

THE IMPACT OF REGULAR CLASS PROGRAM ON FIRST-YEAR STUDENTS ON THE FACULTY OF SPORTS AND PHYSICAL EDUCATION OF THE UNIVERSITY OF SARAJEVO, ON THE MOTOR SPACE BALANCE

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Abstract

With students 18-20 year olds were exposed to programming and transformational procedures in order to determine the impact. A total sample of 101 male examinees was taken for the needs of this study (51 in the experimental program and 50 of them in the control program). The aim of this study was to analyze the transformation of motor space balance of the students, using the method of parallel analysis, to see whether the given program of regular classes gives effective results on the motor space balance. The balance was tested with the device Biodex Balance System, which measures the general index of stability, the anterior / posterior and the medial / lateral index. The experimental group had a program of regular classes in the first semester, while the control group consisted of extramural students who did not attend regular classes. The recorded changes were by the experimental group developing in the direction of significant improvement of motor space balance, while the control group did not show any statistically important changes. It was shown that the regular classes did have positive impact on the motor space balance by the experimental group. Based on this, it could be said that the extramural students, who had been prevented to attend regular classes, are not able to significantly affect their motor space balance and probably other motor abilities too.

Key words: T-test, Biodex Balance System, Balance, Experimental group, Control group

INTRODUCTION

A group of kinesiology orientated scientific researches includes those which have to do with the valorization of the effects of variously designed programs of practical classes of sports, to which students are exposed. To make the effects of the classes evaluable it is necessary to previously define the diagnosis, planning, programming and class control, as well as the choice of the methodological procedure suited for the research problem. In this study we will try to test the efficiency of plan and program of practical classes on the motor space balance.

The plan and program had been carried out in the first semester of the practical part of classes on the Faculty of Sports and Physical Education on the University of Sarajevo. For this purpose was the motor space balance tested at the beginning and at the end of the semester. To a large extent did balance training characterize the new directions in sports preparation (Jukić, et al., 2003). What once was part of rehabilitation, became an almost inseparable part of conditioning and preventive exercises / training. Balance training became more and more close to profesional sports, and with the aim of injury prevention (Robbins & Waked, 1998; Strojnik & Vengust, 2001; Vengust, 2001) became an important part of conditioning and preventive exercises.

A large number of scientific researches prove the effectiveness of balance training in injury prevention (Gauffin et al., 1988; Seth et al., 1997) of ankle and knee joint (Wadderkopp et al., 1999; according to Pakkara et al., 2001), and rehabilitation (Irrgang et

al., 1994; Bernier & Perrin, 1998; Vad et al., 2002, Dervišević & Hadžić, 2005; Hadžić, 2006), and partially in improving of a certain number of motor abilities (Myer et al., 2006). The aim of this study is the rating of the transformation of motor space balance, with the method of parallel analysis between the experimental and the control group, to define whether regular classes are more efficaciously on the motor space balance by students of the Faculty of Sports and Physical Education of the University of Sarajevo, aged 18-20.

METHODS

Examinee samples in this study are defined as a group of male students, aged 18-20. All examinees are students of the Faculty of Sports and Physical Education of the University of Sarajevo. The sample may be considered as selected, as the examinees had to pass a specific qualifying examination while enrolling the school, where the motor abilities were tested. The total number of examinees whose variable value was registered and on which a final processing and analysis were done, is 102 sample.

The program of the experimental group included the regular practical classes for the first semester on the Faculty of Sports and Physical Education of the University of Sarajevo. The control group included extramural students who were not obliged to attend the regular classes in the first semester and whose classes, which lasted 5 days in total, were rather informative. The testing of balance was done with a device called Biodex Balance System. Biodex Balance System measures the general index of stability, the anterior / posterior index and the

medial/ lateral index. The stability quota with a completely stable platform and a progressive changing stability level was also determined. An exceptionally good bio-feedback graphic enabled an easier testing. The results were printed via printer.

The sample of criteria variables for evaluation of motor space balance consists in this study of 3 signifiers / indicators (OVSIN – the index of total balance, APSIN – Anterior / Posterior Index, MLSIN – Medial / Lateral index). The results obtained from this research were processed with program systems for multivariate data analysis. The analysis was done with the program SPSS 12.0. The T-test was completed to see whether differences exist between the experimental and the control group, as well as initial and final measurements for both groups.

RESULTS

Difference analysis of the impact of regular classes program

The simplest way to distinguish the examinees is to analyze the differences between the means of the two groups of examinees based on one manifest or latent variable. The test for testing the importance of the difference between the means of two groups of examinees in one variable, is called T-test. Based on the T-test we can see how many times the mean is higher than its (measurement) error. It is considered that this difference is statistically important if it is twice its error ($p=.05$). The results of the examinees of the experimental and the control group were measured at two points, the initial measurement in November and the final level measured in February.

The results were shown as follows:

- the differences between the experimental and the control group in initial state
- the difference between the experimental and the control group in final state.

Table 1.
The results of two groups in the arithmetic means

Variable	Group	N	Mean	Std. Deviation	Std. Error Mean
OVSIN	1,00	51	5,5612	3,02437	,35117
	2,00	50	5,5467	2,84877	,32895
APSIN	1,00	51	4,4397	2,29641	,26915
	2,00	50	4,3360	2,17980	,25170
MLSIN	1,00	51	3,9317	2,22619	,25262
	2,00	50	3,6400	1,90398	,21985

Table 2.
The values of T-test two group

Variable	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Diff.	
	F	Sig.	t	df	Sig. (2- tailed)	Mean Diff.	Std. Error D.	Lower	Upper
OVSIN	3,287	,072	,847	148	,399	,43200	,51029	-,57640	1,44040
			,847	143,894	,399	,43200	,51029	-,57664	1,44064
APSIN	2,197	,140	,548	148	,584	,20800	,37934	-,54161	,95761
			,548	145,918	,584	,20800	,37934	-,54170	,95770
MLSIN	4,843	,029	1,017	148	,311	,36800	,36177	-,34690	1,08290
			1,017	138,536	,311	,36800	,36177	-,34731	1,08331

Difference of space balance between the experimental and the control group in initial state

First were the results of the measurements before the program of the experimental and control group analyzed, i.e. initial measurement. From (table 1) we see the results of two groups of means. From (table 2) we see the values of the T-test, which show that the examinees do not differ significantly, thus the T-test value is in the space variables smaller than its error. Based on this, we can conclude that the differences are statistically insignificant, i.e. that those two groups of examinees belong to the same population. In this chapter were the differences between two groups of examinees after the conducted program of regular practical classes in the first semester on the Faculty of Sports and Physical Education of the University of Sarajevo

analyzed. From (table 3) we see that the experimental group had better results in means in all variables. The results of the T-test show that the differences between all variables are statistically significant. The results and differences between the experimental and the control group were shown (table 4) after the 3 months of program conducting. Considering this, we can see that there are some statistically significant differences between those two groups in the final measurements. This means that the 3-months program did impact significantly the statistic values on the rising of the means among all variables. All differences are significant on the level ($p=.01$), i.e. by using this method of concluding can be made a mistake of type I, which is 1%.

Table 3.
The results of two groups in the arithmetic means

Variable	Group	N	Mean	Std. Deviation	Std. Error Mean
OVSIN	1,00	51	5,9787	3,37852	,39012
	2,00	50	3,8120	2,39842	,27695
APSIN	1,00	51	4,5440	2,45776	,28380
	2,00	50	3,0560	1,97964	,22859
MLSIN	1,00	51	4,0080	2,48812	,28730
	2,00	50	2,5133	1,53907	,17772

Table 4.
The values of T-test two group

Variable	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Diff.	
	F	Sig.	t	df	Sig. (2- tailed)	Mean Diff.	Std. Error D.	Lower	Upper
OVSIN	9,872	,002	4,529	148	,000	2,16667	,47843	1,22124	3,11209
			4,529	133,480	,000	2,16667	,47843	1,22039	3,11294
APSIN	4,778	,030	4,083	148	,000	1,48800	,36441	,76788	2,20812
			4,083	141,575	,000	1,48800	,36441	,76761	2,20839
MLSIN	13,214	,000	4,424	148	,000	1,49467	,33783	,82708	2,16225
			4,424	123,397	,000	1,49467	,33783	,82598	2,16335

DISCUSSION

The final aim of this experimental procedure was to record the transformations of motor space balance by students, using the method of parallel analysis of the results of the experimental group compared to the control group, as well as estimating whether the given first-semester-program gives more efficient results on the transformation of motor space balance. The sample of examinees consisted of first-year-students of the Faculty of Sports and Physical Education of the University of Sarajevo, total 101 sample, divided into two groups. The students were randomly divided into two equal groups: control group and experimental group. The control group consisted of extramural first-year students of the Faculty of Sports and Physical Education of the University of Sarajevo who were not obliged to attend the regular practical classes. The experimental group worked upon the given plan and program for the first semester. The T-test was made with individual samples to determine the differences between the experimental and the control group in the initial and final measurements. It was concluded, while analyzing the T-test, that

there were no differences between the experimental and the control group in the initial measurement and due to this concluded that they belong to the same population. After the three-months-program gave statistically significant changes within the examinees of the experimental group, it could be said that the class procedure with its intensity, scope and content lead to certain transformational changes in the examined basic motor space balance. Thus the final measurement gave statistically significant differences between the experimental and the control group, we can find the reasons in the following facts: that the program of regular practical classes for the first semester by the students of the experimental group was with its scope, content and intensity enough to cause significant transformational changes of the basic motor space balance. In the end, it could be said that the existing plan and program of the classes, to which the experimental group was exposed, caused transformational procedures in the motor space balance, unlike the control group which did not take part in the conduct of the given plan and program.

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UTICAJ PROGRAMA REDOVNE NASTAVE STUDENATA PRVE GODINE FAKULTETA SPORTA I TJELESNOG ODGOJA UNIVERZITETA U SARAJEVU NA MOTORIČKI PROSTOR RAVNOTEŽE

Originalni naučni rad

Sažetak

Sa studentima uzrasta 18 do 20 godina programirani su i provedeni transformacijski postupci s ciljem utvrđivanja postignutih efekata. U ukupni uzorak za potrebe ovog istraživanja ušao je 101 ispitanik muškog spola (51 u eksperimentalnom i 50 u kontrolnom programu). Osnovni cilj ovog istraživanja je bio da se utvrde transformacije motoričkog prostora ravnoteže studenata, metodom paralelne analize, da se utvrdi da li ponuđeni programa redovne nastave daje efikasne rezultate na motorički prostor ravnoteže. Testiranje ravnoteže realizovano je preko aparata (Biodex Balance System), koji mjeri generalni index stabilnosti, index anterior/posterior i index medial/lateral. Eksperimentalna grupa je imala program redovne nastave za prvi semestar, a kontrolnu grupu su činili vanredni studenti koji nisu prisustvovali redovnoj nastavi. Analizirane promjene su se kod eksperimentalne grupe razvijale u pravcu značajnog razvoja motoričkog prostora ravnoteže, dok kod kontrolne grupe nije došlo do statistički značajnih promjena. Zaključeno je kako je upravo program redovne nastave kod eksperimentalne grupe uticao na razvoj motoričkog prostora ravnoteže. Na temelju svega, može se reći da vanredni studenti zbog onemogućenog prisustva redovnoj nastavi nisu u mogućnosti da značajno utiču na motorički prostor ravnoteže a vjerovatno i na ostale motoričke sposobnosti.

Ključne riječi: T- test, Biodex Balance System, ravnoteža, eksperimentalna grupa, kontrolna grupa

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