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Research Article

EFFECT OF 6 WEEKS OF ROPE TRAINING ON THE GROSS SKILLS AMONG CHILDREN AGED 10–12 YEARS-FOCUSED BOY STUDENTS

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ABSTRACT

The aim of this study is to examine the effect of 6 weeks of rope training on the gross skills among Children Aged 10–12 Years-Focused Boy Students. The study has been done in semi-experimental method. A recent study statistical society includes all boy students of elementary schools in which are learning Tanavarz National Project n in 117 schools in babul city. Statistical society has been selected randomly (cluster-stage) and in the first stage 3 schools and in the second stage in any school one class and in any class, about 18 students has been selected randomly and divided in three groups of control (n=15), fast (n=15) and demonstrations (n=15). Statistical datum has been analyzed by one-directed analysis and non-parametric test of Kruskal–Wallis and post-hoc test of Tukey by $SPSS_{22}$ software and in the meaningful level of $p \leq 0.05$. Findings showed participants do have the mean

height of 1.4±0.16 meter and the weight of 37.75±11.4 kg. Datum results showed Tanavarz Project from a statistical view in the two groups of fast and demonstrations does have a meaningful effect on balance, bilateral coordination, power, and growth of gross motor skills than to the control group. However, its effect on run speed and agility in the three groups were not meaningful. On the other hand, there is no meaningful difference among balance growth and two-directed coordination and the growth of gross motor skills in the group of fast-demonstrations Rope Training ($p>0.05$). Furthermore, there is the meaningful difference among the growth mean in children's power in the group of fast-demonstrations Rope Training ($p=0.001$). On the other hand, fast Rope Training does have a meaningful improvement in children's power growth in fast Rope Training to showing one. Rope Training could be a suitable program for the development of the gross motor skills of boys.

Keywords: Rope training, Gross skills, Elementary school students, Boy.

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INTRODUCTION

Movement is a natural one and does have a central role in children's growth. This role is critical on different grounds such as recognition growth, sentimental growth, and movement growth. Movement provides interaction to the environment and responding to environmental stimuli. Movement is the primary instrument in gathering information in children and helps them to be familiar with more complicated information (Gallahue and Ozmun, 2002).

One of the most important objectives of children's growth study is to help trainers in communicating with children effectively (Parsa, 2006). To grow understanding-movement abilities in children, primary experience is very important. Although understanding-movement abilities do have different ratio related to environment and heredity, one of the important environmental factor in the growth of these abilities is to how pass elementary years and sensitive years of children (Fallah, 1998).

Game and physical activity does have a sensitive and refining role in strengthening the level and understanding-movement growth in children. When the child does activity or movement behavior, pleasure, freshness, and game leads to repeating activity in movement and bodily activity (Mofidi, 1998).

Rope training is a feasible and perfect activity in which does have a positive effect on all bodily fitness and movement factors and is very cheap and in access of general in any place now is an independent sports field, seeking and compounded of different skills such as rhythmic and is along with acrobatic skills along music in which be executed by one, two and group in the two parts of fast and demonstrations. This sports field as sports activity, in the scientific method and basic sport would be applied for increasing fitness level and general body fitness, especially in low age in school sport and university (Tanavarz Project Method, 2011).

Almost basic understanding-motor skills are gross motor skills. Gross motor skills are those which are using the great muscle of the body and include skills for moving the body in space (movement, maintaining a balance against earth's gravity force (stability movement) and giving force to objects and getting their forces (touch up movement) (Derashgi, 2007).

The study result of Melby (1936), Wilber (1966), and Roozen (2006) showed executing jump experiment by rope is a valuable activity in which leads to improvement in muscle power, bodily resistance, heart health and blood vessels dependent to it, balance and bodily balance, agility and coordination among body muscles.

Body good control are situation, balance and body's element symmetry and jumping to rope and bodily fitness are skills, innovation power and creativity are the possible result of this activity (Wilber, 1966).

Rapidity and speed of hands and feet are of the two-sport characteristic influential on competitive superiority of all sports. Ropewalking is an experimental instrument without requirement of high time and different experimental meeting in a week increases rapidity and speed (Lee, 2010). Speedy experimental program strengthens upper part of body and lower part of body. In general, in a 4-weeks period after executing regular speedy experiment in athletes, corpus and forearm strengthen outstandingly. The ability of muscles behind feet shank and four heads of femur develops shoulder muscles and back and improve maintenance mode and balance of body (Lee, 2010). Student or athletes begins to game jugging by trainer order in 30 seconds. When rope has passed under right feet, counting would begin (Tanavarz project method, 2011).

There are so many skills in showing section as one, two persons or groups by short and tall rope and by two or more ropes (Roohi *et al*.,

2010). Education program in national design of ropewalking has been approved and executed in country's schools in which include ten skills proposed and designed by rope walking association (Jumping-Rope project guide direction, 2011; Sadatrezaei, 2005).

Of these skills, 6 skills includes: jumping twice and passing rope one time (stop on the feet) zigzag (jumping pair in any direction)pair back and forward, (open feet in each direction) feet scissor from forward, waist round is of gross skills. Ropewalking is improving coordination of nerves and muscles, improves motor rhythm, increases speed and

reaction, and develops body capability (Roohi *et al*., 2010).

Rope Training experiments strengthen balance in athletes (Way, 2013). Youkslen (2008) study result showed bodily experiment influences on balance of 3-6years old children. Srhoj (2002), Srhoj *et al*. (2006), Gholami *et al*. (2013), Aldmier *et al*. (2013), believes there is positive relation among balance and agility and by improvement in one of them, the other will improve, too. Balance and agility grow by children interaction to environment and experimentation through it. Balance and agility in game form is a pleasurable activity for children and involvement of non-game. In general, Rope Training strengthens body readiness- motor-like coordination among nerve and muscle, agility, rhythm, and transformation speed in a short term (Hall *et al*., 1980; Perrot and Bertsch, 2007, Makiani, 2011).

Williams (1983) found balance progress from 3 to 18 years old by reviewing age and gender differences. Simons *et al*. (1990) along with this result have found linear increases in a stable balance of girls in 6–18 years old. Different study's results showed in general, women in childhood, in the two stable and seeking balances are better than men, but this superiority would vanish in youth (Gallahue and Ozmun, 2002).

Williams and Hodes (2008) in a study on school boys and girls have concluded growth of basic skills is not influenced by contribution in sports activity and only grows based on age and boast.

Emarati *et al*. (2011) study result showed school selective games does have a meaningful influence on speed, upper-part coordination, upper-part agility and understanding-motor growth in testier, but its influence are not meaningful in stable-seeking balance, bilateral coordination, power, response speed, visual-motor control, and social growth of testier.

A study has been done in general are influential on rope walking and motor skills (Makiani, 2011; Chao and Shih, 2010; Nikleson, 2005; Ozer *et al*., 2011). But we compared fast and demonstrations experiment influence on gross skills in the expert term, for the first time. As we mentioned above, and the result of the studies requires examining the influence of the Tanavarz National Project on the gross motor skills of boy students in four grade? Does fast Rope Training education is influential on student gross motor skills in this age? Does demonstrations Rope Training education is influential on boy students gross motor skills?

METHODOLOGY

The method of research is semi-experimental. Statistical Society of Research includes among children aged 10–12 years-focused boy students in Babol city. They are educating in 117 schools. Among them, they have been selected randomly (cluster-stage) in the first stage 3 schools and in the next stage in any school, one class and in any class student, 15 students have been selected randomly in which divided into three equal groups of control (n=15), fast group (n=15) and demonstrations group (n=15). Therefore, the research statistical society includes 45 students. Students executed Rope Training practice in the two groups of demonstrations and fast in 6 weeks and any two weeks by 40 minutes. In any meeting, at first about 10 minutes has done general body warming including tension, movement, jumping fitted to the student age. This group has done 10 minutes to class activity and 20 minutes to Rope Training program as the method of Tanavarz project (2011) and used of Bruininks-Oseretsky gross motor skills test including four subtests in run speed and agility, balance, bilateral coordination and power. The research hypothesis has been tested by the aid of inference statistics in variance one-directed analysis and post-hoc Tukey test and the used of SPSS software in analyzing datum.

FINDINGS

Contributors do have a mean height of 1.4±0.16 meter and the mean weight of 37.75±11.4.

The result of the Kruskal–Wallis test is in Table 1 shows there is no meaningful difference among the mean of run speed and children's agility in the speedy rope walking group, showing and control group ($p=0.052$, $x^2=5.92$). Furthermore, there is meaningful difference among the mean of children's balance mean in the speedy rope walking group, showing and control group ($x^2=26.21$, $p=0.001$). Therefore, we have used of pair comparison to equilibrium for determining the resource of difference and test of sub-hypothesis.

The result of pair comparing in Table 2 shows there is meaningful relation among the mean of balance growth in children in the fast Rope Training group (3.37) and control (0.06) ($p=0.006$). In other words, speedy ropewalking leads to meaningful improvement in children balance. There is meaningful difference among the mean of children balance in the demonstrations Rope Training group (6.000) and control (0.006) ($p=0.001$). In other words, demonstrations of Rope Training leads to meaningful improvements in children's balance growth. Furthermore, there is no meaningful difference among the mean of balance growth in children in the fast and demonstrations Rope Training group. ($p=0.142$).

The result of the Kruskal–Wallis test in Table 3 showed there is the meaningful difference among the mean of bilateral coordination in the fast Rope Training group, demonstrations, and control group ($x^2=28.46$, $p=0.001$). Therefore, we have used pair comparison to equilibrium in determining different resources and testing sub-hypothesis.

The result of pair comparison in Table 4 showed there is the meaningful difference among bilateral coordination mean growth in fast Rope Training group (4.21) and control (1.80) ($p=0.001$). In other words, fast Rope Training leads to meaningful improvement in children bilateral coordination. There is meaningful difference among the growth of

Table 1: The result of Kruskal–Wallis test for subtest of growth, run speed and agility

Variable	χ^2	df	Significant
Run speed and agility	5.92	2	0.052
Balance	26.21	2	0.001

Table 2: The result of pair comparing for sub test of balance growth

Groups	Test statistic	Significant	Adjusted significant
Fast-control	−14.76	0.001	0.006
Demonstrations-control	−24.23	0.001	0.001
Fast-demonstrations	−9.46	0.047	0.142

Table 3: The result of Kruskal–Wallis test for sub test of bilateral coordination growth

Variable	χ^2	df	Significant
Bilateral coordination	28.46	2	0.001

bilateral coordination in the demonstrations Rope Training group (4.93) and control (1.80) (p=0.001). In other words, demonstrations of Rope Training leads to meaningful improvement in children's bilateral coordination growth. Furthemore, there is no meaningful difference among the mean of bilateral coordination in children in the fast Rope Training group and demonstrations (p=0.639).

The result of the Kruskal–Wallis test in Table 5 showed there is the meaningful difference among the mean of power growth in fast, demonstrations, and control demonstrations Rope Training group (x^2=23.51, p=0.001). Therefore, we have used of pair comparison in determining the resource of differences and testing the sub-hypothesis.

The result showed there is the meaningful difference among the mean of children power growth in the fast Rope Training group (2.33) (p=0.001). In other words, fast Rope Training leads to meaningful improvement in children's power growth. There is no meaningful difference among children in the mean power growth in the fast Rope Training group (2.33) and demonstrations (0.40) (p=0.001). Therefore, in other words, fast Rope Training leads to meaningful improvement in children's power growth than demonstrations of Rope Training.

The result of one-directed variance analysis in Table 7 showed there is meaningful difference among the mean growth of children gross motor skills in the demonstrations Rope Training group, fast and control group (p=0.001, f(2,42)=31.44). therefore, we have used of Tukey post-hoc test for determining difference between resource and sub hypothesis test.

The result of the Tukey post-hoc test in Table 8 showed there is the meaningful difference among children's gross motor skills in the fast Rope Training group (10.93) and control (2.40) (p=0.003). In other words, fast Rope Training leads to meaningful improvement in children gross motor skills. There is the meaningful difference among children''s gross motor skills in demonstrations Rope Training group (12.13) and control (2.40) (p=0.001). In other words, demonstrations Rope Training leads to meaningful improvement in children's gross motor skills. Furthermore, there is not meaningful difference among the mean growth of children's gross motor skills in the demonstrations Rope Training group and the fast one. (p=0.645).

DISCUSSION AND CONCLUSION

The result from examining one hypothesis based on the difference among the mean speed growth and boy agility in the fast Rope Training group, demonstrations, and control does not have a meaningful difference (p>0.05). The result showed Rope Training practices are influential on run speed growth and agility, but there is no meaningful difference among different groups. The result of recent study is the same as Akbari (2013), Vazinitaher *et al*. (2013), Ghasemi *et al*. (2012), Emarati *et al*. (2011), Makiani (2011), Alimahammadi (2009), Heidari *et al*. (2009), Rezvaniasl and Noorbakhsh (2007), Vertnaik *et al*. (2006), Nikelson (2005), and Vilson (2004). The cause of non-symmetry is that before researchers do not divide testier groups in the two demonstrations fast and only evaluated the influence of Rope Training

in the two test and control groups.

In a recent study, students received about 6 weeks and any week about 2 meetings and about 40 minutes of Rope Training program. Because student contributing Rope Training program does have more progress in understanding-motor skills, we indicate this result are against boast theory in which indicates growth procedure would be controlled through internal factors (genetic) and no external (environmental and environmental factors are influential on the amount of growth temporarily and at last heredity factors does control growth (Heywood, 1993).

Rope Training program could be executed as an educational program in schools. One of the causes of none growing in students in understanding-motor skills is lacking a feasible educational environment in this regard. The other one is using non-physical education teacher in sports hours.

Furthermore, lacking space and adequate facilities and the low amount of sports hours in schools in which these hours would be dedicated to other lessons. At last, we compared the three groups of control, showing and speedy and showed there is no meaningful difference among these groups. However, speedy rope walking group does have more growth than control and showing in motor-recognizing skills in which approves the influence of the ropewalking program on the growth of recognizing-motor skills in students.

The result of examining the two hypotheses showed there is the meaningful difference among the mean balance growth in boy students in speedy, showing and control groups. (p≤0.05)the result of recent study is the same as researchers like Makiani (2011), Rezvaniasl and Noorbakhsh (2005), Sheikh *et al*. (2003), Khalji and Emad (2004), Koan and Houng (2007), Rotinak *et al*. (2006), Nikleson (2005), Wilson (2004), but is not the same as Emarati *et al*. (2011) result. Findings difference is related to the influence of expert exercise on stable equilibrium and seeking contributors. Because the ropewalking program does not require special space and does have simple facilities, it requires providing facilities by authorities and student develop their understanding- motor abilities by contributing to these exercises. Furthermore, the comparison among the three demonstrations, fast and control groups showed there is meaningful difference among demonstrations - control group and is not the same for other groups (fast, control, demonstrations). In other

Table 4: The result of pair comparison for bilateral coordination growth test

Groups	Test statistic	Significant	Adjusted significant
Fast-control	−17.57	0.001	0.001
Demonstrations-control	−23.60	0.001	0.001
Fast-demonstrations	−5.82	0.213	0.639

Table 5: The result of Kruskal–Wallis test for power growth sub test

Variable	χ^2	df	Significant
Power	23.51	2	0.001

Table 6: The result of pair comparison in power growth subtest

Groups	Test statistic	Significant	Adjusted significant
Fast-control	−4.16	0.352	1.000
Demonstrations-control	−20.53	0.001	0.001
Fast-demonstrations	16.36	0.001	0.001

Table 7: The result of one-sided variance analysis for growing gross motor skills

Variable	Difference place	SS	df	MS	F	P
Gross motor skills	Among groups	844.99	2	422.4	31.44	0.001
	Inner groups	564.2	42	13.4		
	Total	1409.2	42			

Table 8: The result of Tukey *post hoc* test for gross motor skills growth

Groups	Significant
Fast rope training	
Control	0.001
Demonstrations rope training	0.645
Demonstrations rope training	
Control	0.001
Fast rope training	0.645

words, demonstrations Rope Training group does more equilibrium than fast and controlled Rope Training groups.

The result of examining three hypotheses showed there is meaningful difference among two-sided mean coordination of boy students in speedy rope walking group, demonstrations - control ($p \leq 0.05$). Recent study result is the same as researchers like Makiani (2011), Rezvaniasl and noorbakhsh (2005), Sheikh *et al*. (2003), Khalji and Emad (2002), Ozer (2011), Koan and Hung (2007), Niklson (2005), Wilson (2004). Furthermore, we compared three controls, fast, demonstrations groups and result showed there is meaningful difference in comparing the two demonstrations-controls, and fast-control groups and this difference is not the same as comparing fast- demonstrations group. In other words, demonstrations of Rope Training and fast groups do have more growth in coordination than the control group. The study result is not the same as Emarati *et al.* (2011), because strengthening this aspect of recognizing-motor growth requires expert exercise or long-term exercise. Because Rope Training program develops coordination in students, it is necessary to prepare facilities for students to develop their coordination by physical education experts.

The result of four hypotheses showed there is meaningful difference among the mean power growth in boy students in fast Rope Training, demonstrations and control groups ($p<0.05$). Recent study result is the same as researchers like Khalji *et al*. (2002), Ozer (2011), Matvinkow and Ahrabifard (2010), Koan and Houng (2007), Wilson (2004). Also, the comparison among three control, demonstrations and fast group showed there is the meaningful difference among comparing demonstrations-control and fast- demonstrations groups. This difference is not the same as the demonstrations-control group. In other words, the fast Rope Training group does have more power growth than control and demonstrations groups. The study research is not the same as Sheikh *et al*. (2003), because any motor program does have different influence on un structure factors of recognizing motor skills, also is not the same as Emarati *et al*. (2011) result, power increases is dependent to two factors of muscle measure and ability of central nervous system in general stimulating of muscles. Achieving these two factors require the principle of added loading during long-term exercises.

The result of the fifth hypothesis examination showed there is the meaningful difference among gross motor skills in boy students in the fast Rope Training group, demonstrations, and control ($p \leq 0.05$). In other words, fast and demonstrations Rope Training leads to meaningful improvement in gross motor skills in children. Recent study result is the same as researchers such as Akbari (2013), Vazinitaher *et al*. (2013), Ghasemi *et al*. (2012), Emarati *et al*. (2011), Alimohammadi (2009), Heidari *et al*. (2009), Mohammadi *et al*. (2008), Khalji *et al*. (2002), Sheikh *et al*. (2003), Ozer (2011) Matvinkow and Ahrabifard (2010), Koan and Houng (2007), Wrerotinak *et al*. (2006), Miler (2006), Nikleson (2005), Wilson (2004) Ventesano and kambas (2004). Furthermore, there is no meaningful difference among fast and demonstrations Rope Training influence on gross motor skill growth in children.

Based on the study result, we indicate ropewalking program is influential on sub-structure factors of different dimensions of recognizing-motor skills, especially gross motor skills. If it is practiced in the correct method and in a feasible amount, could have an outstanding role in improving and developing balance, coordination, and student power.

CONFLICTS OF INTEREST

No reports on the conflicts of interest.

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