

SOME PARAMETERS REFERRING TO PHYSICAL DEVELOPMENT OF THE SECONDARY SCHOOL FEMALE STUDENTS AND THEIR SCHOOL SUCCESS

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Summary

The purpose of this research was to monitor female secondary-school students' development and their success at school in Pula. The research was designed as a longitudinal study including 79 girls being monitored from I to IV grade in which some biomotoric variables were recorded together with their general success at the end of a school year and their school-leaving results. The results indicated a direct positive correlation between somatic development and school results as well as that absences were realised by the girls to avoid certain school problems. This research can be credibly applied to the samples of similar populations. The practical purpose of this research is referred to the possibilities of a more quality approach to the aims of educational work at secondary school, especially at high schools, and thus this research can be brought into connection with the management tasks of school institutions.

Ključne riječi: school success, development, girls

Introduction

The most important function of Physical and Health education and especially the classes at school themselves is the development support to male and female students. This is, of course, a simple definition, but four large areas being taught and studied for a number of years are integrated in it. The first large area refers specifically to anthropology where knowledge from physiology, biology, anatomy, psychology, sociology, etc. are included and all that in order to set a base of knowledge of the ones we use at classes to realize development transformations. The second large area consist of a set of specific means in a narrower sense which is characterized by numerous individual and integrated types of knowledge from different sport disciplines and movements in general, and all that in order to be able to use inventory for realization of specific transformation tasks. The third large area is specifically connected to pedagogy in narrower terms and it is characterized by knowledge from pedagogy, didactics, methodics, etc., and that all in order to master optimal ways of task and stimuli transfer into developmental biological features of the treated entities. The final fourth large area is evaluation in the narrower terms, characterized by knowledge from methodology, planning, transformation, management, dokimology, quantification, etc., and that all in order to objectively evaluate achievements in other words what and how much has been realized in the systematic transformation process.

All the activities in kinesiology and thus also at school classes are optimised in the unity consisted of all these four areas.

Problem and aim

The period of secondary school, that is the period of age of about 14-15 to 18-19 is particularly important and delicate due to different reasons, especially with the girls trying hard to achieve excellent results at school (Frederickson, & Petrides, 2008; Huan, See, Ang, & Har, 2008). We have that kind of situation, in the first place, because almost all of biological functions in women get stabilized in that period and adolescence is close to its end in principle and we have introduction of a strong necessity for different kinds of social exposition (Gomez-Vela, Verdugo, & Gonzales-Gil, 2007). Finally, a great deal of the system of values is formed in that period and social communication acquire a truly intensive character (Lau, Cheung, & Ransdell, 2008). Independence in expression, motion, requests and decisions tends to be maximized and when this period is finished a great number of young women makes decisions on their first careers (Yoshimura, 2007), and some make decisions on getting married or becoming mothers whereas a certain number of them continues with their education; some of them leave their parents due to different reasons, etc. and it may be well said thatn this period is a real life breakthrough (Duncan and assistants., 2007).

From kinesiology point of view, it is obvious that the period of secondary school is one of the last periods when girls are systematically monitored (Mears, 2007), and if they do not practise some sport in an active way or if they are not involved in some systematic recreational activities (very small number of these can be found in the population in total), they are left on their own without an adequate kinesiological supervision and support in their lives (Fries, & Dietz, 2007). For these reasons, it appears very interesting to determine some parameters of the whole system of education, as well as of the biological support which was performed, in order to make conclusions on value of kinesiology education at secondary school (Ridgers, Fazey, & Fairclough, 2007). It was the aim of this research and it is reflected in determining relations between some biological parameters and absences at school with the results at the end of a class and the school-leaving success. So, it may well be said that the purpose of this research was to present the problem of the system of values with secondary-school girls in some new context and in a way which includes the actual results at the end of each particular school phase.

Results

Table 1. Discriminative analysis

| | 1.R. | 2.R. | 3.R. | 4.R. | TOT. | F | Q | S |
|----------------------------|--------|--------|--------|--------|--------|-------|--------|---------|
| BODY WEIGHT | 60.51 | 62.49 | 65.27 | 67.23 | 63.87 | 12.10 | 0.00 | -0.34** |
| SKIN FOLD | 13.92 | 13.89 | 14.85 | 14.18 | 14.21 | 1.21 | 0.31 | -0.04** |
| BODY LIFTING | 33.95 | 34.91 | 34.86 | 34.24 | 34.49 | 0.58 | 0.63 | -0.03** |
| BODY TOUCH -TOE | 67.62 | 66.09 | 67.86 | 67.95 | 67.38 | 0.72 | 0.54 | -0.02** |
| ENDURANCE IN HIGH POSITION | 13.61 | 17.65 | 16.92 | 18.65 | 16.70 | 2.18 | 0.09 | -0.14** |
| 6 MINUTES RUNNING | 930.42 | 859.20 | 849.66 | 799.18 | 859.61 | 15.78 | 0.00 | 0.40** |
| EXCUSED ABSENCE | 45.16 | 74.42 | 87.27 | 124.54 | 82.85 | 22.30 | 0.00 | -0.47** |
| UNEXCUSED ABSENCE | 1.44 | 3.24 | 4.10 | 4.72 | 3.38 | 9.92 | 0.00 | -0.31** |
| GENERAL SCHOOL RESULTS | 3.65 | 3.92 | 3.95 | 4.10 | 3.91 | 6.23 | 0.00 | -0.25** |
| CENTROIDS | 1.44 | 0.11 | -0.29 | -1.26 | | DF1,2 | 3, 303 | |

(1.R, 2.R, 3.R, 4.R i TOT.=Arithmetic mean, Ce = centroids, F, Q, DF1,2 = Anova, S = Discriminative structure function (Wilks = 0.485, F = 9.218, P = 0.0000)

Table 2. The results of regression analysis

| | 1. RAZ. | 2. RAZ. | 3. RAZ. | 4. RAZ. |
|----------------------------|----------------|----------------|----------------|----------------|
| BODY WEIGHT | 0.09** | 0.36** | 0.30** | 0.16** |
| SKIN FOLD | 0.05** | -0.07** | 0.15** | 0.11** |
| BODY LIFTING | -0.01** | 0.20** | 0.28** | 0.36** |
| BODY TOUCH-TOE | 0.66** | 0.41** | 0.16** | 0.27** |
| ENDURANCE IN HIGH POSITION | -0.02** | -0.06** | -0.04** | -0.05** |
| 6 MINUTES RUNNING | 0.22** | 0.22** | 0.20** | 0.22** |
| EXCUSED ABSENCE | 0.03** | -0.02** | 0.03** | -0.02** |
| UNEXCUSED ABSENCE | -0.08** | -0.11** | -0.13** | -0.09** |
| T | 1088.00 | 1256.00 | 1266.00 | 1360.00 |
| RI | 33.44 | 28.21 | 26.73 | 22.95 |
| D | 0.969 | 0.978 | 0.979 | 0.983 |
| DF (1,2) | (8, 71) | (8, 71) | (8, 71) | (8, 71) |
| F | 279.85 | 386.25 | 411.44 | 517.09 |
| P | 0.000 | 0.000 | 0.000 | 0.000 |

(Criterion of the variable General achieved school results per a school year (T = total variance, RI = Residual, D = Determination, ** = Salients DF = degrees of freedom, F = Anova f-test, P = probability)

Table 3. The results of regression analysis

| | 1. RAZ. | 2. RAZ. | 3. RAZ. | 4. RAZ. |
|----------------------------|----------------|---------------|---------------|---------------|
| BODY WEIGHT | 0.26** | 0.40** | 0.40** | 0.44** |
| SKIN FOLD | 0.14** | 0.03** | -0.05** | -0.04** |
| LIFTING BODY | -0.01** | 0.04** | 0.08** | 0.24** |
| BODY TOUCH-TOE | 0.27** | 0.43** | 0.32** | 0.26** |
| ENDURANCE IN HIGH POSITION | 0.01** | -0.02** | -0.04** | -0.02** |
| 6 MINUTES RUNNING | 0.25** | 0.06** | 0.23** | 0.02** |
| EXCUSED ABSENCES | 0.04** | 0.05** | 0.05** | 0.06** |
| UNEXCUSED ABSENCES | -0.05** | -0.04** | -0.05** | -0.03** |
| GENERAL SCHOOL RESULTS | 0.07** | 0.02** | 0.05** | 0.06** |
| T | 1717.00 | 1717.00 | 1717.00 | 1717.00 |
| RI | 28.67 | 30.45 | 31.25 | 29.84 |
| D | 0.983 | 0.982 | 0.982 | 0.983 |
| DF (1,2) | (9, 70) | (9, 70) | (9, 70) | (9, 70) |
| F | 457.96 | 430.818 | 419.607 | 439.776 |
| p | 0.000 | 0.000 | 0.000 | 0.000 |

(Criterion of the variable School-leaving exam per years (T = total variance, RI = Residual, D = Determination, ** = Salients, DF = degrees of freedom, F = Anova f-test, P = probability)

As it can be seen in the Table 1., only one important discriminative function has been got out of the three possible. The structure of that function (S) shows that differentiation among the girls within the set of variables can be made on the basis of the bodily mass, continuous running, excused and unexcused absences and general school results. The same table shows that all the variables tend to show some results. It also results in slight increase in body weight, skin fold, too and even better and better results can be found in body lifting and touch-toe as well as in endurance in high position but at the same time the results are decreased in steady running. The intensive increase of excused absences can be seen being closer to the fourth year of schooling, and the same is recognized in unexcused absences but in a very slight amount whereas the average school results increase and obtain the value of 4.10. The average value at the school-leaving exam was 4.62. These results confirm together that the subject is development and progress of the secondary-school girls there and that school results are more and more important to them. But the great number of excused absences in the IV grade of high school (average of 124) is worrying, and if we suppose that the girls had 5-6 lessons a day, then they excused absences in the amount 21-25 working days from school in the IV grade, which is then more than a month of work. They might have been ill or they might have been absent due to some good reasons but anyway that number appears to be too big. This particularly contradicts the previously described trend which was described for example by motoric variables, which implies the fact that the girls were not absent for a longer period of time due to some serious illnesses, because if it was the case, the trend of motoric dimensions would be different for sure then.

It is rather that the girls did calculations in order to obtain better marks, but it is a subject of some separate research. The group centroids indicate that the school-girls have better transport system than the ones from the IV grade and also that the fourth grade school-girls have advantage in the bodily weight and the number of absences, especially the excused ones. The school-girls from the II and III grade are found exactly along the tendency line which separates the first grade school-girls from the final grade and thus the school-girls from the II grade are more similar to the first-grade ones and the school-girls from the III grade are more similar to the ones from the fourth grade. In the Table 2, the results of regression analysis with the criterion of General results at the end of each class, that is for all the fourth classes, can be found. It can also be seen that all the regressions are significant as well as that multiple determination is extremely high. In the predictor structure, however, we can see the changes implying clearly that the school-girls from the IV grade included greater number of important individual predictors, which implies that they better integrated the existing resources and possibilities in terms of obtaining better results. Thus, their better results in the end of a school year can be brought in connection with motoric abilities, among which the dominant one is body lifting. So it can be concluded that persistence, steadiness, and energy engagement in obtaining good final result in IV grade are basic school-girls features. The important predictors in the I grade are touch-toe and (negatively) unexcused absences, which confirms a certain relaxation of the I grade school-girls, due to the different aims in the first and fourth grade at high school. The regression analysis in relation to criterion – the results at school-leaving exam can be found in the Table 3.

As it can be seen from the results, the situation now is completely opposite to the previously mentioned, in relation to the number and the character of a predictor. All the regressions are important and some individual predictors imply the fact that at the end of the IV grade only one predictor was left among the 5 important predictors in I grade (mass, folds, touch-toe, running, unexcused absences). This implies the situation that it is easier to estimate the results at school-leaving exam from the position of I grade than IV grade of high school, which is an interesting fact, although the standardized importance of all the regressions cannot be denied.

Discussion and conclusion

Previously described results showed some very interesting situations. First of all, it was about the expected situation that somatic-motoric development in the treated ages is recognizable and understandable, together with the trends which can be described as the expected ones. A greater number of excused absences has been noticed and their number is rapidly increased from year to year but most certainly it might not be brought in relation to the possible illnesses or some other similar situations.

Finally, a contradiction between school-girls' orientation towards their general results at the end of a school year and their orientation towards the general results at school-leaving exam has been noticed because a greater number of predictors describing the results at school-leaving exam with first grade school-girls could be registered whereas the IV grade school-girls were more concentrated at the results at the end of IV grade. On the basis of these results, it can be concluded that the secondary-school girls give a special attention to the results at school-leaving exam at the beginning of their secondary school education.

In other words they are interested in long-term results of school education, and they will use their energy and their potentials in terms of it.

Such a long-term result is probably encouraged in school activities of the whole institution, and the more intensive presence of parents' influence is felt in this age. However, as girls become more mature and more independent, they seem to be more aware of their cumulative development and education phases which passed, and it is the basis for their tendency to obtain success in their education as well as in some kinds of activities which could be described as "tricks" to avoid some possible problems and in the end they have very good results having the systematic support by school, parents and perhaps by doctors as well as by some other authorities being in contact with girls. Anyway, it must be noticed that there exist a significant tendency of some kinds of strategy actions at the period of school education of this level, during which the girls most probably decide, in the end, to continue their education, which can serve to explain their interest in general results in the final grade. Naturally, the problem of absences, which are most probably in the function of obtaining good results at the end of a school year, should be systematically solved.

A longitudinal research which lasted for 4 years was realized with the sample of 79 girls from the High school in Pula. The girls were monitored using some biomotoric variables. The excused and unexcused absences, as well as their general results at the end of each class and the results of the school-leaving exam itself were registered. The results showed, first of all, that there existed some direct positive link between somatic development and school results referring in the first place to persistence and steadiness in studying and obtaining school results.

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NEKI PARAMETRI RAZVOJA SREDNJOŠKOLKI I NJIHOV ŠKOLSKI USPJEH

Sažetak

Svrha istraživanja je bilo praćenje razvoja i školskog uspjeha djevojaka gimnazijalki u Puli. Istraživanje je dizajnirano kao longitudinalna studija sa 79 djevojaka koje su praćene od I do IV razreda, a evidentirane su neke biomotoričke varijable, kao i opći uspjeh na kraju školske godine i maturalni uspjeh. Rezultati su pokazali da postoji direktna pozitivna veza između somatskog razvoja i školskog uspjeha, ali i da učenice koriste izostanke vjerojatno kako bi izbjegle određene školske probleme. Istraživanje može imati vjerodostojnu transparentiju na uzorke iz sličnih populacija. Praktična svrha istraživanja odnosi se na mogućnost kvalitetnijeg pristupa zadaćama odgojno-obrazovnog rada u srednjoj školi, naročito u gimnazijama, pa se značaj ovakvog istraživanja može dovesti u vezu s upravljačkim zadaćama školskih institucija.

Ključne riječi: školski uspjeh, razvoj, djevojke

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