RELATIONS BETWEEN THE LONGITUDINAL DIMENSIONAL OF THE SKELETON, THE MASS AND THE VOLUME OF THE BODY AND REPETITIVE STRENGTH IN THE STUDENTS OF FIRST YEAR

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Abstract

The survey was conducted in April 2013 on a sample of 123 male students from the first year at the university of Stip with dispersed studies on the faculties of tourism business and logistics, hotel management, gastronomy and geology in Skopje. The purpose was to determine the association and impact of longitudinal dimensional of the skeleton, the mass and volume of the body repetitive strenght. With the regressive analysis it has been determined a relationship and influence of the longitudinal dimensional of the skeleton, the mass and volume of the body repetitive strength in students of I- st year .

Key words : students, association, longitudinal dimensional of the skeleton, mass and volume of the body, repetitive strength

Introduction

Determination of the impact of anthropometric characteristics on repetitive force in males students of I-st year (N = 123), on the University of Stip with dispersed studies on the faculties of tourism and business logistics, hospitality, gastronomy and Geology in Skopje is of great importance for obtaining timely information on the impact of anthropometric characteristics on repetitive force, and an assessment of their physical condition. It will allow us correctly programming and orientation of the exercise classes for the subject "Sports and recreation".

Research Method

On sample of 123 respondents (male students) from the I-st year, 12 anthropological tests were applied.

9 - anthropometric measurements:

1. for dimensional and longitudinal assessment of the skeleton (5):
Height of body (AVNT), arm length (ADNR), leg length (ADNN), foot length (ADNS) hand span (ARNS).

2. assessment of the volume the mass of the body (4):
body weight (ATNT), volume of the thorax (AOGK), volume upper knee (AONK), the upper arm volume(AONL).

3. motor measurements:For estimation of the repetitive strength (3):
Push-ups of the legs and arms from lying on the back (MPNLG), push-ups on the floor (MSKP), push-ups of the hull 30 "(MPT30).

Results

From the table 1, where basic statistical calculation is performed normal distribution of results can be noticed, followed by a regression analysis which determined the relationship and the impact of

longitudinal dimensional of the skeleton, the mass and volume of the body repetitive strength among the students of I-st year .

From the obtained results it can be seen that the coefficient of the multiple correlation with the value .45.4 participate in explaining of the variability of the common variance of 20.6%. This relationship between the system of applied predictor variables and criteria variable has proved statistically significant level of p = 0.05.

For the sake of time, the results from basic descriptive analysis will not be commented.

Table 1

	Valid N	Mean	Minimum	Maximum	Std.Dev.	Skewness	Kurtosis
AVNT	123	181.5	162	194	5.8	-.33	.19
ADNR	123	77.0	65	87	3.9	-.24	-.02
ADNN	123	102.5	87	114	4.5	-.28	1.21
ADNS	123	28.2	21	33	1.7	-1.14	5.44
ARNS	123	19.6	16	24	1.5	.17	-.22
ATNT	123	77.2	56	122	13.1	.93	.86
AOGK	123	89.6	55	113	10.3	-.61	1.93
AONK	123	53.1	40	72	5.6	.69	.62
AONL	123	29.7	24	49	3.9	1.70	5.69
MPNLG	123	22.1	3	50	12.1	.83	-.01
MPSK	123	22.3	4	62	13.2	.82	.33
MPTL30	123	17.5	1	40	7.7	.17	-.28

Table 2

Regression Summary for Dependent Variable: MPNLG
R= .45490965 R²= .20694279 Adjusted R²= .12518432
F(10,97)=2.5311 **p<.00** Std.Error of estimate: 11.326

St. Err.		St. Err.				
	BETA	of BETA	B	of B	t(97)	p-level
Intercpt			49.41434	55.13774	.89620	.37
AVNT	-.277859	.184977	-.57777	.38463	-1.50213	.13
ADNR	.028382	.132255	.08715	.40611	.21460	.83
ADNN	.227033	.140837	.60812	.37724	1.61202	.11
ADNS	.139190	.115045	.99422	.82175	1.20987	.22
ARNS	-.165654	.100617	-1.35526	.82318	-1.64638	.10
ATNT	-.752604	.203023	-.69432	.18730	-3.70699	**.00**
AOGK	.245943	.135248	.28848	.15864	1.81846	.07
AONK	.120501	.149032	.25951	.32095	.80856	.42
AONL	.304026	.126470	.94379	.39260	2.40393	**.01**

Table 2 shows a regression analysis of the variable "Push-ups of the legs and arms from lying on the back (MPNLG)" among students.

According to the obtained results it can be noticed that the coefficient of multiple correlation with a value of .45, participate in explaining of the variability of a common variance with 20%. This relationship between the criteria variable and the system of applied predictor variables has proved statistically significant on the level of p = 0.05

Significant partial effect on the criteria variable showed the variables ATNT (body weight) and AONL (volume of the upper arm).

Table 3 shows a regression analysis of the the variable "push-ups on the floor (MSKP)", among students of I-st year. According to the obtained results it can be noticed that the coefficient of the multiple correlation with the value of .47 participate in explaining of the variability of a common variance of 22%. This relationship between the criteria variable and the system of applied predictor variables is statistically significant on a level of p = 0.05.

Statistical significant partial effect showed two variables ATNT .00 (body weight) and ADNN .05 (length of the leg).

Table 3

Regression Summary for Dependent Variable: MPSK
R= .47709148 R²= .22761628 Adjusted R²= .14798909
F(10,97)=2.8585 **p<.00** Std.Error of estimate: 12.173

	St. Err.			St. Err.		
	BETA	of BETA	B	of B	t(97)	p-level
Intercpt			69.95458	59.26072	1.18045	.24
AVNT	-.158135	.182550	-.35810	.41339	-.86625	.38
ADNR	-.230808	.130520	-.77186	.43648	-1.76837	.08
ADNN	.273893	.138990	.79897	.40545	1.97060	**.05**
ADNS	.060510	.113536	.47071	.88320	.53296	.59
ARNS	-.074381	.099297	-.66273	.88473	-.74908	.45
ATNT	-.588446	.200359	-.59123	.20131	-2.93695	**.00**
AOGK	.164375	.133473	.20997	.17050	1.23152	.22
AONK	.044225	.147077	.10372	.34495	.30069	.76
AONL	.183604	.124811	.62073	.42196	1.47106	.14

Table 4

Regression Summary for Dependent Variable: MPTL30
R= .35717188 R²= .12757175 Adjusted R²= .03763069
F(10,97)=1.4184 p<.18363 Std.Error of estimate: 7.5280

	St. Err.			St. Err.		
	BETA	of BETA	B	of B	t(97)	p-level
Intercpt			32.58635	36.64834	.88916	.37
AVNT	-.093273	.194013	-.12291	.25565	-.48076	.63
ADNR	-.145054	.138716	-.28227	.26993	-1.04570	.29
ADNN	.192932	.147717	.32749	.25074	1.30609	.19
ADNS	.026222	.120665	.11870	.54619	.21732	.82
ARNS	.083541	.105532	.43313	.54714	.79162	.43
ATNT	-.147067	.212940	-.08598	.12449	-.69065	.49
AOGK	-.081782	.141854	-.06079	.10544	-.57652	.56
AONK	-.112924	.156312	-.15411	.21333	-.72243	.47
AONL	.049737	.132648	.09784	.26095	.37495	.70

Table 4 shows a regression analysis of the the variable "Push-ups hull 30" (MPT30). " among the students of I-st year.

According to the obtained results it can be noticed that the coefficient of the multiple correlation with a value of .35, participate in explaining of the variability of a common variance of 12%. This relationship between the criteria variable and the system of applied predictor variables as the partial impact of the predictor variables are statistically significant on the level of p = 0.05.

Conclusion

The applied research and the results obtained therefrom served to present the relationship of the anthropometric characteristics on the success of the motor performance tests to assess the repetitive strength.

As in some previous researches in the research also, the relationship of the anthropometric characteristics on the success of the motor performance tests to assess the repetitive strength in both tests MPNLG (push-ups of the arms and the legs from lying on the back) and MSKP (push-ups on the floor) is verified. The statistical significant partial effect showed the three variables ATNT .00 (body weight), AONL .02 (volume of the upper arm) and ADNN .05 (length of the leg).

The third criteria variable in the predictor system fully and partially demonstrated impact but it was not statistically significant at the level of p = 0.05. This indicates the fact of the finding of variables with high and statistically significant interconnectivity as the predictor system that would affect the first two criteria tests, while in third criteria variable to find variables with low and statistically insignificant as predictor interconnection system that would affect the criterion .

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