

INFLUENCE OF SOME MOTORIC AND ANTHROPOMETRIC VARIABLES ON THE RESULT IN THROWING VORTEX AT 13 YEAR OLD STUDENTS

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(Note)

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Abstract

The research is conducted on group of 70 pupils at the age of 13 years, 9 anthropometric measurements and 11 motoric tests were used in order to evaluate the anthropometric and motoric space. The influence of the anthropometric and motoric space on the result in throwing vortex was determined with regressive analysis. The results from the research showed that the applied anthropometric and motoric variables as predictor system have significant influence on the criteria variable in terms of statistic.

Keywords: *testing, anthropometry, motor abilities, predictors, criterion, regression analysis*

INTRODUCTION

The testing and selection of children for practicing a certain sports discipline is a continuous process in the search for talented athletes. A significant problem in the selection of young people for Javelin is the limited use of the javelin due to the specific technique of throwing, as well as the size of the javelin. Therefore during the training, development and maintenance of the technique and the motoric abilities of the students, equipment with various forms and weight is being used. Today, the vortex is used more often in the process of selection and training of the technique in javelin, in addition to the tennis ball.

The vortex throwing is not used only as means in the javelin training, but as well as an athletic discipline for younger categories. The basic goal of our research is defining the relations between the applied anthropometric measures and motoric abilities and their influence on the result in the athletic discipline, vortex throwing.

METHODS

The research was conducted on a representative sample of 70 students, male at the age of 14 +- 6 months, who regularly attended classes of physical

and health education. For the assessment of the anthropometric and motoric features, the following variables were applied: body height (ATV), arm's length (ADR), leg's length (ADN), shinbone size (AOPK), size of a relaxed forearm (AOPL), shoulder's size (AOR), body mass (ATT), wrist diameter (ADRZ), knee-joint diameter (ADZK), Standing long jump (MSDM), standing triple jump (MTSM), 10m running (MTR10m), 30m running (MTR30m), 60m running (MTR60m), half-kneeling 15 seconds (MPK15), push-ups on the floor for 15 seconds (MSP15), body lifting (stomach) for 15 seconds (MPTM15), body lifting (back) for 15 seconds (MPTG15), throwing of exercise ball while lying on the back (MFML) and the test throwing of a tennis ball (MFTTOP). Concurrently, the vortex throwing indicator was measured as well. For a complete implementation of the goal and the tasks of our research, basic descriptive statistical parameters have been calculated for all of the applied variables. The definition of the relations between the applied anthropometric measures and motoric variables on the athletic discipline vortex throwing, was defined by a regressive analysis.

Table 1. Results of basic measures of central tendency, measures of dispersion, measures of form of distributions of the anthropometric measures and motoric tests and vortex throwing with students

Variables	X	Min	Max	SD	KV	Skew	Kurt	K-S
ATV	164.57	145	185	8.06	4.90	0.09	-0.31	0.68
ADR	72.19	63	81	4.02	5.57	0.24	-0.25	0.78
ADN	88.39	77	100	5.30	5.99	-0.20	-0.89	0.24
AOPK	33.43	19	42	3.93	11.74	-0.26	1.90	0.33
AOPL	21.28	18	27	2.27	10.69	0.54	-0.41	0.09
AOR	96.73	78	113	8.06	8.33	0.27	-0.65	0.40
ATT	57.35	33.5	86	12.48	21.77	0.45	-0.39	0.64
ADRZ	5.24	4.4	6.9	0.37	6.98	1.09	5.21	0.19
ADZK	8.94	6.9	11	0.78	8.68	0.18	0.66	0.48
MSDM	166.44	115	224	21.17	12.72	0.03	0.14	0.92
MTSM	4.85	3.2	5.7	0.53	11.02	-0.52	-0.07	0.35
MT10	2.16	1.61	3.12	0.33	15.15	0.51	-0.04	0.65
MT30	5.17	3.9	6.81	0.51	9.92	0.19	0.86	0.97
MT60	9.99	8.15	11.59	0.77	7.74	-0.14	0.27	0.55
MPK	17.40	11	23	2.53	14.53	0.05	-0.28	0.36
MSP	13.01	6	20	3.34	25.68	0.08	-0.68	0.30
MPTM	11.93	7	18	2.22	18.57	0.23	-0.20	0.39
MPTG	23.24	10	30	3.69	15.87	-0.88	1.68	0.52
MFML	5.74	3.12	9	1.21	21.16	0.43	-0.03	0.80
MFTTOP	32.18	21.5	43.1	4.61	14.32	-0.21	-0.24	0.97
MFVOR	32.39	22.7	44.3	5.17	15.95	0.28	-0.28	0.59

RESULTS AND DISCUSSION

From the analysis of the parameters of the descriptive statistics, it can be seen that the obtained distributions do not deviate from the defined normal ones in all of the variables with the students. Table 1. According to the shown central tendency measure values, the absolute and relative measures of dispersion, it can be concluded that the obtained values do not deviate from the average values established for this age.

Table 2 contains the results of a regressive analysis of the anthropometric measures system and motoric tests with the athletic discipline vortex throwing (MFVOR). Information has been obtained on a significant multiple correlation of the system of predicative variables and the criterion, which is $R = 0.83$. Based on the determination quotient (R Square which is 0.69), it can be concluded that the predicative variables system defines 69% of the common variability with the criterion, while the other part of 31% is under the influence of other factors which were not included in this

test. Regarding the fact that the quotient value of the multiple determination is statistically significant at the level of 0.00, it can be concluded that there is a statistically significant connection between the dependent variable and the system of independent variables.

From the analysis of the partial values of the regression quotients, it can be noted that an individual significant influence of the predicative anthropometric variables on the criteria variable vortex throwing (MFVOR) did not show statistically significant influence on the criterion variable.

From the analysis of the partial values of the regression quotients of the predicative motoric variables on the criterion variable vortex throwing (MFVOR), the variables 10m running (MTR10m) and the tennis ball throwing test (MFTTOP) have a significant influence, the rest of the variables did not show statistically significant influence on the criterion variable.

Table 2. Regressive analysis of anthropometric and motoric variables on the result in vortex throwing (MFVOR) with the students

Variables	r	Part-r	BETA	t	Q
ATV	0.03	0.01	0.04	0.18	0.86
ADR	-0.15	-0.08	-0.19	-1.05	0.30
ADN	0.17	0.10	0.19	1.21	0.23
AOPK	0.06	0.03	0.08	0.42	0.67
AOPL	0.00	0.00	0.00	0.02	0.98
AOR	-0.08	-0.04	-0.16	-0.53	0.60
ATT	0.05	0.03	0.14	0.34	0.73
ADRZ	0.02	0.01	0.01	0.12	0.90
ADZK	-0.06	-0.04	-0.05	-0.45	0.66
MSDM	0.00	0.00	0.00	-0.03	0.98
MTSM	-0.08	-0.04	-0.07	-0.53	0.60
MT10	-0.38	-0.23	-0.36	-2.89	0.01
MT30	0.23	0.13	0.31	1.65	0.11
MT60	-0.10	-0.05	-0.14	-0.69	0.49
MPK	0.11	0.06	0.08	0.76	0.45
MSP	0.01	0.01	0.01	0.08	0.93
MPTM	0.26	0.15	0.20	1.85	0.07
MPTG	-0.27	-0.16	-0.19	-1.96	0.06
MFML	0.05	0.03	0.06	0.34	0.74
MFTTOP	0.71	0.55	0.69	6.97	0.00

CONCLUSION

Having regard the presented results and their basic interpretation, it can be concluded that those students who show better values at the tests for assessment of the motoric abilities, speed and explosive force (10m running and throwing a tennis ball) will have better results in vortex throwing.

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ВЛИЈАНИЕТО НА ОДРЕДЕНИ МОТОРНИ И АНТРОПОМЕТРИСКИ ВАРИЈАБЛИ ВРЗ РЕЗУЛТАТОТ ОД ФРЛАЊЕТО НА ВОРТЕКС КАЈ УЧЕНИЦИТЕ ОД 13 ГОДИНИ

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(Науча белешка)

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Апстракт

Испитувањето е реализирано на примерок од 70 испитаници на возраст од 13 години. За проценување на антропометриските и моторните латентни димензии беа применети 9 антропометриски мерки и 11 моторни тестови. Влијанието на антропометриските и моторните манифестни димензии врз резултатите на фрлањето вортекс, беше утврдено со примена на меѓадаџа регресивна анализа. Резултатите од испитувањето покажаа дека применетите антропометриски мерки и моторните тестови, дефинирани како предикторски систем, статистички значајно влијаат врз при фрлањето вортекс, односно врз резултатите на критериумската варијабла.

Клучни зборови: *тестирање, антропометрија, моторика, предиктори, критериум, регресивна анализа*