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ESTIMATION OF IMPACT AND DIFFERENCES BETWEEN TWO GENERATION STUDENTS IN THE BIOMOTOR ABILITIES OF THE FACULTY OF PHYSICAL EDUCATION SPORTS AND HEALTH IN SKOPJE

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(Original scientific paper)

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Abstract

Research has been done in a sample of 94 respondents, consisted of full-time second year students at the age of 20 years with ± of 6 months at the Faculty of Physical Education Sport and Health in Skopje, divided in two groups of 47 respondents in both generations surveyed - 2013/14 and 2014/15. Respondents from both generations regularly attended athletics classes, meaning they had passed the methodology and technique of 15 athletic disciplines. To accomplish the purpose of the research, 15 athletic disciplines divided into two colloquiums, athletic pentathlon and five athletic disciplines for the exam in June were used. The practical part of the exam is the remaining 5 athletic disciplines, but also those disciplines that did not pass in both colloquiums. The results of the two generations of respondents are first processed with descriptive statistics - minimum, maximum score, central value, standard deviation and skewness and cortisone graphical representation of the results. The grades for each discipline of each respondent are processed, as well as the final assessment of the practical part.Based on the multivariate analysis on the results of both groups of entities we can conclude that both groups of respondents differ in their biomotor abilities which in this research are analyzed through motor variables which are of great importance for the successful completion of the practical part of the subject athletics. The differences between the respondents would be smaller if they paid more attention to the preparation for the practical exam.

Key words: *biomotor abilities, variables, analysis, regression, differences*

Introduction

At the Faculty of Physical Education Sport and Health in Skopje on the subject Athletics, students study and take 15 athletic disciplines. To facilitate the mastery of the athletic disciplines, which from our long years of experience cause students great difficulty in successfully passing, we allowed them to take two colloquiums containing 5 athletic disciplines. All passed disciplines can be reassigned if they want a higher practical score.

Students also take a third colloquium, Athletics Pentathlon, consisting of 5 athletic disciplines - 100m sprint, long jump, shut put, high jump and 1500m running. This colloquium contains 5 to 10 grade points according to the score. With this colloquium we test the speed, strength and endurance and of course the technical performance of the techniques learned in the athletic disciplines.

Practical grades from the three colloquiums enter the overall grade of the subject athletics. We can say that for athletics students put a lot of effort and skills into one of the more difficult subjects to pass.

The subject of the research is the biomotor abilities of the students of generations 2013/14 and 2014/15 who are subjected to taking the practical part of the athletic disciplines contained in three colloquiums.

The purpose of the research is to determine the biomotor abilities of students of both generations in the engine compartment and the variability and differences in the manifestation of biomotor abilities of the two generations of respondents.

Methods

The sample of respondents consisted of full-time second year students at the age of 20 years with ± of 6 months. The total number is 94 respondents per 47 respondents in both generations surveyed - 2013/14 and 2014/15. Respondents from both generations regularly attended athletics classes, meaning they had passed the methodology and technique of 15 athletic disciplines.

To accomplish the purpose of the research, 15 athletic disciplines divided into two colloquiums, athletic pentathlon and five athletic disciplines for the exam in June were used. The practical part of the exam is the remaining 5 athletic disciplines, but also those disciplines that did not pass in both colloquiums.

Colloquium 1

- Technique of walking and running with progression
- Low start
- Running through obstacles
- Relay
- "Zgrchena" technique (long jump)

Colloquium 2

- "Sviena" technique (long jump)
- Triple jump
- Rational technique (shot-put)
- Rotational technique (shot-put)
- Step technique (long jump)

Exam

- Scissors (high jump)
- Stredell (high jump)
- Flop (high jump)
- Disk
- Javeling throw

Table 1. Athletic Pentathlon - Scoreboard with scores

Scores	6	7	8	9	10
Athletic Pentathlon Disciplines					
100 m.	12.80	12.60	12.40	12.20	12.00
Long jump	5.20 m	5.40 m	5.60 m	5.80 m	6.00 m
Shot put	9.00 m	9.20 m	9.40 m	9.60 m	9.80 m
High jump	130 cm	135 cm	140 cm	145 cm	150 cm
1500 m.	5.00 min	4.55 min	4.50 min	4.45 min	4.40 min

Athletic Pentathlon is a test of the biomotor abilities of speed, strength and endurance and how much they govern the methodology and technique of the athletic disciplines.

Results and discussion

The results of the two generations of respondents are first processed with descriptive statistics - minimum, maximum score, central value, standard deviation and skewness and cortisone graphical representation of the results. The grades for each discipline of each respondent are processed, as well as the final assessment of the practical part.

Table 2. Regression analysis for the first generation 2013/14

Model sumari				
Model	R	R Square	Adjusted Square	Std. Error of The Estimate
1	.931	.866	.840	.285

By analyzing table 2 we can determined the influence of predictor variables on the criterion for which multiple values of correlation R = .931 testify, meaning 93% explains the common variability between the predictor variables and the criterion and the coefficient of determination R^2 = .866. or .86%, which means that the remaining 7% of R and 16.4% of R^2 attribute to other characteristics not taken into account in the research procedure - (morphological characteristics, psychological traits - cognitive, etc.).

Table 3. Univariate analysis (ANOVA) for generation 2013/14

Anova					
Model	Sum of Scuares	Df	Mean Square	F	Sig
Regression	41.064	15	2.738	33.620	.000
Residual	6.351	78	0.81		
Total	47.415	93			

In the univariate analysis of the first generation a statistically significant difference was found in the group in terms of their biomotor abilities, which is backed by the high F-test value of 33,620 and the significance coefficient of .000.

Table 4. Regression analysis of the second generation 2014/15

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.923	.852	.781	.331

According to the analysis of Table 4, there is a significant influence of the predictor variables as a system on the criterion, and this significance according to the multiple correlation R = .92 and determination coefficient R^2 - .852 explain the common variability between the prognostic variables and the criterion for 92% and 85%, of which 8% and 15% belong to other characteristics not analyzed in the survey. Predictor variables influence the criterion as a system.

Table 4. Univariate analysis (ANOVA) for the second generation 2014/15

ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	19.548	15	1.303	11.923	.000
Residual	3.388	31	.109		
Total	22.936	46			

According to the univariate analysis, the subjects in the second group showed significant differences in biomotor abilities, as evidenced by the value of F-test at level 11.923 and significance level of coefficient Sig = 000.

Conclusion

Based on the multivariate analysis on the results of both groups of entities we can conclude that both groups of respondents differ in their biomotor abilities which in this research are analyzed through motor variables which are of great importance for the successful completion of the practical part of the subject athletics. The differences between the respondents would be smaller if they paid more attention to the preparation for the practical exam.

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