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THE EFFECT OF ROPE-JUMPING PLAN ON MOTOR PROFICIENCY OF FOURTH GRADE STUDENTS

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ABSTRACT

The aim of the present research is to investigate the impact of rope jumping plan on fine and gross motor ability among fourth grade students. The statistical population of this study comprised all fourth grade students of Shahr-e-Ghods, Tehran, among whom 120 boy and girl students were selected randomly through cluster sampling. Later the population was assigned in two groups of 60 people. The first group received the intended training, while the second group did not receive any training. The age range of the population was 9.8 ± 0.4 and the employed research method was ex post facto design. In order to calculate the motor proficiency score of these participants, a group of seven trained scorers and a short version of Bruininks-Oseretsky test (1978) were used. Moreover, students were asked to fill a questionnaire, asking about their personal and health condition information. The results of the two-way variance analysis showed that there is a significant difference between the two groups in terms of performing rope jumping skills (P=0.001) and the trained group received higher proficiency scores compared to the non-trained group. Nevertheless, there was no significant difference among boys and girls (P=0.776) and contrastive effect was observed among the groups and also among the two genders. As a result, the findings of this research showed that performing rope jumping plan enhances motor proficiency among boy and girl students.

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INTRODUCTION

Optimal motor skills should be set as a goal for all children, so that they can have a higher degree of control over their lives. Movement is instinctive in human beings and it plays a pivotal role in child's development. This role is critical in different areas including his cognitive, emotional, and motor development. Movement also provides the child with opportunities to interact with his environment and to react to his surrounding stimuli. Movement is considered as a primary tool for a child to collect information, a tool which helps him get constantly familiar with more complex information. Childhood is one of the most important stages of human being's development on which the foundation of the subsequent stages of development is placed. Considering development stages, individual differences and motor skills nature, paying attention to the childhood stageseems absolutelyessential. The speed and degree of development in any individual is determined differently (experiment) and these elements are significantly affected by task performance requirements. This is a critical stage, since all basic movements develop during this period and are later employed and modified in a specific sport. The main feature of this stage is level of transfer. It is axiomatic that health and joy derived from a healthy body lead to living a longer life and savoring the blessings of it. In order to have a healthy body, observing hygiene and engaging in physical exercises is essential.Having an analytical look at environmental factors (experience, learning, external), individual factors (inheritance, internal and biological) and also task factors (physical and mechanical), we can explore the cause and effect relationship inherent in motor development. Researchers and trainers believe that the primary goal of teaching and training is to foster the development and manifestation of children's talents and potentials. Development of different physical, mental and cognitive aspects of children and teenagers is possible through physical exercises. The manner of using body in different motor activities makes the child learn to move and through movement, the foundation of learning is established in him. The study of motor development dates back to the beginning of the twentieth century. The first serious attempts to study movement and its process during this period were made by Gesell (1982) and McGraw (1935) which led to the formation of maturation theory. One of the primary goals of child development study is to help trainers establish an efficient and constructive relationship with children. In

order for the perceptual-motor abilities of children to grow, early experiences are of significant importance. Although perceptual-motor abilities are differently portioned in individuals through inheritance and environment, one of the critical environmental factors in the development of these abilities is the way in which the critical early years of childhood are passed.Games and physical exercises play a central and modifying role in the enhancement of children's perceptual-motor development. When a child engages in a motor behaviour or activity, the joy, freshness or the merriment caused by the physical exercise and game leads in a way to the repetition of that activity or exercise in his motor and physical acts. The relationship between perception and motor activity has long been the focus of attention among scientists in the field of development. They have also developed theories in the perceptual-motor field to investigate this relationship. Kephart (1971) for instance, proposed the "perceptual-motor" theory, while Ayress (1972), Cratty (1979), and Delacato (1996) proposed "sensory integration", "vision physiology" and "neural organization" theories respectively. All these theories indicate the fact that perception and cognition, both have one single basis and in order for a child to organize his mental performances, his motor abilities need to be supplied. Nevertheless, some development specialists reject the theory based on which there is a relationship between cognition and motor-perceptual development. Williams (1983) and Crebbin (2001) for instance believe that we must not be so hopeful towards generalizing this theory.These scientists maintain that what matters is to be able to teach perceptual-motor abilities to students and they already have the potential to increase their perceptual-motor abilities while participating in games and physical activities.

Doing a series of coordinated movements by the child requires cognitive and mental planning, without which he would not be able to perform this act. To foster perceptual-motor skills in children, early experiences of the child are significant. In fact, the primary experiences of the child are critical to the enhancement of motor skills. During preschool and grade school, most children obtain the prerequisites of motor behaviors which are called fundamental skills. The goal of physical exercises during the grade school is the active participation of children in exercises. A child who does not possess necessary motor skills to participate successfully in activities which involves his

peers, needs assistance to improve and modify these skills. Physical activity plays a significant role in movement coordination and motor proficiency. Rope jumping is one of these sports which has been incorporated in the curriculum of fourth grade students. Exercising with rope leads to increasing muscular strength, physical resistance, cardiovascular health, balance, agility and coordination. Unfortunately rope jumping has been underestimated and not gained full recognition in Iran due to lack of information about the advantages of this sport. On the one hand, rope jumping has a positive effect on human's physical and motor fitness and on the one hand, it is accessible to the public and requires no specific time and place. As a result, this effective and advantageous activity can be used to enhance the level of physical and motor fitness among students, generalize sports in schools, occupy their leisure time and finally provide opportunities for students to participate in matches.

Selected grade school games have impact on motor development (dynamic balance, static balance, coordination, speed, agility and movement precision) in girls of third grade, but have no impact on strength. Physical activity causes increase in perceptual-motor performance in children between 4 and 6 years of age and its fundamental factors, that is balance, coordination, precision and the speed of finger movements. There is a significant relationship between strength or weakness in motor abilities and hours of playing the game. Physical activity has a significant effect on perceptual-motor abilities. Rope jumping program have had a significant effect on flexibility, agility, and aerobic capacity of the experimental group. Rope jumping improves body composition, cardio-respiratory performance and physical fitness among obese children. The level of motor ability is linked with school activities. Children who engage in physical activities have greater motor ability and proficiency compared to those children who do not involve in physical activities and the first group is stronger in terms of motor skills, running speed, and agility compared to the second group.

Not only is rope jumping program amusing and refreshing, it also accrues multiple physical and mental benefits such as decreasing weigh gain risk, diabetes and depression. It also boosts factors such as balance, coordination, agility, and cardiovascular strength. Rope jumping program is a decent activity to increase heart resistance, strength, agility and coordination in students. Basicmotor skills in childhood are the foundation of motor skills in

adulthood. The goal of this study is the comparison of motor proficiency among students attending rope jumping plan with those who did not participate in it.

METHODOLOGY

Participants

In studies which are conducted on humans, it is practically impossible to control all the existing variables in that research field. Therefore to investigate the impact of the independent variable, that is the general and obligatoryrope jumping curriculum among fourth grade students on motor proficiency of 10 year old children, the researchers employed Quasi-experimental design and causative-comparative research method.

The statistical population of this research included all of the grade four students of Shahr-e-Ghods in Tehran. Via cluster sampling, 120 male and female students were randomly selected and were subsequently assigned in two groups of trained and non-trained students. Each group included 60 students whose age range was 9.8 ± 0.4. and the applied research method was ex post facto.

Data Collection Procedure

Rope jumping training program which was performed by a trained teacher and supported by the ministry of education in the region of Shahr-e-Ghods from the beginning of the academic year until April (Ordibehesht) was the independent variable of this research, while motor proficiency which was measured by Bruininks-Oseretsky test was the dependent variable. In order to appraise the motor proficiency score, a group of seven trained people and the short form of Bruininks-Oseret sky test (1978) were applied.

Bruininks-Oseretsky is a test which is generally used in physical exercises studies and has been standardized by Bruininks (1970) to evaluate the motor condition after exercise. The abovementioned test appraises the motor proficiency of people of 4.5 through 14.5 years of age and in cases where a summary of general motor skills is intended to be surveyed, it facilitates fast evaluation.

The short form of motor skill test constitutes eight subtests, each with 14 items, and part of this 46-item- test is related to the long form of Bruininks-Oseretsky motor skill. This part provides the scores of running speed and agility (one item), static and dynamic balance (two items), two-way coordination (two items), muscular power of lower body (one item),coordination of upper body (two items), reaction speed (one item),visuomotor control (three items)and finally motor proficiency score of each individual.

The trained group comprised boys and girls who had spent their sport class hours in one academic year according to the schoolcurriculumand were able to do jumping with ropemovements (jumping with two legs, from the front; jumping with one leg, from back; and crisscross jumping with rope).However the non-trained group included students who could not participate in the national rope jumping plan because of their teacher's absence during sports class hours. To conduct this research, students were asked to fill a questionnaire about their personal and health condition information.

Two sets of statistical indexes, one explanatory (frequencies, means, standard deviation, graphs and tables drawings) and the other inferential (two-way variance analysis) were employed in this research. The statistical analysis was done by Excel and SPSS 22 software.

RESULTS

The results of variance analysis about the difference between the two groups and the two gendersare shown in table 1. The results show that there is a significant difference between the trained and non-trained group. The trained boys had a better performance regarding gross motor abilities compared to the non-trained boys. Moreover the trained girls showed a better performance in gross motor abilities compared to those who did not receive any training. Trained boys had a significantly better performance in fine motor skills compared to non-trained boys and trained girls displayed a better performance in fine motor skills compared to their non-trained counterparts.

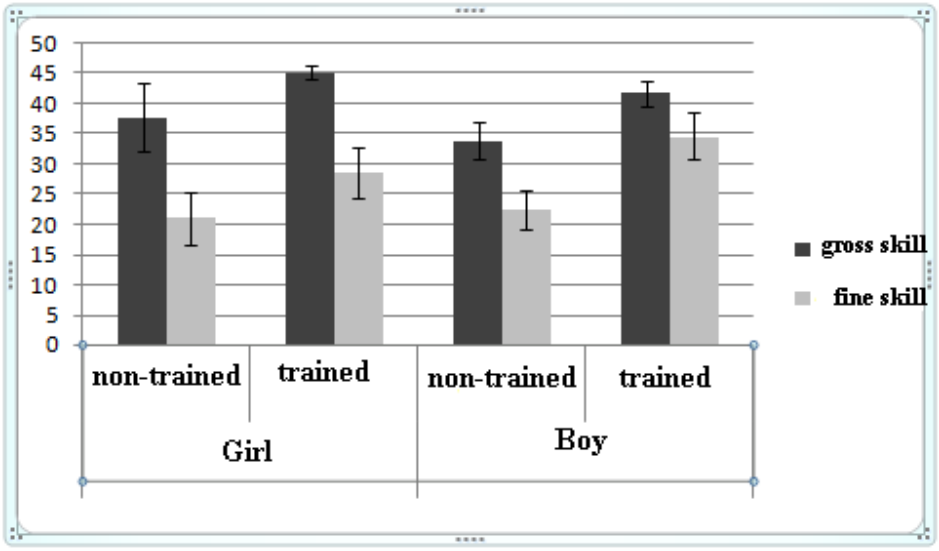
All in all, the trained boys and girls showed a better performance in comparison with their non-trained peers in terms of fine and gross motor abilities.

Table Number 1

level of significance	F Degree of freedom	Mean square		
0001*0/	67/81	3	26/3336	Modified model
0001*0/	71/239	1	13/9792	Group
7760/	0820/	1	33/3	Gender
0240/	22/5	1	3/213	Interaction
		116	851/40	Error

*Level of significance:0/P ≤.05

Graph Number 1:



DISCUSSION AND CONCLUSION

Considering the importance of motor development in children, specifically the issue of becoming more efficient in movements required in life, teaching and training fundamental skills individually, in combination, or with modification of these skills, such as specific sport requirements during the middle of childhood and teenage period are essential.

Hence appropriate motor tasks and suitable training time are the necessary components of successful teaching plans during these ages. Doing various exercises to achieve the advanced levels of fundamental motor skills in children and performing these skills in different forms are significant. Findings of this research have shown that rope jumping plan affects motor proficiency of students.

Therefore findings of this research are in line with the studies conducted by Rezvani Asl and Noorbakhsh (2005), Yousefi (2003), Khalaji and Emaad, (2002), Kordi (2000), Aghayi (1998), Chao and Shih (2010), Kwon and Hwang (2007), Piek et. al, (2006), Brian Wrotniak (2006), Nicklson (2005), and Marilyn Jane Wilson (2004) (13, 16, 17, 18, 19, 20, 21, 22, 21, 24 and 25).

Since the students participating in rope jumping program manifested a great improvement in perceptual-motor abilities, it can be said that these results are in opposition with maturation theoryaccording to whichthe development process is controlled by internal factors (genetic) rather than external factors (environmental), and that environmental factors temporarily affect the degree of development,buthereditary factors eventually control development.

Trained students obtained significantly higher scores compared to the students who did not receive any training in fine and gross movements and the coordination of upper body, and this difference can be due to rope jumping exercise program in schools of Iran.

Rope jumping program can be incorporated in schools curriculum. Students' lack of development in perceptual-motor abilities is due to the fact that there is no appropriate training in this area and non-expert teachers are used in sports class hours. Moreover lack of adequate space and facilities and insufficient sports class hours which are devoted to some other lessons at times can be other reasons for children's lack of development in motor proficiency abilities. Hence the findings of this research showed that performing rope jumping plan enhances the motor proficiency among boy and girl students.

SUGGESTIONS

Regarding the findings of this research, along with similar studies conducted so far and in line with the findings of this study, the hypothesis of proficiency level enhancement of individuals who opted rope jumping sport is supported. It is therefore suggested that this joyous and inexpensive sport be wisely and scientifically incorporated into grade school sport courses, so that having passed school courses in different educational systems in various countries, students achieve due levels of physical proficiency. The implication of performing rope jumping plan can be a new generation of students with acceptable physical proficiency levels around the world.

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