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Effect of fine motor skill intervention on gross motor coordination in primary school children

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Abstract

The purpose of the study was to examine the effect of fine motor skill intervention programme on gross motor coordination in primary school children. Total 60 students were selected randomly, the age group of the subject were between 7 and 9 years. The subjects were divided into two groups, one was experimental group and another was control group, each group consists of 30 subjects. Experimental group restricted to 12 weeks of fine motor skill development training program, control group did not perform any fine motor skill development programme. The training session was conducted in three alternate days per week, each session consists of 60 minutes. This study was restricted to selected locomotor skills and objective control skills and total gross motor coordination abilities chosen as performance variable of the children. The pre and post test was conducted after intervention. Based on the analysis of statistical results the twelve weeks of specific fine motor skills development programme had significantly improved locomotor skills, objective control skills and gross motor coordination among the 7-9 years children of experimental group than the Control Group.

Keywords: Fine motor skill, gross motor coordination, locomotor skill, objective control skill, children

1. Introduction

Gross motor skills are the abilities required in order to control the large muscles of the body for walking, running, sitting, crawling and other activities. Motor skills are actions that involve the kineticism of muscles in the body. Gross motor development is defined as the acquisition of control and use of the large muscle masses of the body. The preschool years are characterized by the appearance and mastery of a number of gross motor skills also known as "the fundamental motor skills." These fundamental motor skills include body projection (locomotor skills), body manipulation (non-locomotor actions), and object control or ball handling skills. Body projection or locomotor skills include running, jumping, hopping, skipping, galloping, leaping, and sliding (Gallahue & Ozmun, 2002; Ulrich 2002; Williams, 1983) [2, 8, 9]. This aspect of motor skill development includes those factors and processes that are important to the development and performance of all motor skills. These factors include, among others, gender, body size and composition, cardiovascular endurance, flexibility/range of motion, muscular strength, neurological integrity, adequate sensory system function, perception, cognition, etc. These are all underlying factors that contribute to the pattern of gross motor coordinative development.

1.1 Statement of the Problem

The purpose of the study was to analyse the effect of fine motor skill training intervention impact on gross motor coordination among children with the age group between 7 to 9 years.

2. Methodology

2.1 Selection of subjects

Sixty pre children those who voluntarily consent was recruited from Jyothis central school, Thiruvananthapuram, Kerala for the purpose of this study. Their age group ranged between 7 to 9 years. The children were selected randomly and divided into two groups, experimental group and control group, each group consisted of thirty children. The experimental group had undergone specific fine motor development training for twelve weeks, the control group did

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not take part in any specific training for the period. Both the groups were selected according to the following criteria, (a) no physical or motor deficits, (b) normal hearing and corrected vision, (c) no language or learning disability, (d) no illness lasting more than three months immediately before or during school attendance.

2.2 Selection of variables

The independent variable as specific fine motor skills development programme and dependent variables are gross motor coordination. The gross motor coordination divided into sub divisions of Locomotor Skills, Object Control Skills and Gross Motor Coordination.

2.3 Test Administration

The dependent variables were tested prior to the training and

immediate after the training of the children. Test Gross Motor Development (TGMD-2) test was used to testify all the children. This test described three variables such as Locomotor Skills, Object Control Skills and total Gross Motor Coordination. The Locomotor Skills test consists of run, hop, gallop, leap, horizontal jump, and slide, the Object Control Skills test consists of ball skills such as striking a stationary ball, stationary dribble, catch, kick, overhand throw, and underhand roll and the Gross Motor Coordination test consist of total scores of locomotor skills test and object control skills test. The scores were recorded in points.

3. Results & Discussion of the study

Analysis of Covariance (ANCOVA) was applied to find out the mean difference of specific fine motor skill development programme among the experimental group and control group.

Table I: Analysis of Covariance among, Experimental and Control group on Locomotor Skill (in Points)

Test	Experimental Group	Control Group	Df	Sum of Squares	Mean Square	F - ratio
Pretest Mean	29.70	26.73	B 1	132.01	132.01	1.95
			W 58	3914.16	67.48	
Posttest Mean	38.16	30.30	B 1	928.26	928.26	32.19*
			W 58	1672.46	28.83	
Adjusted Posttest Mean	37.23	31.23	B 1	521.84	521.84	252.71*
			W 57	117.70	2.06	

*Significant at 0.05 level of confidence; F table value df 1 of 58 & 57 is 4.02.

It is evident from the Table-I that, the adjusted posttest means of experimental group and control group on locomotor skills

were 37.23, 31.23 respectively and it was found to be significant with F ratio of 252.71 at the table value 4.02.

Table II: Analysis of Covariance among, Experimental and Control group on Objective Control Skill (in Points)

Test	Experimental Group	Control Group	Df	Sum of Squares	Mean Square	F - ratio
Pretest Mean	27.26	23.66	B 1	194.40	194.40	3.69
			W 58	3052.53	52.63	
Posttest Mean	38.66	29.16	B 1	1353.75	1353.75	76.91*
			W 58	1020.83	17.60	
Adjusted Posttest Mean	37.74	30.08	B 1	828.42	828.42	207.70*
			W 57	227.33	3.98	

*Significant at 0.05 level of confidence; F table value df 1 of 58 & 57 is 4.02

The discussion from the Table-II that, the adjusted posttest means of experimental group and control group on objective

control skill were 37.74, 30.08 respectively and it was found to be significant with F ratio of 207.70 at the table value 4.02.

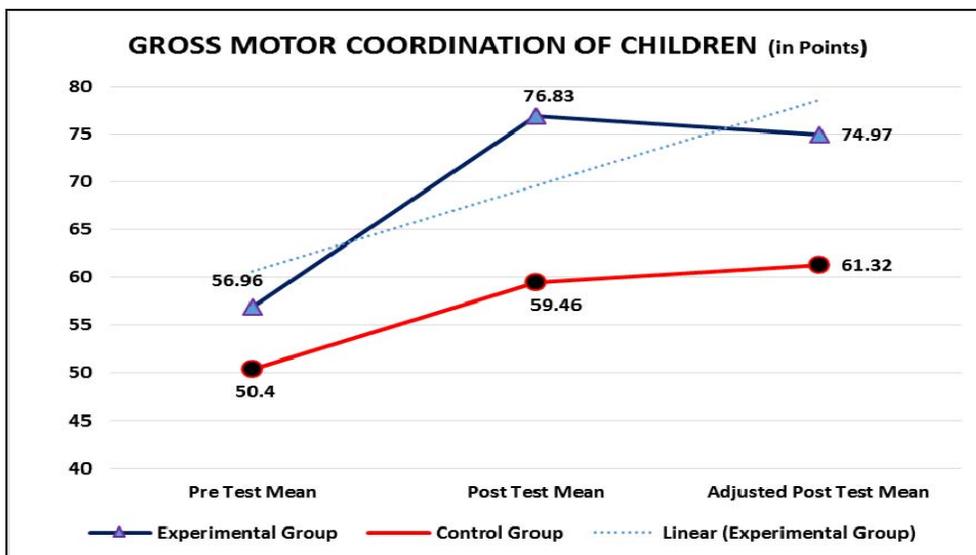
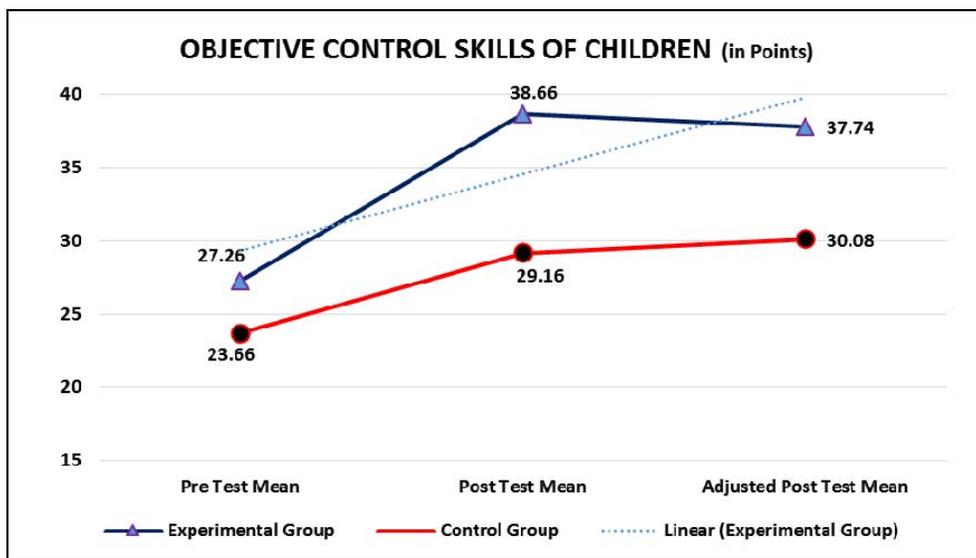
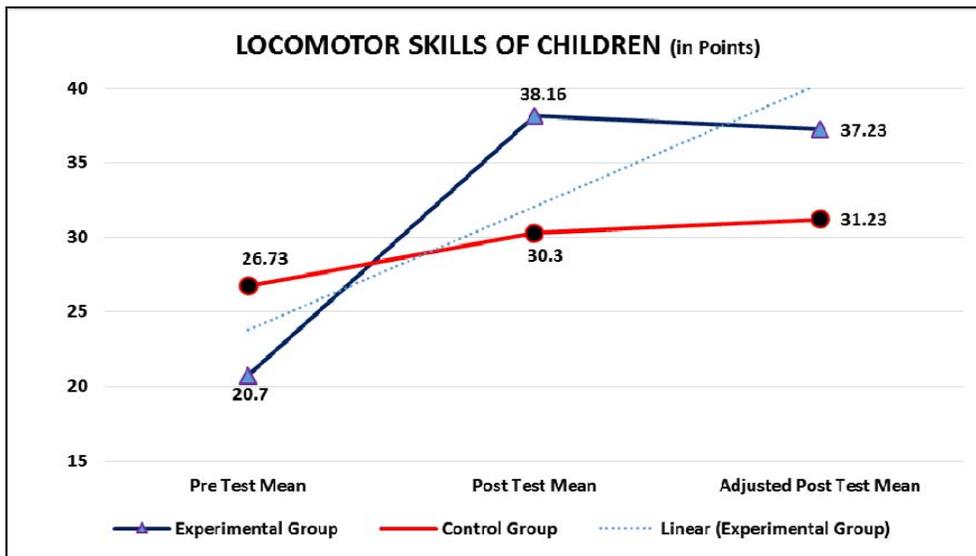
Table III: Analysis of Covariance among, Experimental and Control Group on Gross Motor Skill (in Points)

Test	Experimental Group	Control Group	Df	Sum of Squares	Mean Square	F - ratio
Pretest Mean	56.96	50.40	B 1	646.81	646.81	3.18
			W 58	11796.16	203.38	
Posttest Mean	76.83	59.46	B 1	4524.01	4524.01	63.29*
			W 58	4145.63	71.47	
Adjusted Posttest Mean	74.97	61.32	B 1	2651.99	2651.99	398.27*
			W 57	379.55	6.65	

*Significant at 0.05 level of confidence; F table value df 1 of 58 & 57 is 4.02

The result of the study from the Table-III stated that, the adjusted posttest means of experimental group and control group on gross motor skills were 74.97, 61.32 respectively and

it was found to be significant with F ratio of 398.27 at the table value 4.02.



4. Conclusions

1. The results showed that, the experimental group had significantly improved the locomotor skills among the 7-9 year children after 12 weeks' intervention of fine motor

skill training programmes when compared with the Control Group.

2. The 12 weeks' intervention of fine motor skill training had significantly improved Objective Control Skills

among the 7-9 year children of experimental group than the Control Group.

3. The results showed that, overall Gross Motor Coordination of the experimental group had significantly improved than the Control group after the intervention period.

5. Recommendations

1. The results of the study strongly recommend that, the fine motor skill development programmes are very suitable training programme to develop the locomotor skills, objective control skills and total gross motor coordination among the children.
2. The fine motor skill programmes may be included in the curriculum of primary schools, it helps to develop the children's movement coordinative abilities.
3. This training may suitable to all age and both gender of children.
4. Test Gross Motor Development (TGMD-2) test could be introduce in the school protocol to find out the gross motor coordinative ability of the children.

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