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# THE RESULTS OF PROFESSIONAL APPROACH AND INCREASED INTENSITY OF WORK

## Introduction

In sport the achievement of high results certainly depends on the properly based training system and adopting sports knowledge. On the other hand, the key role play behaviour pattern, knowledge, skills, professionalism, and the management ability of training teachers and sports workers.

Respondents in our research were pupils of primary school, some of who, along with the regular school classes in Sport and Physical Education, attended organised training courses in other sports clubs.

The goal of the research is to establish if the professional approach and increased intensity of applied results in improvements and differences between the functional and motoric abilities (skills and habits) with students.

## Methods

The research has been conducted on a sample of 76 students at the age of 14. The first subsample consists of 40 students, and the second – of 36 students, who, along with their regular school classes of 3 times a week and additional sports subject as choice (this refers to the first subsample as well), had regular trainings in basketball clubs three hours a week. They were tested by three indexes: 1) motoric abilities; 2) motoric skills and habits (Majerič, 2004); and 3) functional abilities (Jovanović, 1999).

There were calculated: basic descriptive statistic parameters, t-tests of independent samples, analysis of variance and Friedman test (Bala, 1986).

## Results

The results of the analyses are represented in 6 tables.

Table 1 presents the basic statistic parameters for each group of respondents.

According to them, two variables indicate similar achievements of the two groups, whereas six of variables indicate better results in favour of the athletes.

***Table 1.*** *Basic statistic parameters for each group*

| Descriptive Statistics | | | | | | | | Pulse FA | |
|---|---|---|---|---|---|---|---|---|---|
| group | Parameters | SLJ | ST | R20M | R50M | MSH | BTL | 1 min. | 3 min. |
| 1 | N | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | Minimum | 108.00 | 19.00 | 34.00 | 77.00 | 32.04 | 68.00 | 104.00 | 70.00 |
| | Maximum | 193.00 | 49.00 | 49.00 | 116.00 | 48.63 | 118.00 | 182.00 | 140.00 |
| | Range | 85.00 | 30.00 | 15.00 | 39.00 | 16.59 | 50.00 | 78.00 | 70.00 |
| | Mean | 151.30 | 31.88 | 42.58 | 96.53 | 39.66 | 92.40 | 138.63 | 108.58 |
| | Median | 150.00 | 30.50 | 43.50 | 97.00 | 38.68 | 94.50 | 139.00 | 108.50 |
| | Std. Dev. | 19.241 | 8.953 | 3.993 | 11.277 | 4.981 | 11.801 | 23.089 | 17.509 |
| | Variance | 370.215 | 80.163 | 15.943 | 127.179 | 24.807 | 139.272 | 533.112 | 306.558 |
| | Skewness | 0.097 | 0.455 | -0.339 | 0.021 | 0.142 | -0.323 | 0.224 | -0.035 |
| | Kurtosis | 0.086 | -0.965 | -0.591 | -1.046 | -0.878 | -0.015 | -1.036 | 0.023 |
| 2 | N | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |
| | Minimum | 125.00 | 27.00 | 35.00 | 77.00 | 26.26 | 64.00 | 92.00 | 86.00 |
| | Maximum | 225.00 | 60.00 | 43.00 | 103.00 | 39.49 | 94.00 | 182.00 | 120.00 |
| | Range | 100.00 | 33.00 | 8.00 | 26.00 | 13.23 | 30.00 | 90.00 | 34.00 |
| | Mean | 177.08 | 39.83 | 38.86 | 86.69 | 33.41 | 80.06 | 124.14 | 96.22 |
| | Median | 175.00 | 39.00 | 39.00 | 87.00 | 32.02 | 81.00 | 118.00 | 95.00 |
| | Std. Dev. | 23.615 | 8.310 | 2.685 | 7.163 | 4.613 | 9.320 | 23.361 | 8.107 |
| | Variance | 557.679 | 69.057 | 7.209 | 51.304 | 21.276 | 86.854 | 545.723 | 65.721 |
| | Skewness | 0.141 | 0.666 | 0.185 | 0.517 | -0.020 | -0.431 | 0.886 | 1.360 |
| | Kurtosis | 0.215 | -0.015 | -1.449 | -0.443 | -1.576 | -1.017 | 0.114 | 2.318 |

*SLJ – standing long jump; ST – Sargent test; R20M – running 20 meters; R50M – running 50 meters; MSH - motoric skills and habits; BTL - before the training load, 1 min. – after 1 minute; 3 min. – after 3 minute; Pulse FA – pulse functional abilities.*

Table 2 presents Levene's test for equality of variances, t-test for independent samples and eta square.

The values worked through eta squared are emphatically high in all variables, except for the variable of pulse within the first minute.

***Table 2.*** *Levene's test for equality of variances, t-test for independent samples and eta square*

| Independent Samples Test | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | eta squared |
|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | |
| SLJ | EVA | 0.386 | 0.536 | -5.239 | 74 | **0.000** | 0.271 |
| ST | EVA | 0.840 | 0.362 | -4.002 | 74 | **0.000** | 0.178 |
| R20M | EVNA | 5.443 | 0.022 | 4.704 | 74 | **0.000** | 0.239 |
| R50M | EVNA | 9.212 | 0.003 | 4.479 | 74 | **0.000** | 0.227 |
| MSH | EVA | 0.072 | 0.789 | 5.658 | 74 | **0.000** | 0.302 |
| BTL | EVA | 0.640 | 0.426 | 5.022 | 74 | **0.000** | 0.244 |
| 1 min. | EVA | 0.047 | 0.829 | 2.716 | 74 | **0.008** | 0.091 |
| 3 min. | EVNA | 11.936 | 0.001 | 3.874 | 74 | **0.000** | 0.178 |

*SLJ – standing long jump; ST – Sargent test; R20M – running 20 meters; R50M – running 50 meters; MSH - motoric skills and habits; BTL - before the training load, 1 min. – after 1 minute; 3 min. – after 3 minute; EVA - Equal variances assumed; EVNA - Equal variances not assumed.*

Examinating Table 3, there can by concluded that using one-factor analysis of variance of the repetitive measures, regarding the group medium pulse values in the three measures (pulse in three periods of time: before the training load, i.e. performance of test – polygon, within the first minute after finishing the test, and in the third minute after the performance of test, the first group indicates significant differences.

The obtained results show that the three time periods of pulse measuring establish different values.

***Table 3.*** *One-factor analysis of variance of the repetitive measures – first group*

| Effect | Wilks' Lambda | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| pulse | 0.168 | 93.915 | 2 | 38 | **0.000** | 0.832 |

| (I) pulse | (J) pulse | Mean Difference (I-J) | Std. Error | Sig.(a) |
|---|---|---|---|---|
| 1 | 2 | -46.225 | 3.604 | **0.000** |
| 1 | 3 | -16.175 | 2.591 | **0.000** |
| 2 | 3 | 30.050 | 2.357 | **0.000** |

Examinating Table 4, there can by concluded that using one-factor analysis of variance of the repetitive measures, regarding the group medium pulse values in the three measures (pulse in three periods of time: before the training load, i.e. performance of test – polygon, within the first minute after finishing the test, and in the third minute after the performance of test, the second group indicates significant differences.

***Table 4.*** *One-factor analysis of variance of the repetitive measures – second group*

| Effect | Wilks' Lambda | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| pulse | 0.169 | 83.327 | 2.000 | 34.000 | **0.000** | 0.831 |

| (I) pulse | (J) pulse | Mean Difference (I-J) | Std. Error | Sig.(a) |
|---|---|---|---|---|
| 1 | 2 | -44.083 | 3.792 | **0.000** |
| 1 | 3 | -16.167 | 1.786 | **0.000** |
| 2 | 3 | 27.917 | 3.711 | **0.000** |

The review of applied Friedman test in Tables 5 and 6 indicates statistically significant difference of results in the pulse scale recorded in the three measures of time span, and it is all supported by the obtained values with the first group Sig.=0.000, Chi-Square (2, N=40)=74.08, and the second group Sig.=0.000, Chi-Square (2, N=36)=71.51 at the level of 0,05.

The mean ranges in the three measures of the two groups points out that there is an increase in relation to the first against the second measure, and decrease (reduction) regarding the third measure.

***Table 5.*** *Descriptive statistics and percentiles for each group*

| Descriptive Statistics | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pulse | N | Percentiles | | | N | Percentiles | | |
| | | 25th | 50th (Median) | 75th | | 25th | 50th (Median) | 75th |
| BTL | 40 | 84.00 | 94.50 | 99.50 | 36 | 72.00 | 81.00 | 88.00 |
| 1 min. | 40 | 120.00 | 139.00 | 155.75 | 36 | 105.25 | 118.00 | 144.00 |
| 3 min. | 40 | 98.50 | 108.50 | 120.00 | 36 | 90,00 | 95,00 | 100,00 |

***Table 6.*** *Friedman ranks test for each group*

| I group pulse | Ranks Mean | | II group pulse | Ranks Mean |
|---|---|---|---|---|
| before the training load | 1.09 | | before the training load | 1.01 |
| 1 minute | 3.00 | | 1 minute | 3.00 |
| 3 minute | 1.91 | | 3 minute | 1.99 |
| Test Statistics(a) | | | Test Statistics(a) | |
| N | 40 | | N | 36 |
| Chi-Square | 74.075 | | Chi-Square | 71.510 |
| df | 2 | | df | 2 |
| Asymp. Sig. | **0.000** | | Asymp. Sig. | **0.000** |
| a | Friedman Test | | a | Friedman Test |

On the base of the obtained results, the conclusion is that better results in all three indexes, are determined with the second subsample. It is those who are involved in regular school classes, have the sport as their additional subject choice, and had an active training work in their sports clubs.

**Discussion**

The following conclusions are reached after analyzing the results obtained in the research:

- Using t-test of independent samples, it is established that there are statistically significant differences in all of the applied variables of the three indexes of

achievements in the research (motoric abilities, motoric skills, and habits and functional abilities) between the two groups of respondents.

- Using one-factor analysis of variance of repetitive measures, there are established differences in the functional abilities within the accomplished time measures with the two groups of respondents. Along with this, there is accomplished an individual comparation between the three time measures of the pulse, and there are noticed individually significant differences in all measurements with the two groups of entities.
- Friedman test is used to confirm differences in achievements of the two groups of respondents.
- In total, out of the obtained results of the applied methods there can be concluded that better results in all variables (motoric abilities, motoric knowledge, and habits and functional abilities) are achieved with the second group of entities (II group of respondents who attend regular school classes and have sport as additional subject and are active athletes in other sports associations and clubs).

The results of the analyses of the first index in the conducted research show great similarity with the results obtained in the research of Georgiev, Kostovski, & Mitrevski (2012). The results of the second index indicate great similarity with Mitrevski's research (2012). The results of the third index are logically sustained. They are better with the second subsample.

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*THE RESULTS OF PROFESSIONAL APPROACH AND INCREASED INTENSITY OF WORK*

*Introduction: The goal of the research is to establish if the professional approach and increased intensity of applied results in improvements and differences between the functional and motoric abilities (skills and habits) with students. Methods: The research has been conducted on a sample of 76 students at the age of 14. The first subsample consists of 40 students, and the second of 36 students, who, along with their regular school classes of 3 times a week and additional sports subject as choice (this refers to the first subsample as well), had regular trainings in basketball clubs three hours a week. They were tested by three indexes: 1) motoric abilities; 2) motoric skills and habits (Majeric, 2004); and 3) functional abilities (Jovanovic, 1999). There were calculated: basic descriptive statistic parameters, t-tests of independent samples, analysis of variance and Friedman test (Bala, 1986). Results: The results of the analyses are represented in 8 tables. On the base of the obtained results, the conclusion is that better results in all three indexes, are determined with the second subsample. It is those who are involved in regular school classes, have the sport as their additional subject choice, and had an active training work in their sports clubs. Discussion: The authors general conclusion of the research is that the number of that kind of research approach is quite small The results of the analyses of the first index in the conducted research show great similarity with the results obtained in the research of Georgiev, Kostovski, & Mitrevski (2012). The results of the second index indicate great similarity with Mitrevski's research (2012). The results of the third index are logically sustained. They are better with the second subsample. References: Bala G (1986). Logicke osnove metoda za analizu podataka iz istrazivanja u fizickoj kulturi. Novi Sad, Sava Muncan. Georgiev G, Kostovski Z, Mitrevski V (2012). Sport Mont, 34-36, 105-9. Jovanovic G (1999). Pulsometri u praksi. Bones, Kotor. Majeric M (2004). Analiza modelov ocenivanja sportnih znanj pri sportni vzgoji (Doktorska disertacija), Univerza v Ljubljani, Fakulteta za sport Ljubljana. Mitrevski V (2012). Razliki vo postiganjata i rezultatite po predmetot fizičko vospituvanje i obrazovanie i sport kaj učenicite od nekoi Balkanski državi (Doktorska disertacija), Univerzitet "Sv. Kiril i Metodij", Fakultet za fizička kultura, Skopje.*