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Tiny Athletes: Enhancing Object and Self-Movement Skills Through Multi-Sports Program Among Preschoolers

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Keywords

Multi-sports program, self- movement, tiny athletes

Abstract

This study examines the impact of a multi-sports program on enhancing object movement and Self- movement skills among preschool children. The primary objective was to assess the efficacy of the program in improving basic motor competencies, specifically in object and self-movement skills, using MOBAK (Herrmann. et.al.2018) testing instruments. Participants (N=200) were selected using a combination of simple random sampling and cluster sampling from preschools in Chennai, Bangalore, and Hyderabad. The program spanned 10 months and included a structured 30-minute class featuring warm-up exercises, rhythmic interventions, skill development activities, recreational sports, and cool down phases. Sports such as soccer, basketball, athletics, gymnastics, yoga, and cricket were included to offer a comprehensive approach to early childhood Physical Education. The study employed a paired sample t-test to analyse the differences in pre-test and post-test scores. Results indicated a significant improvement in the children's motor skills, with mean scores increasing from 17.82 in the pre-test to 21.16 in the post-test. The calculated t-value of 6.5 surpassed the critical value of 1.97, affirming the program's positive impact on enhancing motor skills. The multi-sports program effectively improved the physical abilities and motor skills of pre-schoolers, suggesting its potential for broader implementation. Recommendations include expanding the program to more cities, regular coachs training, parent involvement, continuous progress monitoring, and integrating additional activities for overall development.

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INTRODUCTION

A multi-sports program for preschool children introduces different sports and physical activities in a fun way. The main goal is to help kids develop basic motor skills, fitness, social skills, and a love for being active. This program is designed to support children's overall development by giving them a structured environment to try various sports, improve coordination, and enjoy physical play. Introducing kids to different sports helps them grow physically, learn new skills, and enjoy being active. The "MOBAK-KG" test checks children's motor skills, like balance and handling objects, to find their strengths and areas where they need help. This helps guide their physical development and participation in sports.

Multi-Sport Program

The program focuses on teaching fundamental movement skills. These include activities like running, jumping, hopping, skipping, balancing, twisting, bending (staying balanced), and throwing, catching, kicking, and hitting. Children get to try sports like soccer, basketball, tennis, gymnastics, cricket, yoga, and athletics, matched to their age and abilities. Fun activities like obstacle courses, relay races, and parachute games help improve agility, coordination, and how they interact with others.

Fitness and coordination are important parts of the program. Kids do exercises like pretending to walk like animals and balancing activities. They also play games like Simon Says and Follow the Leader to practice coordination. Group games teach teamwork, sharing, and how to work together. Activities like dancing to music or moving freely help improve rhythm, coordination, creativity, and how they express themselves.

Benefits of the Multi-Sport Program

This program brings many benefits. Physically, it helps kids improve motor skills, coordination, fitness, balance, agility, and strength. It also helps them focus better, understand rules, and solve problems. Socially and emotionally, it builds confidence, self-esteem, sharing, teamwork, friendship, and social skills. It encourages a healthy, active lifestyle and a positive attitude toward sports and being active. Kids have fun while achieving personal and team goals.

Why Choose a Multi-Sport Program

Taking part in multi-sport programs from ages 2 to 8 gives kids many benefits. These programs teach important skills like running, jumping, and throwing, which are key for overall

athletic development and staying active throughout life. By trying different sports, kids learn what they enjoy and develop social skills like teamwork and communication. Multi-sports help with thinking skills, problem-solving, and feeling good emotionally. Learning about different sports' rules, techniques, and being fair supports overall learning. Doing a variety of activities helps muscles grow evenly and reduces the chance of getting hurt. Kids also learn how to prevent injuries by warming up and stretching. Overall, multi-sport programs keep kids interested and enjoying being active, setting them up for a healthy life. Before the age of eight, children need not specialize in one sport due to the increased risk of injury, potential for improper muscular development, and limitations on discovering their natural talents and preferences. Engaging in multiple sports promotes balanced physical growth and overall development. This diverse approach fosters a lifelong love of physical activity and sports.

Literature Review

Herrmann et al. (2018) provide a comprehensive manual on the MOBAK-KG test, which evaluates basic motor competencies in kindergarten children. This foundational work establishes essential metrics for assessing motor skills, including object control and locomotor skills. Herrmann and Seelig (2014) further expanded on this by detailing the MOBAK-1 assessment for first graders, emphasizing the need for reliable evaluation tools in early education settings.

Popović et al. (2020) conducted a comparative study on gross muscular coordination and physical fitness between children engaged in soccer and those in multi-sport activities. Their findings indicated that multi-sport participation significantly enhanced overall physical fitness and motor coordination, supporting the argument for diverse physical activity in early childhood. Another study by Popović et al. (2020) demonstrated that a structured nine-month multi-sport

program improves physical fitness in preschool children, highlighting the long-term benefits of varied physical activities.

Condello et al. (2021) explored the holistic development fostered by designed multi-sport interventions in physical education. Their class-randomized cross-over trial revealed that multi-sport programs enhanced not only physical fitness but also cognitive and social skills, underscoring the comprehensive benefits of such interventions. This aligns with Malina's (2010) discussion on the risks and effectiveness of early sport specialization, which suggested that focusing on a single sport too early can lead to overuse injuries and hinder overall development.

Plazibat et al. (2021) examined the effects of multi-year physical exercise programs on motor skills in preschool children. Their study supported the notion that long-term engagement in varied physical activities lead to better motor skill development compared to single-sport specialization. Savelsbergh and Wormhoudt (2021) introduced the Athletic Skills Model, which promoted physical literacy across the lifespan through diverse physical activities, reinforcing the benefits of multi-sport participation from an early age.

Walter et al., 2024 A study of 44 children in Hamburg found that boys performed better in object-movement, while older children excelled in both domains. The MOBAK 1-4 test, designed for primary school children, evaluated similar competencies and aided teachers in adapting instruction (Herrmann, 2018).

Kühnis et al., 2021A Swiss cross-sectional study of 478 kindergarten children revealed that those who actively commuted to school, frequently played outdoors, or engaged in sports demonstrated better overall motor skills. These findings underscored the significance of diverse movement experiences and physical activities in early childhood for developing fundamental motor competencies.

Objectives of the Study

The main objective of this study is to assess how a multi-sports program enhances preschool-aged children's skills in object manipulation and locomotion. By comparing pre- and post-program tests, the study aims to understand the specific benefits of these programs for overall child development.

Rationale of the study

Since Multi Sports Program for children may be the substitute for cross training for adults also no much studies have been conducted on multi sports program for preschoolers, the investigator intended to take up this study.

Subject Selection

Subjects for this study were selected from Go Alpha Kids centers across India using a combination of cluster sampling and simple random sampling. The research covered approximately 10 cities where Go Alpha Kids has partnered with multiple preschools. Cluster sampling was employed in Chennai, Bangalore, and Hyderabad (N=200).Subject with acute or chronic medical conditions are excluded from the study.

Program Monitoring

Two separate curricula were developed for children at the playgroup, nursery levels (K1, K2), and Level 2. Preschoolers participated in a structured 10-month program led by experienced coaches across multiple urban centers in India. Coaches underwent a rigorous one-week training session dedicated to the curriculum. The multi-sport program incorporated a comprehensive 30-minute class structure consisting of warm-up exercises, general and specialized rhythmic interventions, skill development activities, recreational sports, and a cooldown phase. Sports activities included football, basketball, athletics, gymnastics, yoga, and cricket, providing a holistic approach to early childhood physical education and development.

LESSON OVERVIEW LEVEL-I (PG & NUR)								
	1	2	3	4	5	6	7	8
ATHLETICS	SHOT PUT	STANDING BROAD JUMP	JAVELIN THROW	LONG JUMP	JAVELIN THROW	HURDLE CUT	RELAY STARTS	ASSESSMENT LONG JUMP JAVELIN THROW
YOGA	SURYA-NAMASKAR BREATHING	SHAPES	TRANSPORTATION	SPRING	OCEAN	ANIMAL	BALANCING	ASSESSMENT SURYANAMASKAR COBRA, TREE , BUTTERFLY
FOOTBALL	INTRODUCTION KNOW THE BALL FIRST TOUCH	ROLL AND STOP THE BALL	KICKING INSIDE HEEL KICK	ZIG ZAG MOVE WITH THE BALL	PASSING AND RECEIVING	DRIBBLING	BANANA KICK	ASSESSMENT DRIBBLE AND SHOOT
CRICKET	INTRODUCTION TO BALL	HIT THE WICKET	INTRODUCTION TO BAT AND TOUCH THE BALL	BATTING PRACTICE	BOWLING UNDERARM	BLOCKING THE BALL	BOUNCE AND CATCH	ASSESSMENT BATTING HIT THE WICKET
BASKETBALL	INTRODUCTION KNOW THE BALL	ROLL AND CATCH THE BALL	PASSI NG AND RECEIVING	BONCE AND CATCH	HIGH PASS BOUNCE PASS	SHOOTING	DRIBBLING	ASSESSMENT BOUNCE CATCH SHOOTING
GYMNASTICS	LOG ROLL	EGG/TUCK ROLL	TEDDY BEAR ROLL	FORWARD ROLL	BACKWARD ROLL	FORWARD ROLL AND SPLIT	BALANCING WALK	ASSESSMENT FRONT ROLL BALANCING WALK

LESSON OVERVIEW LEVEL-II (K1 & K2)								
	1	2	3	4	5	6	7	8
ATHLETICS	STARTS BALL THROW	HURDLE CUT	JAVELIN THROW	LONG JUMP	HAMMER THROW	TRIPPLE JUMP	RELAY	ASSESSMENT LONG JUMP REACTION TIME JAVELIN THROW
YOGA	SURYA-NAMASKAR BREATHING	STANDING & SEATED POSES	SLEEPING POSES	PARTNER YOGA POSES	INVERTED POSES	PARTNER YOGA POSES	CORE YOGA POSES	ASSESSMENT SURYANAMASKAR BOW,TREE,CAMEL WHEEL POSES
FOOTBALL	FIRST TOUCH ZIG ZAG MOVE WITH BALL	PASSING AND RECEIVING	KICKING INSIDE HEEL KICK BACK HEEL KICK	DRIBBLING	ROBBERS VS DRIBBLERS	TRAPPING CHEST TRAP	GOAL KEEPING	ASSESSMENT DRIBBLE AND SHOOT
CRICKET	BOWLING AROUND AND OVER THE WICKET	BOWLING STEPPING	BATTING STEPPING	BATTING SWEEP	BLOCKING	CATCHING BOUNCE ARIAL	WICKET KEEPING	ASSESSMENT BATTING HIT THE WICKET
BASKETBALL	INTRODUCTION PASSING AND RECEIVING	BONCE AND CATCH	OVER HEAD PASS BOUNCE PASS	PUSH PASS SIDE PASS	DRIBBLING	STEPPING AND SHOOT	FAKE BOUNCE SHOOT	ASSESSMENT BOUNCE CATCH SHOOTING
GYMNASTICS	DISH/ARCHED BACK ROLL	TEDDY BEAR ROLL	BALANCE WALK FORWARD ROLL	BACKWARD ROLL	HAND STAND	CARTWHEEL	BACK FLIP	ASSESSMENT FRONT ROLL BALANCING WALK

Testing Procedure

Data for this study were collected using MOBAK testing instruments, which assess basic motor competence in children and adolescents (Herrmann.et.al.2018). MOBAK assesses eight basic motor qualifications (MQ) categorized into object movement such as throwing, catching, bouncing, dribbling and self-movement such as balancing, rolling, jumping, running. Each MOBAK (Herrmann.et.al.2018) test item is scored on a scale where Grade 1 indicates the task was not completed, Grade 2 signifies successful completion on the first attempt, and Grade 3 indicates successful completion on the second attempt.

Before conducting the tests, coaches demonstrated each test item to the children, providing theoretical explanations and practical demonstrations. Reference videos were used for additional guidance, and hands-on sessions ensured thorough understanding among the coaches.

Statistical Analysis

Data were collected from the children at two time points: one week before the training and one week after the training. Paired sample't'-test will improve to determine the significance of

differences between pre-test and post-test scores, with a significance level set at 0.05 and degrees of freedom at 199. The't'-ratio score will be compared with the critical value from the 't'-table to accept or reject the hypothesis.

RESULTS AND DISCUSSION

Table 1. Analysis of pretest and post test data

	Mean	SD	Obtained 't' Value
Pre test	17.82	3.09	6.5
Post test	21.16		

Significance level 0.05, df=199

The mean scores for the pre-test and post-test were 17.82 and 21.16, respectively. This increase suggests that, on average, children's performance improved following the multi-sports program. The calculated t-value of 6.5 exceeded the critical t-value of 1.97, leading to rejection of the null hypothesis. This indicates a statistically significant difference between pre-test and post-test scores, reinforcing that the multi-sports program had a positive impact on the children's performance.

CONCLUSION

The significant increase in the mean scores and the calculated't' value being greater than the critical 't' value indicates that the multi-sports program had a statistically significant positive effect on the children's skills. This improvement is unlikely to have occurred by chance, suggesting that the program effectively enhanced the motor skills and physical abilities of the preschoolers.

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