

## **Abstract:**

**Title:** Influencing the level of musical-movements abilities with a new programme of musical-movement education in girls on the secondary school.

**Objectives:** The aim of the work is to verify how the newly created programme of musical-movement education affects the level of selected musical and locomotory abilities of the pupils groups, aged 12-16 years. The partial goal is to assemble the intervention program of the modernized musical-movement education, fulfilling the current needs of girls of the given age and to create methodological materials for his teaching.

**Methods:** To verify the level of musical-movements skills, all groups used a battery of musically-movements tests: rhythmic adaptability test, rhythmic perception test, dynamic equilibrium test, collective movement creativity test (Brtníková, 2009) and distinguishing the pitch of tone in the Bentley's test. For data analysis, the following tests were used: Shapiro-Wilk's test, Levene's test, Wilcoxon test, paired T-Test, Mann-Whitney U-Test. Intergroup differences were evaluated by the single-way and two-way analysis of variance (ANOVA) in the statistical program R. Statistical relevancy and effect size has been done in the STATISTICA programme. Graphical representation through the boxplot and Q-Q chart.

**Results:** The measured results of the input tests showed different values, different input levels of each group (E1, E2 and K). The group's differences were evident in the tests of rhythmic abilities, the smallest differences between the input values in the Bentley test. One-way ANOVA was able to have a weak effect on the dynamic equilibrium ( $Pr < F 0.16$ ) and sensory-audit capability in Bentley's test ( $Pr < F 0.35$ ) of the experimental group (E1 + E2), although Wilcoxon test of statistical significance in the Bentley test did not prove. For rhythmic perception tests, and rhythmic adaptability, the prerequisites for using the variance analysis were not met.

The two-way ANOVA has investigated the relationship between individual interests to the results of probands in the test of musical-movement skills. Interest in dancing did not affect any of the variables. The interest of the musical

instrument had a moderate influence ( $Pr < F 0.08$ ) on the test results in dynamic equilibrium. The interest of gymnastics noticed a small effect ( $Pr < F 0.17$ ) on the results in the test of dynamic equilibrium and mean effect ( $Pr < F 0.04$ ) in the test of musicality. Interest in another sport scored with little interaction ( $Pr < F 0.12$ ) in the test of rhythmic adaptability. Statistical significance and effect size, overall in the experimental group (E1 + E2), was found in tests of rhythmic perception, rhythmic adaptability, collective movement creativity and dynamic equilibrium. The effect size of the program was found with a medium effect in the test of joint movement ( $d = 0.62$ ) of creativity, with a small effect in rhythmic perception tests ( $d = 0.45$ ), rhythmic adaptability ( $d = 0.31$ ) and dynamic equilibrium ( $d = 0.30$ ). In the test of sensory-auditive by Bentley's didn't found the statistical significance and effect size.

**Keywords:** *physical education, musical-movement education, intervention program, rhythmic abilities, equilibrium, pubescence, rhythmic gymnastics*