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## **EXAMINATION OF EFFECTS OF RHYTHMIC GYMNASTICS ON BALANCE DEVELOPMENT AT THE SCHOOL CLASSES OF YOUNG ELEMENTARY SCHOOL FEMALE PUPILS**

### **1. PROBLEM**

Rhythmic gymnastics is based on the teaching and development of fundamental motoric, i.e. motoric behavior through the learning of the basic gymnastic positions, elements and skills through natural ways of moving and play. By different moving activities, learning about their body and its motoric, a child develops its motoric, acquires different motoric skills and habits and develops motoric activities.

Rhythmic gymnastics has multiple positive effects on a child's body. Beside the positive effect on already mentioned motoric development of children, it also contributes to the regular biological growth and development of the body. Its goal is also the psychological development of children and improvement of the general health status of the body.

The programs of the rhythmic gymnastics, beside the fact that they represent the basis for every next sport a child takes up or any other physical activity, they can also be the bases for further doing rhythmic gymnastics as a competitive discipline, in case of recognizing potential, i.e. high level of the ability of a child for this sport.

In this work, the subject of the research is only one segment of the anthropological area, which refers to the appearance of appropriate motor abilities - balance. Balance is, in this work, important to three different balances: elementary balance, defined as body ability to fix in assigned balance position at minimal lean area, visual difficulted balance, defined as body ability to fix in assigned balance position without visual control, and dynamic difficulted balance, defined as body ability to fix in assigned balance position with center of gravity above the lean area, in spite of external forces difficulties.

### **2. METHODS**

The battery for the evaluation of balance consists of three following tests: MSPG, MHNG, MSJN. During the 2005/06 academic year, a research was conducted so as to determine the effects of rhythmic gymnastics' program of physical education teaching on balance of female pupils.

The sample population for the research is defined as the population of lower-grade female pupils, aged 9-10.

According to the aim of the research, the minimal sample of 99 subjects was chosen, classified into two sub-samples (one experimental and one control group), which is relatively optimal in order to carry out the acceptable intended research.

The research was carried out with female pupils of the third and fourth grade of elementary schools in Nis, Serbia.

- The subjects had to fulfil one condition: to attend the classes of physical education regularly.

The subjects (N=99) were classified in experimental and control groups. The experimental group was made of 51 female pupils and they were practicing according to planning instruction where the rhythmic gymnastics had the primary part at school classes. The control group of 48 female pupils was practicing according to official instructional plan and program for P.E. of the Republic of Serbia.

At the beginning of the academic year, initial (first) measurement was performed, followed by experimental final (second) measurement at the end of experiment.

Research data was processed using the multi-variant procedures MANCOVA, MANOVA and mono-variant procedures ANCOVA, ANOVA and interval of entrust in distinction declined mean.

### 3. RESULTS

**Table 1.** Significant of differences between tested groups on motorical abilities balance estimation – final

	N	F	p
MANCOVA	3	3.047	.002

There is clearly defined level between some groups, which means that after neutralization differences in initial status, between analyzed groups, there is significant difference in final measurement.

**Table 2.** Significant of differences between tested groups on motorical abilities balance estimation – final

ANCOVA	F	P
mpsg	1.344	.260
mhng	2.663	.048
msjn	1.889	.131

Difference between pupils experimental and control group for each single motor characteristics area of functional abilities show analysis of covariance (ANCOVA) (Table 2). It shows the differences in one characteristic MHNG.

**Table 3.** The significance of the difference among groups of the examinees according to the interval of entrust of corrected surroundings of examinees in the evaluation of balance-final

groups		variables	corrected surroundings		interval of entrust	
Ekper.	Kontr.	mpsg	22.58	15.30	3.95	10.60
Ekper.	Kontr.	mhng	16.53	16.49	-.54	.62
Ekper.	Kontr.	msjn	14.31	15.53	-3.36	.92

The experimental group which underwent the treatment from the scope of rhythmic gymnastics gave the results of the interval of entrust which show the existence of the differences in the utilisation of the experimental group with one characteristic of the motoric space of balance.

#### 4. CONCLUSIONS

After the experimental treatment, it was concluded that there are significant differences between female pupils in experimental and control groups and interest of experimental group evaluation of balance. The basic conclusion is that the female pupils of experimental group achieved significantly higher teaching effects than the control group, in view of partly increased motor abilities, being the result of the effects of the experimental treatment, as well as other external and internal factors. The main conclusion was that experimental treatment contributed better results in balance estimation tests in female pupils experimental group.

Considering the difference of the influence of the treatment, it can be pointed out that the experimental program of the artistic gymnastics with all its characteristics widely contributed to all its segments to the improvement of coordination in whole, while the treatment of the control group, which represented the official actual program for PE for younger female pupils did not give better results in any of the segments of motoric ability of balance of the examined female pupils.

While approaching any research, it is very difficult to determine in advance what kind of theoretical and practical value and how high that value will be in the results. It is especially difficult to foresee with certainty what the results will be for the longitudinal researches, and even in the best planned experiment.

It cannot be denied, among the other things, that the goal of every scientific approach in a kineziological area, that knowledge from the research should be checked and used in practice. For something similar, a certain amount of time is needed very often so to gain some knowledge of the given results, and accept them as possible solution for certain problems, or new knowledge that can be used in practice.

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**Key words:** *research, elementary school, experimental program, rhythmic gymnastics, balance.*