6 years, FC Gostivar from Gostivar). The research was done to 60 young athletes-football players. In the research we make 8 anthropometric parameters. Predictor variables in a general view had significantly statistical influence in the two motoric tests. Explosive strength (long jump from the stand and a high jump from the stand). After the statistical analysis and research we concluded that there is a significant need to further explore this area which will consistently impact the other variables.*

**Keywords:** *testing, predictor variables, criterion variables, regression analysis*

**INTRODUCTION**

Football is dominated by the speed of movement and the implementation of acyclic movements, supported by a high level of antiglycolytic readiness, and a number of different jumps, for which the jumpiness as a motoric feature has a significant importance. Football is a dynamic sports game characterized by its specificities. It is characterized by a movement of the entire body or separate body parts in space with a changeable pace. The movements in space are mainly completed by walking, running, jumping, rotation and stopping. Those are the elements consisting the basis for all movements. Thus, we might say that athletes-football players must possess general and specific motoric abilities and particular anthropometric characteristics.

**METHODS**

The purpose of this study is the research of some anthropometric variables (predictors) and biomotoric ability (criteria) in young soccer players (14-15 ±6 years, FC Gostivar from Gostivar). The research was done to 60 young athletes-football players. The research focuses on 8 anthropometric variables. Variables for assessing the anthropometric characteristics. 1.Body height (AVNT),

2. the length of the left leg (ADLN), 3. The length of the foot (ADST), 4.the width of the ankle (ADSZ), 5. Weight (ATEZ), 6. The volume of on my knees (AONK), 7. The skin fold of the stomach (AKNS) and 8. The skin fold of the under my knees (AKNP). The criteria biomotoric variables, the explosive strength of the lower limbs. Long jump (jump in distance) from a stand (MSDM), High jump from a stand (MSVM). During the statistical analysis of the results, for all the variables of the research we estimated the primary descriptive parameters: arithmetic surrounding, standard deviation, amount, the lower and upper limit of the results' range (min.-max.). For estimating the influence of morphologic. The predictor system consists of the morphological variables, whereas the criteria system consists of two motoric tests for the explosive strength of the lower limbs-Jumpiness.

**RESULTS AND DISCUSSION**

The values of the statistical parameters of the descriptive statistics are shown in table 1.2. Those are the results of the average variable values, as well as their minimums, maximums, amounts, distance and the standard deviations. Due to paper length restrictions we cannot explain all of them in details.

Table 1. Primary statistical indicators of the anthropometric variables (predictors).

Variables	Mean	Median	Min	Max	Range	SD
AVNT	166,92	168,00	145,00	186,00	41,00	9,82
ADLN	99,32	100,00	83,00	115,00	32,00	6,61
ADST	25,38	25,60	22,10	28,70	6,60	1,45
ADSZ	7,74	7,70	6,80	8,80	2,00	,41
ATEZ	53,51	54,00	35,00	86,00	51,00	10,09
AONK	46,24	47,00	36,00	59,00	23,00	4,70
AKNS	6,16	5,40	3,30	21,10	17,80	2,95
AKNP	5,75	5,20	3,10	16,20	13,10	2,48

Table 2. Primary statistical indicators of the biomeotoric variables (criteria).

Variables	Mean	Median	Min	Max	Range	SD
MSDM	187,22	185,00	158,00	225,00	67,00	16,23
MSVM	253,47	25,00	215,00	282,00	67,00	15,48

□

Based on the obtained results by the regressive analysis (Table 3), we notice that the predictor system of the variables statistically impacts the criteria variable MSDM ( $Q=.00$ ). The coefficient of multiple correlation is significantly high ( $RO=.54$ ) which indicates that there is a high significant multiple correlation. The coefficient of determination ( $DELTA=.73$ ) is statistically significant, which indicates that the implemented prediction system of the anthropometric variables has a very high and significant impact on the criteria variable MSDM. The specific statistical and significant influence on the criteria variable - Long jump (jump in distance)

from a stand (MSDM) is present in two predictor anthropometric variables: The length of the left leg (ADLN) and The skin fold of the leg (AKNP).

Based on the obtained results from the regressive analysis (Table 4), we notice that the implemented prediction system of the variables, statistically impacts the criteria variable MSVM ( $Q=.00$ ). The coefficient of the multiple correlation is very high ( $RO=.92$ ) which indicates that there is a very high and significant multiple correlation. The coefficient of determination ( $DELTA=.96$ ) is statistically significant, which indicates that the implemented prediction system of the anthropo-

Table 3. The regressive analysis of the variables

N=70	BETA	St. Err. of Beta	B	St. Err. of B	t(56)	p-level
Intercpt			-11,0700	67,90501	-,16302	,871088
AVNT	,158562	,292277	,2619	,48283	,54251	,589623
ADLN	,590412	,291718	1,4498	,71633	2,02391	<b>,047760</b>
ADST	,000941	,168097	,0105	1,87338	,00560	,995553
ADSZ	-,199157	,140312	-7,8395	5,52317	-1,41939	,161328
ATEZ	,115791	,128979	,1863	,20749	,89774	,373165
AONK	-,121844	,102170	-,4202	,35234	-1,19255	,238073
AKNS	-,144855	,138038	-,7962	,75871	-1,04938	,298510
AKNP	-,214448	,127032	-1,4000	,82934	-1,68814	<b>,056947</b>
DELTA	RO.	DF1	DF2	F	<b>Q=.00</b>	
.73	.54	13	56	5,10		

Table 4. Regressive analysis of variable MSVM

N=90	BETA	St. Err. of Beta	B	St. Err. of B	t(56)	p- level
Intercpt			-6,01094	26,00283	-,23117	
AVNT	,970878	,117342	1,52978	,18489	8,27394	<b>,00000</b>
ADLN	,003911	,117117	,00916	,27430	,03339	,973482
ADST	,028148	,067486	,29921	,71737	,41709	,678208
ADSZ	-,138805	,056332	-5,21147	2,11498	-2,46407	<b>,016833</b>
ATEZ	,099268	,051782	,15232	,07946	1,91705	,060339
AONK	,075055	,041019	,24688	,13492	1,82976	,072610
AKNS	-,062779	,055419	-,32912	,29053	-1,13281	,262119
AKNP	-,052605	,051000	-,32757	,31758	-1,03146	,306758
DELTA	RO.	DF1	DF2	F	Q	
.66	.72	13	56	54.09	.00	

□

metric variables has a very high and significant impact on the criteria variable MSVM. The specific statistical and significant influence on the criteria variable - High jump from a stand (MSVM) is present in two predictor anthropometric variables: Body height (AVNT) and The diameter of the ankle (ADSZ).

## CONCLUSION

Generally, the system of predictor variables has a statistically significant impact on the implementation of the two motoric tests on Explosive strength (Jumpiness) criteria (Long jump from a stand and High jump from a stand);

The obtained results and the conducted analysis indicate that there is a need for further research in this area, by which we can prove the influence on other variables, as predictors, on the criteria as a system, and the same one can be complemented by another variable by which we can even more determine the motoric tests for the Explosive strength (Jumpiness).

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## ВЛИЈАНИЕТО НА НЕКОИ АНТРОПОМЕТРИСКИ КАРАКТЕРИСТИКИ ВРЗ ЕКСПЛОЗИВНАТА СНАГА КАЈ МЛАДИТЕ ФУДБАЛЕРИ

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### Апстракт

Целта на истражувањето е да се утврди влијанието на некои антропометриски варијабли (предиктори) врз одделни моторни карактеристики (критериуми) кај млади фудбалери од Гостивар, чија возраст беше  $14-15 \pm 6$  години. Истражувањето беше спроведено на 60 млади фудбалери. На нив беа применети 8 манифестни антропометриски варијабли. Предикторските варијабли во генерална смисла има статистички значајно влијание врз двата критериумски моторни тестови (Скок во далечина од место и Скок во височина од место) за проценување на експлозивната снага. Врз основа на статистичката анализа на податоциите е заклучено дека постои значајна потреба за најмошни истражувања од ова подрачје со примена на други варијабли (предиктори) за утврдување на нивното влијание врз експлозивната снага.

**Клучни зборови:** тестирање, предикторски варијабли,  
критериумски варијабли, регресивна анализа