

THE EFFECT OF A LEISURE TIME SPORT ACTIVITY IN DEVELOPING MOTOR SKILLS OF YOUNG PEOPLE

empirical
study

Keywords

Children

Sport

Leisure activity

Tennis

Psychomotor skills

Abstract

The research aimed to see how the family members' involvement in the practice of leisure movement games (tennis) raises the children's movement wish and psychomotor skills: coordination, balance, rhythm, precision of movement.

In conducting this research were used the survey method, the observation method, the measurement-evaluation method and the statistical-mathematical method. Data was collected during 10 months from 76 children, aged from 10 to 13 years (± 3 months) and enrolled in a leisure movement game program.

Descriptive statistics indicate a significant effect of the variables: medicine ball throwing, speed running, endurance running and throwing target with the tennis ball.

One can see a positive effect due to the Evaluation – Intervention interaction: medicine ball throwing $\eta^2=0.12$, speed running $\eta^2 = 0.13$, endurance running $\eta^2=0.16$, throwing target with the tennis ball $\eta^2=0.21$.

Educational leisure time sport movement games raise the level of driving skill development and psychomotor qualities, based on a greater involvement in the correct performance of sport activities.

INTRODUCTION

It is highly spread and recognized the idea that physical activity has a lot of positive health outcomes. For children, this is particularly important as it improves motor skill development necessary for academic performance, self-perceived competence and self-esteem. Practiced in groups and games also has great social benefits, providing new skills while developing friendships (Emck, 2009).

Physical activity can be generally defined as any physical movement resulted from the skeletal muscle contraction. On the contrary, the widely regarded sedentary activities are watching TV, reading and computer games. Social Learning Theory (Hinkley, 2008) promotes that individuals learn their habits and attitudes in general and towards physical education in special, by observing and imitating their parents. Two aspects of parental behaviors that promote physical education were observed (Welk, 2003): the first was role modeling, which includes a parent's interest in PA as well as their effort to be active and second is parental support, which refers to parental encouragement, involvement and facilitation (e.g. providing access and opportunities for the child to be active).

METHODS

1. The Research Design and the Experimental Conditions

Research design used is a mixed 3x2 design intervention based on such variables we defined two groups: the experimental group and the control group.

Research methods: survey method, direct and indirect observation method, method of measurement and evaluation, statistical and mathematical method.

Data from measurements and evaluation tests used were registered to the individual and collective files in order to centralize, process, compare and discover relationships between them.

2. Measurements

2.1 Bio-Motor Measurements

By evaluating the bio-motor potential we obtain valuable information about the physical development of the individual, the existence of any musculoskeletal poor attitudes and physical condition information (characterized by hints of manifestation of strength, endurance, coordination, balance, speed in various forms, suppleness etc.) thereof, which, in our view constitute a platform for the manifestation of other forms of health (Cojocaru et al., 2011).

They fall into three categories: somatic measurements made on target body measurements: waist, torso, thoracic perimeter and body mass;

functional measurements that reveal the values of functional parameters (respiratory); driving measurements using an evaluation sheet.

In order to establish age and sex particularities, potential bio-motor typical preschool period and orientation of future intervention by the established protocol, the author used the following methods of measurement and evaluation (Câmpeanu, 2014):

Height - is denoted by H . Tools: straightedge / anthropometrical frame, weight and height measuring scale. Definition: the distance from the vertex point halfway between the two pterions. Measuring technique: standing issue, maintaining all body segments in anatomical position. It marks the vertex and halfway between the two pterions then performs precision measuring instruments in centimeters.

Weight - is denoted by W . The resulting weight of the sum of the components of the human body that skeletal mass, muscle, adipose tissue, mass of internal organs, the amount of water. Weight, the skeleton is 15-20%.

The weight varies during the day. These variations can be between 200g / day in young children and infants, up to 1 kg and 600 grams per adult, given the degree of filling of the bladder and water loss during the day, sweating, sleep after exercise.

Measuring technique - after checking scales, the subject completely naked or with minimal clothing sits on the scales. It avoids the subject on the scales balance. The touch must be made with whole sole and both legs. Performing such measurements is preferred morning, before eating and after emptying the bowels and bladder. To have a complete picture of the development of the matter, the weight will be reported to the waist. It is expressed in kilograms and grams. For children, however, the formula after which a ratio of weight and size is that of Lorentz (De Landsheere G. & De Landsheere V., 1999), shown as: children between 2-6 years: $W = (H-100) - [(H-123) \times 0.7]$

Torso - Tools: straightedge / anthropometrical frame, metric tape. Definition: the distance from the vertex point to the ischial line from a sitting position on the subject. Measuring technique: the subject seated, keeping all body segments in anatomical position. It marks the vertex and ischial line and the meter is placed between the two landmarks in centimeters.

Respiratory Rate Definition: The amount of oxygen necessary for vital body processes is ensured through breathing. Breathing consists of a rhythmic inhalations and exhalations succession. In normal condition, breathing is calm without any effort. Chest movements are symmetrical, rhythmic and barely visible. Items to be tracked to measure respiratory rate:

- Respiratory type
- Symmetry of respiration
- Amplitude of respiratory movements

- The frequency of respiratory movements
The thorax perimeter - or chest thickness measured in centimeters. Tools- metal band. The technique of measurement: metric tape placed below the top of the scapula posterior and anterior based xiphoid appendix, for men and at joint 4th coast sternum in women. Measure the dimensions of the maximum inspiration thoracic perimeter, thoracic perimeter in forced expiratory.

Was applied the battery of tests used in national testing, composed of five anthropometrical measurements: size, weight, torso, chest perimeter in inhalation and chest perimeter in exhalation.

2.2 Motor Ability Testing

At all ages were applied 5 tests used in national testing: speed, cardio-respiratory resistance, overall skill, the expansion force on the upper and on the lower limbs.

2.3 Motor Measurements

Were used 10 tests on children, namely: expansion force on lower and upper limbs, speed, overall skill, joint mobility and muscle flexibility, muscle endurance under force, cardio-respiratory resistance and running resistance.

Were made measurements and potential somatic motor of children born in 2009 and 2010 (3-4 years), applying 4 driving samples, which consisted of Detention arm, speed, overall skills, cardio-respiratory resistance.

3. Procedure

Study duration was 18 months; repeated measurements were made, yielding a total of three sets of data on which the analyses were performed. In the first phase from October 7 to October 18, 2013, were applied in preschool initial evaluation tests after a preliminary assessment, on the groups selected subjects (76 subjects).

Preliminary assessment at 3 years old children was performed by the test of A. De Meur (Albu C., Albu A., Vlad & Iacob, 1999), aimed at developing the body scheme. The tasks were driving body movements and body parts made by imitation. The sample represented a preliminary verification.

Preliminary verification was done in the first stage, by observing the children was intended, first, the answer instructed children to sit side by side on two benches, one after the other. Once all the children were sitting on the bench, indicated the formation of a circle of children and educator in the middle of the classroom, holding his hands. After amounting circle, placing children in the line indicated in a row, with a sidearm and reaching fingertips. First settled educator, and children were encouraged to sit in that formation.

Next to the children's motor response followed by imitation. The sequence of movements was performed in standing in line in a row, arms at the sides, at an interval of about two arm lengths to order and urge examiner in front of the group. May

run slowly, the following sequence of motions: time 1-2, carrying arms overhead and placing hands on the head, one over another and return with arms along the body; times 3-4, putting hands on hips and back; times 5-6, carrying a sidearm, return; times 7-8, carrying an arm stretched up and down the other side, while comeback.

Driving behaviors were tested by the following items and performance indicators:

- To execute the verbal command: walking "dwarf", 5-7 steps; Toe-walking, 5 to 7 steps; frog jumping, 3-5 jumps; riding "horses", a few meters. In total 8 points, 2 points for correctly executed sequence

- Easy runs to pass more than 5 obstacles (frames or blocks with a maximum height of 15 cm) located at 0.5 m distance; climb the climbing gym sitting on the bench with one end leaning on a pedestal 1 – 1.20 m high; by climbing down from the pedestal; throwing a ball the size of rounders' and they roll on the ground, 5-7 m with his right hand and then with his left hand, crawling under four tables. In total 10 points, 2 each for each sequence correctly executed

Psychomotor parameters were tested by the following items and performance indicators:

- On one foot standing ("Stork"), then on the other. Prior to testing children, were shown maintenance of standing on one leg, the other being raised or bent at the knees, arms raised side. The timer starts when the foot is lifted off the ground and stops when it returns to standing on both feet

- Walking along one gymnastics bench or on two benches put together, middle turn 360°, lowering jump back through 180°, went back 5-7 steps up to a line on the ground, walking with hands on eyes 5-7 m, to the right of a predetermined landmark (line, box, pole, etc.), two rolls of squatting in the squat. 18 points, 4 for each sequence correctly executed

The assessment criteria and parameters for psychomotor motion behavior were: very good - 18 points; well - 10 - 16 points; satisfactory - 6 - 10 points; unsatisfactory - under 6 points.

In this first stage, after the preliminary assessment was conducted the initial assessment, which consisted of anthropometrical measurements and on motor capacity.

The second phase covered the period October 28 2013 to May 16 2014, when was applied to the experimental group (38 subjects) the established "protocol" with the following objectives: static coordination enhancers, dynamic coordination of hands enhancers, improvers of general dynamic coordination, increase the speed of movements, improving basic motor skills luggage in close correlation with the level of bio-motor development, stimulating attention, memory motive, motivation during construction, incorrect body posture prevention. The objectives were achieved through the training program and teaching strategy in two sessions per week.

The control group (38 subjects) was applied to the classic teaching program.

In the third stage, May 19 to May 30 2014, we applied intermediate testing (according to established protocol) in both groups: experimental and control. We recorded the record sheet data subjects.

In the fourth stage, October 6, 2014 - March 27 2015, was applied to the experimental group (68 subjects) protocol established by teaching sports game situations, according to the results achieved in the intermediate testing. The control group (68 subjects) was applied to the classic teaching program.

For the period: 30 March to 10 April 2015, the final evaluation was carried out of the potential driving force both groups of subjects (136 subjects), followed by a period: April 13 to April 24, 2015, in which to process and interpret the data drawn from the experiment.

4. Data analysis

According to design, data analysis had the following course: was applied a 3x2 mixed ANOVA to quantify the degree of significance of main effects (the effect of a time of testing and the effect of the intervention) and composite effects (interaction between research and intervention time). An independent variable intra-subject has three ways: pre-intervention and post- intervention interim evaluation. The second type is variable between- independent two ways: intervention and control.

Global tests were followed by Fisher LSD post-hoc analysis (least significant difference) (Lyman & Longnecker, 2010), to highlight the variables' differences at the "time of evaluation".

If the interaction effect was different, t tests were used to describe the interaction. Inferential statistical analysis was complemented by an estimate of effect size. Inferential statistics were preceded by univariate descriptive statistics.

5. Results

The results of this study support the efficacy of "protocol" in the preschool program of activities. One important note was that preschoolers of both groups had better results at post- test assessment than pre -test, after going through the "protocol" intervention. The size effect confirmed that preschoolers have developed operational plans proposed by the driving qualities, taking into account the objectives set according to the results of the initial evaluation and intermediates. In this study, the experimental group was applied "protocol" for action (didactic sport games), while the control group was applied classical program of sports activities for participants' age.

The superior results obtained in the experimental group, seem to suggest that their level was

determined by the specific context of the Protocol or content differences. The results showed the effect of interaction, between the two variables Evaluation*Intervention statistically significantly higher in variables: vertical jump $\eta^2=0.11$; speed running $\eta^2=0.11$; torso bending $\eta^2=0.16$; torso extension $\eta^2=0.23$; tractions $\eta^2=0.21$; wall pushups $\eta^2=0.53$.

Independent t test results showed that the preschoolers in the experimental group, the mean values were significantly higher than those of preschool children in the control group, for the following variables: vertical jump t tests show significant differences between experimental and control groups stage interim study, $t(38) = 2.668$, ($p=0.009$). For variable speed running, t (74 degrees of freedom) indicates significant differences between the experimental and control in the intermediate stage ($t = 2.261$, $p = 0.025$) and the final one for the study, $t = 3.906$, ($p=0.001$); during initial phase differences are insignificant ($p>0.05$); If t-tests variable torso lifting (for 76 degrees of freedom) indicate no significant differences between the experimental and control group in all three phases ($p>0.05$) (see Fig. 1). For variable traction, t tests (for 76 degrees of freedom) indicate differences in the final phase of the study, $t = 5.252$, ($p=0.001$); in the first two stages are no significant differences ($p>0.05$); If the second test Running variable t (for 76 degrees of freedom) show significant differences in the final phase of the study, $t = 4.504$, ($p=0.001$); in the first two stages are not significant differences ($p>0.05$) (see Fig 1 & table 1).

Moreover, data collected descriptive statistics indicate a statistically significant effect (medium to large) of the following variables: throwing tennis balls $F(1,74)=0.751$, $p=0.388$, $MSE=11.167$, $\eta^2=0.006$; vertical jump $F(1,74)=1.563$, $p=0.213$, $MSE=15.824$, $\eta^2=0.012$; speed running $F(1,74)=7.206$, $p=0.008$, $MSE=8.320$, $\eta^2=0.051$; commuting $F(1,74)=35.029$, $p=0.001$, $MSE=27.297$, $\eta^2=0.207$; torso bending $F(1,74)=41.762$, $p=0.001$, $MSE=309.25$, $\eta^2=0.268$; torso extension $F(1,74)=27.409$, $p=0.001$, $MSE=476.541$, $\eta^2=0.194$ (see Table 1.); tractions $F(1,74)=26.084$, $p=0.001$, $MSE=1674.769$, $\eta^2=0.186$.

Thus, it was observed that the average value of the experimental group was located in the center of the target range, while the average in the control group was in the bottom of the target range. These results suggest further concluded that the protocol was applied to ensure preschool children increased from medium to large motor skills.

As applied to the experimental group intervention protocol (didactic sports), while the control group was applied classical educational program, the effect of the program was the one who made the

difference, being an important contributor to -the effect size values indicating the interaction between the Evaluation*Intervention two variables statistically significant medium to large in variables throwing tennis balls $\eta^2=.07$; vertical jump $\eta^2=.11$; speed running $\eta^2=.11$; torso bending $\eta^2=.16$; torso extension $\eta^2=.23$; tractions $\eta^2=.21$; wall pushups $\eta^2 = .53$

CONCLUSIONS

Organized activities done in leisure time are associated with better physical and mental health among teenagers, and this association is partly gender and age-specific.

A better understanding of motives behind physical activity or inactivity of young people could significantly contribute to evidence based planning and development of national strategies for public health and active living.

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FIGURES AND TABLES

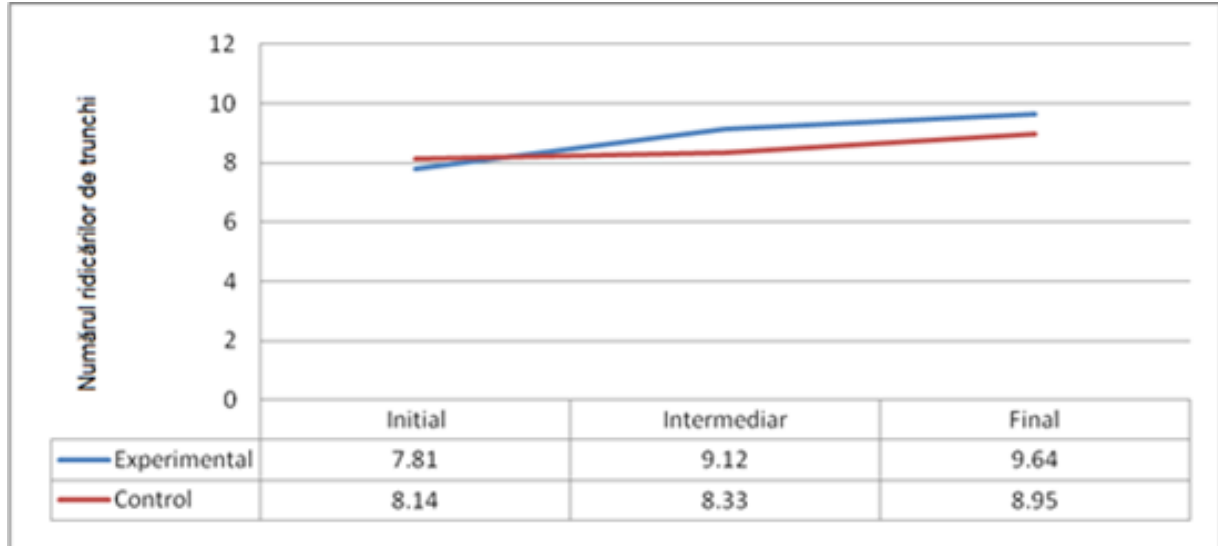


Fig. 1. Torso lift evolution for the two groups

Table 1. Descriptive Statistics for Torso Extension

Intervention	Mean	Std. Deviation	N
Initial Control	4.84	1.663	38
Experimental	4.47	1.809	38
Intermediary Control	6.62	1.981	38
Experimental	6.14	2.188	38
final Control	42.78	51.001	38
Experimental	6.88	2.217	38