Sport SPA Vol. 19 Issue 1: 17-22
DOI: 10.51558/1840-4561.2022.19.1.17

EFFECTS OF KINESIOLOGICAL ACTIVITIES OF DIFFERENT EXTENSITY ON BOYS 'BASIC-MOTOR ABILITIES

Mensur Halilovic [1], Osman Lacic [2], Jasmin Bilalic [2], Nermin Salkanovic [3]

[1] *Independent researcher, Doboj, Bosnia and Herzegovina*
[2] *Faculty of Physical Education and Sports, University of Tuzla, Bosnia and Herzegovina*
[3] *Mixed High School Zenica, Zenica, Bosnia and Herzegovina*

Original scientific paper

Abstract

The goal of this research is to evaluate the effects of applied kinesiological activities of different extensions on the transformation of basal-motor abilities of boys. The sample of respondents is represented by boys, students of VII, VIII and IX grades of primary school. „21. March "Matuzići - Doboj South. The total sample consists of a set of 76 respondents classified into three distinct groups. Based on the boys' statements about their participation in everyday physical activities, groups with the numbering were defined through non-athletes: non-athletes-1, recreational athletes-2 and athletes-3. To assess the basic motor skills of the respondents, the variables according to the Eurofit battery test program were used, as follows: Flamingo balance, endurance in the joint, lying-sitting, running 10 × 5m (back and forth), hand tapping, hand dynamometry, flexibility-mobility at the hip joint, jumping away from the spot and running 20m back and forth with progressive acceleration. The results of univariate covariance analysis showed high significance in endurance assessment tests (SHATL 20 and SHATL 10 × 5), followed by static arm strength (MSSIZG), and hand strength (MSSDIN) and torso flexibility (MFLPRK) and balance (MRFLAM). Statistically significant differences in effects did not occur with the three variables, namely hand tapping (MBFTAR), long jump (MESSDM) or squat-sitting (MRSLSJ).
Keywords: Boys, basic motor skills, kinesiological activities, extensibility

INTRODUCTION

Regular physical activity is of great importance for the health of adults, but also for the proper growth and development of children (Strong et. Al., 2005), their psycho-physical well-being (Steptoe & Butler, 1996) and cognitive abilities (Sibley & Etnier, 2003).). Adequate physical activity in childhood can be an important determinant of health in adulthood because some risk factors are associated with inadequate physical activity in childhood (Brage et al., 2003). Insufficient physical activity or hypokinesia, according to the World Health Organization (WHO) is the number one risk factor when it comes to human health. Hypokinesia is an insufficient level of active movement, ie a level of physical activity that is chronically below the threshold of stimuli that allows for maintaining the functional capacity of the most important organ systems (Hollmann, 1975).

Involving children and youth in sports is one of the basic tasks of our social community to preserve a healthy population and to be well involved in the fight against negative assumptions about health in the future. There is the very little quality system of directing children to everyday physical activities, whether recreational or training-competitive and as a result, we have evident disorders of almost all dimensions that make up the personality structure of children and youth (somatic, motor, functional, social ...)

Physical activity can be divided into categories such as sports, recreation, exercise, household chores, work obligations and other activities. Assessment of physical activity can be done by various techniques. In children and adolescents, the most commonly used methods are direct observation, reports filled out by children (activity diary, questionnaires, interviews), monitoring of physiological parameters (heart rate), calorimetry and accelerometry (Montoye, 1996).

RESEARCH METHODOLOGY

Sample of respondents

The sample of respondents in this research is represented by boys, students of VII, VIII and IX grades of primary school. „21. March "Matuzići - Doboj South. The total sample consisted of 76 subjects classified into three distinct groups. Based on the boys' statements about their participation in everyday physical activities, groups with the numbering were defined through non-athletes: non-athletes-1, recreational athletes-2 and athletes-3.

Sample variables:
to assess the basic motor skills of the subjects Eurofit battery test program.

1.Flamingo balance (MRFLAM)
2.Endurance in the joint (MSSIZG)
3.Lying- sitting (MR SLSJ)
4.Running 10 × 5m (back and forth) (SHUTTLE 10 × 5)
5.Hand taping (MBFTA R)
6.Hand dynamometry (MSS DIN)
7.Bench forward (MFLPRK)
8.Long jump from the place (M ESSDM)
9.Running 20 m back and forth with progressive acceleration (SHUTTLE 20)

Research description:

The research was conducted in the school gym, and before the test, the boys performed a light preparation of the locomotor system. The testing was performed in two terms and the tests were arranged in such a way that the influence of fatigue caused by previous tests was excluded. The tests were organized according to the system of a circular polygon, where the children went circularly from one workplace to another. Testing was performed by educated professors of physical education and sports.
Concerning the extent of kinesiological activities, the sample was stratified into subsamples of non-athlete boys (group 1), recreational students (group 2) and student-athletes (group 3).
To determine the effects of different extensibility of kinesiological activities on global changes in boys' basic motor abilities as well as the partial participation of the analyzed variables in these effects, multivariate and univariate covariance analysis was applied.

RESULTS AND DISCUSSION

This analysis starts from the total matrix of variances of -covariances of the observed groups. It is differentiated into a matrix of variance between groups and a matrix of variance-covariance within each group. The theoretical condition for the application of covariance analysis is the homogeneity of these matrices. Therefore, the multivariate distributions of the results of the respondents of individual groups must have statistically equal density, that is, statistically equal variability. The stated condition of matrix equality is tested by the Box-s M test, which is based on Likelihood -ratio analysis. The statistical significance of this parameter is determined by the F approximation, which tests the probability of the Null hypothesis, according to which the matrices of variance do not differ from each other. Given the mathematical characteristics, this test must be profiled as not statistically significant, to provide a basis for its acceptance, ie to decide on the homogeneity of matrices of variance of -covariances between groups.
By superficial observation of relevant statistical indicators of the multivariate model, it can be seen that, in addition to neutralizing the differences of subjects on initial testing, different extensions of kinesiological activities in eight months produced statistically significant differences in the development of basic motor skills of analyzed groups.
Boxing values test that is not statistically significant (Table 1a) indicates the existence of conditions for further procedures of multivariate and univariate analysis of the covariance of the investigated space. Multivariate level parameters indicate that the discriminant intensity (Wilks 'Lambda) is statistically significant at the 0.01 (Sig = .006) level, with the overall model explaining 36.2 % of the investigated manifest space (Table 1b).
The results of the univariate covariance analysis (Table 1c) for the set of applied basic motor skills tests show high significance in endurance assessment tests (SHATL 20 and SHATL 10 × 5), then static arm strength (MSSIZG), hand strength (MSSDIN) and torso flexibility. (MFLPRK) and equilibrium (MRFLAM). Statistically significant differences in the effects of univariate level did not occur in the three remaining variables, two of which are largely genetically determined, namely segmental velocity (MBFTAR) and explosive power of the lower extremities of the horizontal component (MESSDM) and repetitive abdominal power (MRSLSJ).
By inspecting further numerical indicators (Table 1d)) which are the result of partialization of the researched basic motor characteristics of students, it can be concluded that statistically significant differences in effects are mostly contributed by members of group 3, ie athletes. They are dominant in endurance (SHATL 20), static arm and hand strength (MSSIZG and MSSDIN) and torso flexibility (MFLPRK). Speed endurance is dominated by recreational athletes (SHATL 10 × 5), while the best results in balance (MRFLAM) were achieved by boys who do not play sports.

Table 1. Multivariate and univariate analysis of covariance of basic motor abilities

a) Box's Test of Equality of Covariance Matrices [a]

Box's M	16,545 th most common
F	1,443 th most common
df1	90
df2	7089.766
Sig.	.514

b) Multivariate Tests [a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Groups	Wilks' Lambda	.545	5,205 [b]	18,000	112,000	.006	.362

c) Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Groups	MRFLAM	95,755 th most common	2	47,878 th most common	3,341 th most common	.042
	MBFTAR	1,475 th most common	2	.738	.552	.578
	MFLPRK	101,026 th most common	2	50,513 th most common	3,597 th most common	.033
	MESSDM	727,578	2	363,789 th most common	1,912 th most common	.156
	MSSDIN	109,012 th most common	2	54,506 th most common	3,512 th most common	.030
	MRSLSJ	35,721 th most common	2	17,861 th most common	1,605 th most common	.209
	MSSIZG	608,504	2	304,252	3,357 th most common	.029
	SHUTTLE10 × 5	98,802 th most common	2	56,572 th most common	4,232 th most common	.021
	SHUTTLE 20	103,773 th most common	2	88,921 th most common	5,482 th most common	.010

d) Groups

Dependent Variable	Groups	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
MRFLAM	1	12,501 [a]	.817	10,869 th most common	14,133 th most common
	2	9.450 [a]	1,031 th most common	7,389 th most common	11,510 th most common
	3	8.159 [a]	1,191 th most common	5,780 th most common	10,538 th most common
MBFTAR	1	11,533 [a]	.249	11,035 th most common	12,032 th most common
	2	11,697 [a]	.315	11,068 th most common	12,326 th most common
	3	11,262 [a]	.364	10,536 th most common	11,988 th most common
MFLPRK	1	20.343 [a]	.809	18,728 th most common	21,959 th most common
	2	22.796 [a]	1,021 th most common	20,757 th most common	24,836 th most common
	3	24.885 [a]	1,179 th most common	22,530 th most common	27,240 th most common
MESSDM	1	186.638 [a]	2,977 th most common	180,691 th most common	192,585 th most common
	2	185,358 [a]	3,758 th most common	177,850 th most common	192,865 th most common
	3	194.892 [a]	4,339 th most common	186.224	203,559 th most common
MSSDIN	1	30,560 [a]	1,258 th most common	28,048 th most common	33,073 th most common
	2	28.043 [a]	1,588 th most common	24,871 th most common	31,214 th most common
	3	31,546 [a]	1,833 th most common	27,884 th most common	35,207 th most common
MRSLSJ	1	25,325 [a]	.742	23,843 th most common	26,807 th most common
	2	27,680 [a]	.937	25,809 th most common	29,551 th most common
	3	27.321 [a]	1,081 th most common	25,161 th most common	29,481 th most common
MSSIZG	1	37,417 [a]	3,500	30,425 th most common	44,409 th most common
	2	43.104 [a]	4,418 th most common	34,277 th most common	51,930 th most common

	3	48,531 [a]	5,101 th most common	38,341 th most common	58,721 th most common
	1	20,592 [a]	.318	19,957 th most common	21,228 th most common
SHUTTLE10X5	2	21.124 [a]	.401	20,322 th most common	21,926 th most common
	3	20.231 [a]	.463	19,305 th most common	21,157 th most common
	1	42,069 [a]	1,937 th most common	38,198 th most common	45,939 th most common
SHUTTLE 20	2	46,406 [a]	2,446 th most common	41,520	51,292 th most common
	3	59,886 [a]	2,823 th most common	54,246 th most common	65,526 th most common

CONCLUSION

The difference in the results of basic motor skills in favour of a group of athletes can be explained by the fact that the training process has contributed to a positive transformation in certain basic motor skills that are dominant in a large number of sports. Students who recreationally played sports generally do not dominate in relation to students who do not use organized physical activities, which indicates the fact that recreational activities do not cause any effects on the basic motor skills of children. It is an interesting fact that non-athlete students have better results in the balance test, concerning student-athletes and recreational students. This indicates the lack of application of kinesiological operators in the development of balance during the training process of active athletes, which is bad considering the importance of balance in all sports. Based on the results obtained in this study, it can be concluded that the development of these basic motor skills is a consequence of the training process in this childhood, regardless of what sport they played, and confirmation that physical education and health education, with its extensiveness and intensity, is not enough. to provoke a positive transformation of the basic motor abilities of children.

LITERATURE

1. Bala, G. (1986). *Quantitative methods in physical culture*. Novi Sad. Faculty of Physical Education.
2. Bouchard, C., Shephard, RJ, & Stephens, T. (1993). *Physical activity, fitness and health. A consensus of current knowledge*. Champaign (Ill): Human Kinetics.
3. Brage, S., Wedderkopp, N., Ekelund, U., Franks, PW, Wareham, NJ, Andersen, LB, Shaw, JE (2003). Overweight and obesity in Australia: the 1999-2000 Australian diabetes, obesity and lifestyle Studies. *The Medical Journal of Australia*, *178* , 427-432.
4. Cameron, AJ, Welborn, TA, Zimmet, PZ, Dunstan, DW, Owen, N., Salmon, J., Dalton, M., Jolley, D. & Shaw, JE (2003). Overweight and obesity in Australia: the 1999–2000 Australian diabetes, obesity and lifestyle Study, The Medical Journal of Australia, *178,* 427–432.
5. Caspersen, CJ, Powell, KE, & Christenson, GM (1985). Physical activity, exercise and physical fitness: definitions and distinctions for health-related research. *Public Health Reports*, *100* , 126-131.
6. Đokić, Z., Međedović, B., & Smiljanić, J. (2011). Nutritional status, postural status and quality of physical education classes in primary schools. *TIMS Acta - Journal of sports sciences, tourism and wellness*, *5* (1), 10-19.
7. Findak, V. (1986). *Methodology of planning and programming in physical and health culture.* Zagreb. Institute for Educational and Pedagogical Service.
8. Gajevic, A. (2009). Physical development and physical abilities of primary school children. Belgrade: Republic Institute for Sports.
9. Hollmann, W. (1975). Sport and physical training as prevention in cardiology. *Recreation and mass forms of physical culture III* . (pp. 47-54). Belgrade: Sport Indoch Center, JZFKMS.
10. Montoye, HJ (1996). *Measuring physical activity and energy expenditure*. Champaign, IL: Human Kinetics.
11. Sibley, BA, & Etnier, JL (2003). The relationship between physical activity and cognition in children: a meta-analysis. *Pediatric Exercise Science*, *15* , 243-256.

12. Steptoe, A., & Butler, N. (1996). Sports participation and emotional wellbeing in adolescents. *Lancet*, *347* (9018), 1789-92. pmid: 8667922
13. Strong, WB, Raspberry, RM, Blimkie, CJ, Daniels, SR, Dishman, RK, Gutin, B., & Trudeau, F. (2005). Evidence-based physical activity for school-age youth. *The Journal of paediatrics*, *146* , 732-737.
14. Thorburn, AW, & Proietto, J. (2000). Biological determinants of spontaneous physical activity. *Obesity Reviews*, *1* (2), 87-94.

Correspondence to:
Osman Lačić, PhD
University of Tuzla
Faculty of Physical Education and Sport
2.oktobra br.1, 75000 Tuzla, BiH
Phone:+387(0)35 278 535
E-mail: osman.lacic@untz.ba