Effects of kinesiological activity on preschool children's motor abilities

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What is the purpose of this research?

- to evaluate the effects of special kinesiological treatment on motor abilities in preschool children,
- to explore which motor skills can be significantly improved over one school year in preschool children,
- to highlight the benefits of additional kinesiological activities in the preschool age.
Sample of respondents

- The study included 111 healthy boys from the population of children of pre-school institutions in Novi Sad, Serbia.
- The experimental group consisted of 70 boys, average age 6.10 decimal years.
- The control group consisted of 41 boys, average age 5.61 decimal years.

Sample of variables (10 motor ability tests)

- Obstacle course backwards (coordination),
- Arm plate tapping (motion frequency),
- Seated straddle stretch (flexibility),
- One-leg test (balance),
- Crossed-arm sit-ups (repetitive strength),
- Bent-arm hang (muscular endurance),
- Standing broad jump (explosive strength),
- Speed of simple movements,
- Darts (precision), and
- 20-meter run (speed of running).
Experimental design

- We applied the classical quasi-experimental design with Pretest Posttest equivalent groups.
- The experimental group was made up of two groups of children who trained in a sports school, under the control of four professionals.
- The control group was made up of two randomly selected groups of the same age children from a kindergarten in Novi Sad. These children exercised according to the standardized program designed for kindergartens under the supervision of their teachers.

Experimental treatment

- Carried out by applying additional kinesiological activities; 60-minute treatment; twice a week; 9 months.
- The treatment was filled with many kinesiological activities:
  - perceptual-motor tasks,
  - creative movements,
  - tumbling, climbing, running, jumping, throwing . . .
  - different games,
  - rhythm and dance,
  - basic elements of team sports . . .
**Control group treatment**

- Carried out by applying the regular program of kinesiological activities prescribed for kindergarten in Serbia.
- 15 minutes of programmed activities each day, over 9 months, with no additional kinesiological activities
- Regular kinesiology activities included morning workout, games, running, jumping and simple exercises in the classroom.

**Results**

- At the initial state we did not obtain any statistically significant differences between the experimental and control groups in the analyzed variables.
- Using multivariate analysis of covariance in the final state, with covariates of the results from the initial state, we analyzed the effects of experimental treatments.
- We found that the entire system of variables statistically significant difference between the experimental and control groups after the administration of the experimental treatment.
  
  \[ F = 3.03 \; ; \; P = .002; \; \eta^2 = .252 \]
- In all studied variables the experimental group showed better average values than the control group.
**Results**

- The largest and statistically significant differences were registered in the variables **Seated straddle stretch** and **Standing broad jump**.
- Also, significant differences were obtained in the variables **Obstacle course backwards**, **Bent-arm hang** and **20-meter run**, but not statistically significant.

**Conclusion**

- The obtained results confirm a great possibility of development of explosive strength, flexibility, coordination and speed of movement in the preschool age.
- These findings point to the importance of physical exercise and the application of additional kinesiological activities with various modalities, to improve motor development of preschool boys.
- The effects of the perennial application of kinesiology activities could be beneficial and could form the basis for better biological and motor development.
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Thank you for your attention!