

Definition of Motor Space in the 14-years Pupils, Male and Female

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Definition of Motor Space in the 14-years Pupils, Male and Female: Investigation is realized on exemplar of 500 investigated persons (250 male pupils and 250 female pupils) at 14 year age. On them have been used 21 manifested motor tests with satisfactory measure characteristics, and with goal to define the motor structure separately for every sub-example according to the sex determination and to figure the similarity in qualitative and quantitative sense. Beside the basic statistic parameters, has been summed and Pearson's coefficient of correlation. Structure is figured with factor analyze in promax solution. According to the received results it's figured that there are differences in quantitative sense between the pupils from male and female sex, but in qualitative sense according to the received results it's concluded that there is some similarity.

Key words: pupils-male, pupils-female, motor tests, factor analyze, qualitative and quantitative differences.

INTRODUCTION

According to the today's investigation practice, when we talk about for definition at the structure in motor space in the investigated persons from school age, we can said that has been realized numerous investigations. If we analyze them, we can notice that they are realized with investigated persons from; different age and different sex (Kurelić and collaborators [4], Georgiev [2]; same age and different sex (Nićin and Kalajdžić [6]; Čeleš, Hadžikadunić M. and Hadžikadunić A. [1]; Pejčić and Malacko [7]; Georgiev and Hadžić [3]. Then, they differ also and in the number of investigated persons that are treated in investigations (big and small exemplars), as well as according to the number at used motor tests, or covered of motor space as a part of anthropological human space.

Because of that we determinate for realization of the investigation from this type with implementation at 21 motor tests of exemplars (pupils) from eight grade (14 years) from both sex, with goal for every sub-example exemplars according to the sex to figure out, define and compare motor space in quantitative and qualitative sense.

METHODS

Investigation is realized with 500 exemplars from eight grade (250 from male sex-pupils and 250 from female sex pupils) at 14 years age from Skopje, psycho - physically health, at regular education on the subject physical and health education. On them are used 21 manifested motor tests with satisfactory measure characteristics according to the recommendations and description of the tests from Metikoš, Prot, Hofman, Pintar and Oreb [5]. They are: 1. For evaluation of the precisely: 'shoot with long stick' (PGDOLGS), 'shoot with short stick' (PGKUSS), 'shoot target at wall with leg' (PGMSIDNO); 2. For evaluation at explosive strength: 'throwing out of medicinal from lying on back' (EFMLGRB), 'jump in distance from start place' (ESKOKDAL), 'sprint 20 meters from high start' (ESPRINT20); 3. For evaluation at the balance: 'longitudinal standing on one leg at bench for balance with open eyes' (BNADOTV), 'cross standing on one leg on bench for balance with open eyes' (BNAPOTV), 'longitudinal standing on one leg on bench for balance with close eyes' (BNADZATV); 4. For evaluation of the elasticity: 'separate the legs with lying on back' (FRAZGRB), 'deep front affect on bench' (FPRETKLU), 'front affect on floor' (FPRETPOD); 5. For evaluation the static strength: 'to knuckle height' (SVISZGIB), 'persistence from lying on chests' (SIZGRAD), 'persistence from lying on back' (SIZGRB); 6. For evaluation at rhythmic structure: 'non-rhythmic kicking' (RNEUDIR); 7. For evaluation at the coordination: 'eighth - shape with front affect' (KOSUMKA), 'flexibility on floor' (KPODPOD) and 8. For evaluation on frequency at moving: 'taping with hand' (TTAPRAKA), 'taping with leg' (TTAPNOGA), 'taping with legs at wall' (TTNOGZID). Considering the age of exemplars from both sex, with concrete

modification has been used motor tests for evaluation at static strength: 'persistence of lying on back' (SIZGRB).

Received results are systematically ordered, checked and particularly for every sub-example are analyzed the following descriptive parameters: arithmetic mean, standard deviation, minimal and maximal result.

Starting correlation matrix (it's in authors) is factorized with promax rotation, and important latent dimension (factors) are isolated according to Guttman- Kajzer's criteria.

RESULTS AND DISCUSSION

According to the shown results from basic statistic parameters in table 1, can be conclude that male compare with female achieved better results in 18 motor tests, and they are weaker only in 3 from the 21 used test. Male (pupils) achieved better results in tests: 'shoot with long stick' (PGDOLGS), 'shoot with short stick' (PGKUSS), 'shoot target at wall with leg' (PGMSIDNO), 'throwing out of medicinal from lying on back' (EFMLGRB), 'jump in distance from start place' (ESKOKDAL), 'sprint 20 meters from high start' (ESPRINT20), 'longitudinal standing on one leg at bench for balance with open eyes' (BNADOTV), 'cross standing on one leg on bench for balance with open eyes' (BNAPOTV), 'longitudinal standing on one leg on bench for balance with close eyes' (BNADZATV), 'separate the legs with lying on back' (FRAZGRB), 'deep front affect on bench' (FPRETKLU), 'to knuckle height' (SVISZGIB), 'persistence from lying on back' (SIZGRB), 'eighth – shape with front affect' (KOSUMKA), 'flexibility on floor' (KPODPOD), 'taping with hand' (TTAPRAKA), 'taping with leg' (TTAPNOGA) and 'taping with legs at wall' (TTNOGZID); and female in tests: 'front affect on floor' (FPRETPOD), 'resistance in lying on chest's (SIZGRAD) and 'non- rhythmic kicking' (RNEUDIR).

Table 1

Basic statistical parameters of motor tests at 14-year students

Motor tests	males				females			
	mean	SD	Min	Max	mean	SD	Min	Max
PGDOLGS	58,95	5,83	34,00	68,00	57,36	7,27	24,00	69,00
PGKUSS	58,56	6,68	33,00	69,00	57,57	6,88	26,00	68,00
PGMZIDNO	8,20	4,14	,00	20,00	8,07	4,21	,00	19,00
EFMLGRB	7,72	1,81	3,20	12,70	3,98	1,19	1,00	8,00
ESKOKDAL	1,60	,20	,93	2,18	1,51	,22	,80	2,20
ESPRIN20	3,65	,39	3,00	5,10	4,62	,69	3,18	7,58
BNADOTV	5,65	4,05	,70	22,00	4,63	4,96	,50	43,26
BNAPOTV	3,07	2,16	,50	21,00	2,76	2,66	,40	17,60
BNADZATV	2,64	1,76	,50	21,00	2,36	1,63	,48	10,05
FRAZGRB	88,47	17,46	60,00	135,00	82,68	17,24	55,00	135,00
FPRETKLU	48,95	10,30	15,00	80,00	47,70	8,55	20,00	80,00
FPRETPOD	47,78	11,47	20,00	70,00	47,88	12,22	16,00	68,00
SVISZGIB	30,66	18,98	,00	93,00	18,32	19,87	,00	120,00
SIZGRAD	47,39	28,71	,00	120,00	49,58	29,66	,00	120,00
SIZGRB	18,79	16,80	,00	120,00	17,35	18,59	,00	120,00
RNEUDIR	10,24	3,62	1,00	21,00	10,40	3,49	3,00	24,00
KOSUMKA	20,70	2,40	14,94	32,30	23,52	3,01	17,90	34,40
KPODPOD	14,12	4,44	6,80	30,10	19,01	4,46	11,00	37,50
TTAPRAKA	31,72	7,14	14,00	45,00	27,62	5,11	10,00	42,00
TTAPNOGA	21,22	3,67	10,00	32,00	18,79	2,89	10,00	27,00
TTNOGZID	20,24	5,06	4,00	29,00	17,09	5,34	1,00	30,00

Received results are according to the expectations and in accordance with until now investigations, in relation with sex and age at the investigated exemplars. Probably to this results contribute the changes that happen in adolescent period.

According to the received results from promax factor rotation, in quantitative sense are isolated different number of latent dimension (factors) and in pupils – males 8, and pupils - females 7. They are shown in table 2 for pupils - male and in table 3 for pupils – female.

In pupils from the eight isolated factors we have logical excuses to define the following two: the second - static strength and sixth - flexibility (elasticity).

Following factors are defined based at hypothetically implemented model at manifested motor tests for evaluation at particular latent motor dimension. For definition at the rest motor latent dimensions, we can suppose based on the projections of the rest manifested motor tests, but we don't have logical excuses more precisely to define it.

According to the results of the respondents, can be noticed that males managed better results in used tests that hypothetically were used for evaluation at: exactness, explosive strength, balance, coordination and frequency of movement.

Table 2

Promax rotation in the 14-year pupils - males								
Motor tests	P1	P2	P3	P4	P5	P6	P7	P8
PGDOLGS	0,15	0,19	-0,06	0,06	0,82	0,06	-0,01	-0,01
PGKUSS	0,01	0,23	-0,19	0,07	0,80	0,02	0,05	0,08
PGMZIDNO	0,09	-0,07	0,12	-0,08	-0,06	0,07	0,01	0,77
EFMLGRB	0,03	0,02	-0,08	-0,11	0,08	0,05	0,78	0,03
ESKOKDAL	0,07	0,16	-0,05	0,58	0,05	-0,03	0,26	-0,11
ESPRIN20	-0,11	-0,11	0,16	-0,54	-0,24	-0,23	0,39	-0,01
BNADOTV	0,43	-0,01	-0,13	-0,16	0,13	0,63	0,08	0,12
BNAPOTV	-0,09	-0,08	0,05	0,12	-0,09	0,68	0,07	0,14
BNADZATV	0,10	-0,18	0,15	0,01	0,03	0,43	-0,25	-0,16
FRAZGRB	0,21	0,22	-0,13	0,23	0,29	0,05	0,03	0,49
FPRETKLU	-0,17	-0,54	0,57	0,20	-0,11	0,03	-0,07	-0,13
FPREPOD	-0,07	-0,05	0,76	-0,08	0,01	0,14	-0,10	-0,06
SVISZGIB	0,24	0,53	0,30	0,21	0,12	-0,31	-0,16	-0,43
SIZGRAD	0,13	0,75	-0,19	0,09	0,26	-0,02	-0,07	0,00
SIZGRB	-0,13	0,57	0,18	0,15	-0,07	-0,07	0,48	0,15
RNEUDIR	-0,10	-0,12	0,72	0,01	-0,34	-0,18	0,19	0,25
KOSUMKA	0,00	-0,18	-0,16	-0,64	-0,18	-0,20	0,00	-0,19
KPODPOD	-0,71	-0,13	0,19	-0,27	-0,16	-0,27	0,05	-0,20
TTAPRAKA	0,76	0,37	-0,17	-0,06	0,24	0,09	-0,05	-0,01
TTAPNOGA	0,64	-0,42	0,14	-0,03	-0,19	-0,15	0,09	0,14
TTNOGZID	0,05	-0,11	-0,06	0,63	-0,12	-0,23	-0,29	-0,13
Lambda	2,73	1,97	1,75	1,52	1,35	1,22	1,14	1,09
%	13,01	9,39	8,34	7,23	6,44	5,79	5,44	5,17

CONCLUSION

According to the received results we can conclude that:

1. From totally 21 manifested motor tests, male achieved numerically and logically better results than female in 18 tests, and female than male in 3 tests.

2. Latent motor space is defined with different number latent dimension (factors) and it with 8 in male and 7 in female.

3. Realized investigation gives space for realization at new investigations with exemplars at same age and from different sex with motor tests with satisfactory measure characteristics, that will be provide more-precisely definition at received motor structures.

Table 3
Promax rotation in the 14-year pupils – females

Motor tests	P1	P2	P3	P4	P5	P6	P7
PGDOLGS	-0,13	0,07	0,00	0,82	0,04	0,21	0,05
PGKUSS	-0,20	-0,03	-0,08	0,82	-0,03	0,04	0,02
PGMZIDNO	0,00	0,01	0,03	0,13	0,18	0,17	0,71
EFMLGRB	0,13	0,13	0,71	-0,24	-0,21	0,15	0,05
ESKOKDAL	-0,41	0,07	0,38	-0,36	0,09	0,03	-0,44
ESPRIN20	0,75	0,07	0,00	-0,28	-0,08	0,06	0,13
BNADOTV	0,09	0,77	0,11	0,12	-0,04	0,26	-0,09
BNAPOTV	-0,03	0,82	0,11	0,11	-0,05	0,19	0,06
BNADZATV	-0,08	0,71	0,24	-0,23	-0,11	0,07	0,02
FRAZGRB	-0,11	0,34	0,50	-0,04	-0,42	0,10	0,39
FPRETKLU	-0,19	-0,07	0,05	-0,06	0,77	-0,01	0,11
FPRETPOD	0,28	0,18	0,10	0,15	0,44	0,12	0,28
SVISZGIB	-0,08	0,12	0,12	0,16	0,09	0,64	-0,02
SIZGRAD	-0,25	-0,05	0,38	0,09	0,51	0,47	-0,05
SIZGRB	-0,08	0,02	0,75	0,04	0,25	0,21	-0,04
RNEUDIR	-0,20	0,32	0,59	0,26	0,03	0,21	0,35
KOSUMKA	0,71	-0,20	-0,04	-0,13	-0,14	-0,06	0,28
KPODPOD	0,30	-0,27	0,09	-0,25	0,04	-0,35	0,55
TTAPRAKA	0,15	0,16	0,32	0,20	-0,50	0,56	0,19
TTAPNOGA	0,02	0,24	0,23	0,00	-0,03	0,75	0,14
TTNOGZID	-0,75	-0,14	0,00	0,05	0,18	0,13	0,04
Lambda	2,87	2,45	1,94	1,82	1,51	1,17	1,04
%	13,65	11,69	9,26	8,67	7,17	5,56	4,93

LITERATURE

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Докладът е рецензиран.