

MOTOR ABILITIES OF URBAN AND RURAL ENVIRONMENT STUDENTS

(Research note)

Benin Murić, Izet Kahrović and Oliver Radenković

*State University of Novi Pazar, Department of Biomedical Sciences,
Study program of Sports and Physical Education, Novi Pazar, Serbia*

Abstract

The research is conducted in order to determine the difference in motor skills among students in urban and rural areas, who attend classes in a variety of material conditions. The population from which we derived a sample of respondents can be defined as a final year student population, i.e. the eighth grade of primary school, aged 15±6 months from the territory of Novi Pazar. Total sample of 200 male subjects, divided into two groups of 100, a city group and a village group. For the assessment of motor skills we applied seven measuring instruments. In the mobility area, the results of multivariate analysis of variance show that these two groups significantly differ in the system variables applied to the required level of significance ($p = .05$). Analysis of differences of means between these two groups shows that these two groups significantly differ in the speed of alternative movements (MTAP), repetitive strength of the abdomen and hip flexors (MD60), and so that students from the city showed better results than students from rural areas.

Keywords: *human motor tests, muscle elasticity, static muscular strength, explosive muscle power, human motor speed, body coordination, multivariate analysis of variance*

INTRODUCTION

One of the most important areas of anthropological status are the motor skills, because the daily life of humans depends on the operations of motor space, which means the performance of motor activities is important to achieve the daily necessities of life. "Motor skills, for which often are used other terms (including physical, psychomotor ability, psychological and physical characteristics, etc.), represents one side of the motion abilities or personality dimensions that participates in solving the motor tasks" (Krsmanović & Berković, 1999.).

Since physical education classes in this case took place during the eight years of schooling in two different environments, the rural and the urban, in different material conditions, as the gym, and optimal conditions in urban schools as opposed to conditions where there was no gym. We started the study in order to see whether such work conditions have contributed to some differences in the development of motor skills.

Based on the previous consideration of the entire scientific and theoretical assumptions, we can logically conclude that a fundamental knowledge of limitations factor is the first step, or first stage of the planning to

ensure the basic assumptions for the process of programming exercises. We should also add the warning mentioned by Mraković (1997.) "that none of these factors and their most ideal combination means nothing if you do not exercise, in a specific way, and not in any other way."

The scope and the purpose of the research

The scope of the research is motoric abilities of urban and rural areas students.

The purpose of the research is to determine the effectiveness of physical education in schools depending on the equipment and material standard of teaching. Based on this defined goal, research is managed with the following operational tasks:

- determine the level of motor skills of the students' final grade
- determine the level of differences in motor skills, as well as the significance of the differences.

METHODS

The population from which we derived a sample of respondents can be defined as population of the final year students, i.e. eighth grade of primary school

students, aged 15±6 months from the territory of Novi Pazar.

The total sample consisted of 200 subjects, male, divided into two groups of 100 respondents, a city group and a village group.

For the assessment of motor skills we applied the following measuring instruments: polygon backwards (MPN), hand tapping (MTAP), a deep forward bend on the bench (MDP), standing long jump (MDM), sustention in the knuckle (MVIS), sit-ups for 60 seconds (MD60), running 60 meters (M60), as directed by Kurelić et al. (1975.).

RESULTS

Motor parameters of village students

From analysis of the central and dispersion parameters of motor variables shown in Table 1., it is evident that this is a group of students with very similar indices, and also a solid homogeneous group, where the values of coefficients of variation are ranging up to 20%, except from variables for the evaluation of the strength of arms and shoulders, where the coefficient of variation exceeds the value of 45%.

There are some individual differences between the subjects, as suggested by the results of minimum and maximum data, which is particularly evident in the test for the assessment of flexibility (MDP), where the best result is 65 centimeters, and the lowest is 11 centimeters. The best result in standing long jump places (MDM) is 240 centimeters, and the least 144 centimeters. The results of the evaluation of coordination (MPN) are rang-

ing between seven and 11 seconds, tapping (MTAP) between 24 and 37, sustention in the knuckle (MVIS) values are between 12 and 120 seconds. As for the test results to evaluate repetitive strength of abdominal and hip flexor (MD60) results ranged between 15 and 52. Regardless of individual differences and the great heterogeneity of subjects in the static strength (MVIS), the results of Kolmogorov-Smirnov test (KS p) indicate that the data distribution did not differ significantly from normal distribution.

Motor parameters of city students

The analysis results in Table 2. show that this is a relatively homogeneous group of subjects, because their coefficients of variation ranges up to 20%, which is considered high homogeneity, except for the test of assessment the power of arms and shoulders (MVIS), where coefficient of variation was high (65%).

If we take a look at the spread between the best and the weakest results, it can notice that the values for the evaluation of coordination (MPN) are in the range between 6 and 12 seconds. When it comes to test for assessing segment speed, it also can be seen that the results drastically differs from each others. For these reasons, the Kolmogorov-Smirnov test shows that the distribution of the results in variables for assessing frequency of movement (MTAP) is statistically significantly different from the normal distribution. For the test to assess the speed, the results are concentrated between 7 and 11 seconds. However, when it comes to test for explosive leg strength (MDM), where this ability is genetically very

Table 1. Basic statistical indicators of village students mobility variables

Variables	Means	St.dev.	Min	Max	Kv	KS p
MPN	8.92	0.81	7.20	11.90	9.08	1000
MTAP	28.89	3.14	24.00	37.00	10.88	.392
MDP	48.85	5.55	11.00	65.00	11.37	.213
MDM	191.79	23.57	146.00	240.00	12.29	1000
MVIS	52.63	23.71	12.00	120.00	45.05	1000
MD60	37.04	7.72	15.00	52.00	20.85	1000
M60	9.25	.86	7.60	11.80	9.26	.153

Table 2. Basic statistical indicators of student mobility variables

Variables	Means	St.dev.	Min	Max	Kv%	KS p
MPN	8.97	1.43	6.80	12:00	15.98	.621
MTAP	32.17	7.04	20.00	85.00	21.87	.046
MDP	50.33	6.18	19.00	64.00	12.29	.635
MDM	188.23	20.55	150.00	241.00	10.92	.999
MVIS	47.22	30.72	11.00	275.00	65.06	.221
MD60	39.29	6.82	15.00	55.00	17.36	1000
M60	9.09	.79	7.60	11:20	8.65	.629

Table 3. Results of multivariate analysis of variance and discriminant analysis of students from village and town in the motor variables

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			4978	.000
Variables	Means Village	Means City	F	P
MPN	8.92	8.97	.078	.772
MTAP	28.89	32.17	18 120	.000
MDP1	48.85	50.33	3170	.073
MDM	191.79	188.23	1296	.255
MVIS	52.63	47.22	1943	.161
MD60	37.04	39.29	4769	.029
M60	9:25	9:09	1894	.166

much determined, we observed a wide range of results from 150 centimeters to 241 centimeters.

When we compare the average results from the group of students in the city and group of students from the countryside, we can see that, numerically speaking, students in the city do better than the students from rural areas regarding the speed evaluation variables (MTAP, M60), flexibility (MDP) and repetitive strength (Md60), similar in the coordination (MPN), and weaker in explosive strength (MDM) and the force of arms and the shoulders (MVIS). However we should emphasize that this is only a numerical difference of average values, and testing the significance of these differences will be made in the next chapter.

Differences between students from the city and the village in motor parameters

In the analysis of basic statistical parameters of motor variables, numerical differences were observed between the village and the town students in the individual indicators. However, in addition to the claim that these groups are similar and have different average values of means, we still could not talk about the real differences. The results of multivariate analysis Table 3. show that these two groups significantly differ in the system of applied variables, on the required level of significance ($p = .05$). However, analysis of differences of means between these two groups shows us that these two groups significantly differ in the speed of alternative movements (MTAP) and repetitive strength of the abdomen and hip flexors (MD60), and so that children from the city showed better results than the group of students from rural areas.

CONCLUSION

The central focus of this research was on the effectiveness of the physical education, especially in terms of its dependence on the material equipment of schools and teaching standards, which in its broadest sense can be taken as a case study.

The aim of the research based on motor parameters, was to determine whether there are significant differences between students which physical education classes are carried out in different conditions. Our results show that:

- In the mobility area, the results of multivariate analysis of variance and the discriminant analysis show that these two groups significantly differ in the system variables applied to the required level of significance values ($p = .05$ and $.01$), and H_0 is rejected.
- Analysis of differences of means between these two groups show that these two groups differ significantly in speed or alternative movements (MTAP), repetitive strength of the abdomen and hip flexors (MD60) and so that children from the city showed better results than a group of students from rural areas.

The discriminant analysis showed that, based on this battery of tests, it is possible to determine differences between the groups. Four of the seven variables contributed toward discrimination of the applied group. The largest contribution to the differences obtained in the system variables are certainly applied to estimate the speed tests, specifically alternative movements (discrimination coefficient, $KD = .10$) that was statistically significant, and run at 60 meters ($KD = .04$), where the students from the city did better than students from rural areas, but not statistically significant.

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Correspondence:

Benin Murić
Department of Biomedical Sciences
Study program Sport and Physical Education,
Str. Vuka Karadzica bb, 36300, Novi Pazar, Serbia
E-mail: beninmuric@live.com