

Effect of Integrated Development Training Programme on Fundamental Motor Skills of Kindergarten Children

Praveen Kumar S¹, Madhukara Agraharada²

¹Physical Education Director, Adichunchanagiri Institute of Technology, Chikmagalur 577101, Karnataka, India

²Physical Education Director, Sri Maata Degree College Hosapete 583201, Vijayanagara, Karnataka, India

Abstract: *Despite the common belief that young children are always moving, research suggests that many young children are not. Play time has been reduced or even eliminated in some kindergartens and preschools because of a new emphasis on academic learning. The present study explored the effect of integrated development training programme on fundamental motor skills of preschool children. The subjects selected for the purpose of the study were twenty three boys and girls studying in Lower Kindergarten (LKG) during the academic year 2015 - 16. The present study included Test of Gross Motor Development for testing motor skills during pre and post test situations (Ulrich, 1985). The experimental design selected for the present investigation was single group pre test - post test design. Mean, Standard Deviation and 't'scores were calculated using SPSS. Significant increase in total fundamental movement skill due to participation in integrated development training programme for six weeks was observed in preschool kindergarten children.*

Keywords: Fundamental, motor skills, preschool children, obesity, coordination, physical activity, development

1. Introduction

Decades of research have shown that play is an important mediator in the physical, social, cognitive, and language development of young children (Bergen, 2002; Garvey, 1993; Vygotsky, 1976). In spite of this, play faces threats from many directions in modern society. The growing emphasis on standards, assessment, and accountability in schools has led to a reduction in outdoor and active physical play. In many schools and centers, play has been all but eliminated to make room for quieter, academic learning (Stipek, 2006). Preschools and kindergartens in public school settings have become particularly regimented and adult - directed, with teachers feeling compelled to increase literacy and numeracy instruction at the expense of play time (Golinkoff, Hirsh - Pasek, & Eyer, 2004). Passive television viewing and use of other media are also replacing active play, and have even been found to interrupt the play of young infants (Schmidt, Pempek, Kirkorian, Lund, & Anderson, 2008; Zimmerman, Christakis, & Meltzoff, 2007).

The human brain is basically designed for play at birth (Brown & Vaughan, 2009). Based on clinical interviews with adults and children and review of both animal and human studies, Stuart Brown concludes that active play is required for healthy brain growth. In particular, play is essential for developing those parts of the brain required for regulating behavior and emotions. New research findings support this contention. Research shows that the trend of reducing play time in preschool and kindergarten to increase learning is counterproductive (Blakemore, 2003).

Another major reason to include motor play experiences in preschools is to promote physical health. Low physical activity level in the early years predicts later health problems (Dehghan, Akhtar - Danesh, & Merchant, 2005). Young children who are sedentary as preschoolers are more likely

to become obese in later childhood and as adults. Adult obesity is linked to diabetes, heart disease, and other medical conditions (Hassan, Joshi, Madhavan, & Amonkar, 2005). A sedentary play style in the early years is likely to become an overall sedentary lifestyle: inactive preschoolers are highly likely to become inactive adults (Reilly & Jackson, 2004). A startling new study has indicated that sedentary behavior may impact young children's health much earlier than originally believed (Saakslaheti et al., 2004).

The importance of movement is often overlooked because it is such a natural part of human life. It is, however, crucial for a child's physical, cognitive and social development. In addition, experiences support learning and development of fundamental movement skills. The foundations of those skills are laid in early childhood and essential to encourage a physically active lifestyle (Cools, et. al., 2009).

At an early age, gross movement skills are necessary to move, stabilize and control body and objects while exploring the environment. Later in life, well developed gross movement skills help individuals to function more smoothly. Fine movement skills are necessary for the development of basic self - help skills. Also drawing and writing are based on fine movement skill development. Later in life well developed fine movement skills are as important as gross movement skills.

It is generally accepted that fundamental motor skills are the basis for advanced sport, dance, and lifetime movement activities, and that these skills should be practiced in early childhood (Gabbard, 2000; Haywood & Getchell, 2001; Payne & Isaacs, 1999). Unfortunately, many children never acquire the skill level necessary to advance to a higher level of skill application (Seefeldt, 1980). Children might perform a skill to a certain level of proficiency but never acquire an advanced level without instruction, practice, and

encouragement (Halverson & Robertson, 1979; Seefeldt & Haubenstricker, 1982).

In order for preschool children to acquire motor skills and levels of fitness expected for their age, they need to be active. Despite the common belief that young children are always moving, research suggests that many young children are not. Play time has been reduced or even eliminated in some kindergartens and preschools because of a new emphasis on academic learning. The present study explored the effect of integrated development training programme on fundamental motor skills of preschool children.

1.1. The statement of problem

The purpose of the present study was to examine the effect of integrated development training programme on fundamental motor skills of Kindergarten children.

2. Materials and methods

2.1 Subjects

The subjects selected for the purpose of the study were twenty three boys and girls studying in Lower Kindergarten (LKG) during the academic year 2015 - 16 at Bala Gangadharanatha Swamiji Kuvempu School, Shankaraghatta. The subjects were randomly selected through random sampling technique. The subjects selected

were neither overweight nor obese. Their age ranged between 04 to 06 years.

2.2 The testing tool

The present study included Test of Gross Motor Development for testing motor skills during pre and post test situations (Ulrich, 1985). The selected tests were administered to the subjects twice during pre test and post test situations.

2.3 Procedure for administering test and collection of data

Spare time of the subjects was made known and the class teacher of subjects was requested to make the subjects assemble in a class room. The investigator herself with a trained helper explained the objectives of the study briefly. The tester used visual, audio and tactile cues during tests. Written consent was taken from the Head Master of B. G. S. Kuvempu School for conducting tests and experiment.

2.4 The experimental design

The experimental design selected for the present investigation was single group pre test - post test design. The treatment in the form of fine motor skill activities, gross motor skill activities, play and social development activities were performed three times a week up to six weeks duration. The activities are briefly given in table 1.

Table 1: Details of integrated development programme given in the form of treatment to Kindergarten children

Gross motor skill activities	Fine motor skill activities	Play and Social Development activities
1) Kick a ball forward	1) Imitating cross	1) Telling of stories
2) Passing a ball from one to another	2) Copying circle	2) Imitating actions
3) Throwing of ball in both hands	3) Drawing basic pictures	3) Talking about their feelings
4) Walk on a line	4) Making shapes using paper	4) Playing with each other
5) Horizontal jumps	5) Making creative activities using paper	5) Playing in groups
6) Double leg hopping	6) Copying triangle	6) Enjoying games while participating
7) Hopping on one foot	7) Copying star	7) Playing with the ball
8) Catching of bounced ball	8) Writing name	8) Sharing of feelings with their friends
9) Backward running	9) Writing number 1 to 20	9) Robber and police
10) Running around obstacle	10) Copying letter	10) Solo act, dance and songs.
11) Touching an object	11) Uses a three fingered grasp of pencil and uses fingers to generate movement while writing	
12) Walk on upstairs	12) Writing shapes on their own.	
13) Catching of ball from big to small		
14) Running on toes		

2.5 Statistical techniques

In order to make inferences on the effectiveness of treatment given for six weeks various statistical techniques were employed. The raw data on pretest and posttest was subjected to descriptive statistics like mean and standard deviation. Further, in order to compare mean scores of test of gross motor development during pre and posttests paired samples 't' test was employed.

3. Results and Discussion

3.1 Analysis of data

The raw data on Locomotor ability, Object control and Total fundamental movement skills during pre and posttest were

subjected to statistical treatment. The mean and standard deviation of tests are provided in table 2.

Table 2: Details on descriptive statistics of subjects on locomotor ability, object control ability and total fundamental movement skill

S. No.	Tests	Pre test Mean \pm S. D.	Post test Mean \pm S. D.
1	Locomotor ability	5.35 \pm 1.03	6.87 \pm 0.46
2	Object control	2.26 \pm 1.45	4.39 \pm 0.89
3	Total fundamental movement skills	7.61 \pm 2.06	11.26 \pm 1.01

The data was further treated with 't' test in order to compare mean scores on total fundamental movement skills. Details are given in table 3.

Table 3: Summary on t - test for pre and post test scores of total fundamental movement skills

	Std. Error Mean	t	df	Sig. (2- tailed)
Pre – Post tests for Locomotor ability	.21660	- 7.026	22	.000
Pre – Post tests for Object control	.26153	- 8.146	22	.000
Pre – Post tests for total fundamental movement skill	.39065	- 9.349	22	.000

Table 3 makes it very clear that the pre and post test scores of subjects on locomotor ability, object control and total fundamental movement skill significantly differ. The obtained 't' ratio is higher than the tabulated 't' value (2.074) required for significant difference in all three cases. There is significant increase in locomotor ability, object control and total fundamental movement skill due to participation in integrated development training programme for six weeks. The above results are graphically illustrated in figure 1.

3.2 Discussion on findings

On the basis of reviews gone through it was understood that the exercise training programs are beneficial to kindergarten children for improving fundamental movement skills. Significant improvement in fundamental movement skills was observed in the subjects performing integrated development programme. The integrated development programme model selected in the present study can be useful in enhancing fundamental movement skills of Kindergarten children.

Donath, et. al., (2014) examined the effects of a card - based exercise promotion program in a kindergarten setting. As jumping cards have been used frequently by the teachers, jumping improvements are plausible. The activity cards are feasibly applicable but should be employed with more structure during longer training sessions.

Hosseini, et. al., (2011) described the effect of an exercise training (combined training) on perceptual motor skills of preschool children. It seems that conducting regular training periods during preschool years has a positive effect on the cognitive - motor skills of students and thus it is recommended that the experts in these educational centers and schools develop and implement specific programs and by improving these factors, recognize talented individuals and introduce them to different sports teams.

Mostafavi, et. al., (2013) investigated the effect of SPARK (Sports, Play, and Active Recreation for Kids) Physical Education program on fundamental motor skills in 4 - 6 year children. In conclusion it was concluded that the SPARK can be used as an appropriate alternative in order to promote the children's motor skills.

Through policy changes, environmental planning and educational efforts in schools and communities, increased opportunities and encouragement for physical activity can be provided (Goran, Reynolds and Lindquist, 1999).

Two studies were conducted by Valentini and Rudisill (2004) to examine the effects of motivational climate on motor - skill development and perceived physical competence in kindergarten children with developmental delays. The mastery climate group showed positive changes in skill development and perceived physical competence, and this positive pattern of change was maintained over time.

4. Conclusion

Significant increase in total fundamental movement skill due to participation in integrated development training programme for six weeks was observed in preschool kindergarten children.

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