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CORRELATION OF MORPHOLOGICAL CHARACTERISTICS AND MOTOR ABILITIES OF PRESCHOOL GYMNASTS

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HYPOTHESES

H_1 - a statistically significant correlation is expected between morphological characteristics and motor abilities of preschool gymnasts.

METHODS

Participants

19 participants, both male and female, preschool age (5-8 years). All participants are still active members of Gymnastics Club “Niš”.

Measuring instruments

1. Body height;
2. Body weight;
3. BMI;
4. Adipose tissues (triceps, biceps, subscapular, suprailiac, leaf).

Evaluation of motor abilities - Eurofit Battery test (recommended by the Ministry of Education of the Republic of Serbia):

1. Flamingo balance test (FBL);
2. Plate taping (PLT);
3. Sit and reach (SAR);
4. Standing board jump (SBJ);
5. Hand grip (HGR);
6. Sit ups (SUP);
7. Bent arm hang (BAH);
8. Backward polygon (BPO);
9. Shuttle run 10x5 (SHR).

Experiment organisation

1. Room temperature was between 18°C and 22°C;
2. Participants were in appropriate clothing and shoes, or barefoot for the shuttle-run test;
3. The tests were optimally timed, so that the result was not affected by fatigue;
4. Each individual examiners always measured the same tests;
5. The instructions for the tests and list of participants were previously delivered to examiners;
6. Before each test, the procedure of test was explained;
7. Each examiner had separate list, where they recorded the test results.

Statistical analyses

The statistical significance was determined using correlation analysis.

SPSS 20 statistical program was used for data processing.

RESULTS

Table 1 - Descriptive statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
TV	19	.25	1.05	1.30	1.1911	.06235	-.446	.202
TM	19	14.00	15.00	29.00	22.5789	4.03204	-.332	-.556
BMI	19	6.16	13.08	19.24	15.7995	1.80194	.135	-.976
KNTCS	19	1.3	.4	1.7	.916	.3371	.577	-.047
KNBCS	19	1.0	.4	1.4	.811	.2307	.889	1.402
KNSBS	19	.7	.4	1.1	.684	.1979	.388	-.504
KNSPC	19	.9	.4	1.3	.832	.2583	.172	-.830
KNLST	19	1.4	.4	1.8	1.234	.3154	-.755	1.587
FLMNG	19	29.95	1.45	31.40	11.6189	9.16029	.939	-.005
TPNGR	19	13.67	13.33	27.00	18.8416	4.16633	.814	-.212
SEIDO	19	26.00	5.00	31.00	19.8947	6.10004	-.474	1.311
SKUDA	19	89.00	53.00	142.00	101.5263	23.95219	-.389	-.193
STISA	19	15.00	1.00	16.00	5.3711	4.07558	1.389	1.621
LESED	19	18.00	3.00	21.00	12.0000	5.02217	-.185	-.820
IZUZG	18	10.03	.60	10.63	3.6094	2.76677	1.063	.750
POUNA	19	20.63	16.57	37.20	26.6321	5.99263	.025	-.812
SATRA	19	22.95	37.71	60.66	46.8011	5.54568	.874	.838

Table 2 - Pearson correlation coefficient

	TV	TM	BMI	KNTCS	KNBCS	KNSBS	KNSPC	KNLST	FLMNG	TPNGR	SEIDO	SKUDA	STISA	LESED	IZUZG	POUNA	SATRA
TV	1																
TM	.831**	1															
	.000																
BMI	.439	.860**	1														
	.060	.000															
KNTCS	.279	.541*	.573*	1													
	.247	.017	.010														
KNBCS	.355	.543*	.508*	.676**	1												
	.136	.016	.027	.001													
KNSBS	.285	.597**	.668**	.645**	.636**	1											
	.237	.007	.002	.003	.003												
KNSPC	.470*	.728**	.749**	.492*	.376	.597**	1										
	.042	.000	.000	.033	.112	.007											
KNLST	.403	.552*	.554*	.319	.461*	.241	.364	1									
	.087	.014	.014	.184	.047	.321	.125										
FLMNG	.396	.507*	.445	.183	-.026	.388	.448	-.080	1								
	.094	.027	.056	.454	.914	.100	.054	.744									
TPNGR	-.397	-.265	-.049	.124	.139	-.180	-.152	.139	-.361	1							
	.093	.274	.841	.614	.569	.461	.535	.571	.129								
SEIDO	.222	.079	-.059	.136	.017	.058	-.086	.171	.111	-.331	1						
	.360	.747	.809	.579	.946	.812	.727	.484	.650	.166							
SKUDA	.356	.367	.273	-.210	-.168	.243	.017	.027	.364	-.626**	.154	1					
	.135	.123	.258	.389	.492	.316	.945	.914	.125	.004	.529						
STISA	.629**	.721**	.542*	.283	.374	.538*	.438	.128	.545*	-.388	-.014	.569*	1				
	.004	.000	.017	.240	.115	.017	.061	.601	.016	.101	.954	.011					
LESED	.431	.447	.348	.112	.129	.363	.223	.168	.121	-.115	-.276	.460*	.385	1			
	.065	.055	.145	.649	.597	.126	.359	.491	.621	.640	.253	.048	.103				
IZUZG	.268	.368	.316	-.004	.298	.387	.165	.182	.042	-.058	-.506*	.454	.606**	.586*	1		
	.283	.133	.202	.986	.229	.112	.514	.470	.869	.818	.032	.059	.008	.011			
POUNA	-.153	-.152	-.094	.127	.113	-.205	-.079	.172	-.090	.443	.039	-.500*	-.475*	-.298	-.330	1	
	.532	.535	.702	.604	.646	.399	.749	.481	.715	.057	.873	.029	.040	.215	.181		
SATRA	-.501*	-.454	-.285	.184	-.140	-.188	-.064	-.027	-.228	.320	.128	-.575**	-.617**	-.593**	-.431	.401	1
	.029	.051	.236	.450	.567	.441	.793	.913	.347	.182	.602	.010	.005	.007	.074	.089	

DISCUSSION

Considering that the application of the mentioned statistical procedures established a statistically significant correlation between morphological characteristics and motor abilities of preschool gymnasts, it can be concluded that hypothesis H_1 is fully accepted.

THANK YOU !