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"ANALYZING THE INFLUENCE OF A MODIFIED PHYSICAL EDUCATION CURRICULUM ON DEXTERITY AND SINISTRALITY IN 13-YEAR-OLD PRE-ADOLESCENT SCHOOL BOYS"

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ABSTRACT

The aim of this study was to assess the impact of a prototype physical education curriculum on the dexterity and sinistrality of 13-year-old preadolescent school boys. A total of 40 right-handed dominant preadolescent students from Government Higher Secondary School in Kulgam, Jammu and Kashmir, India, were chosen as participants for the study. These participants were divided into two groups, namely the experimental group and the control group, each comprising 20 subjects (n=20). The experimental group underwent the implementation of the model physical education curriculum, which consisted of four components: A (physical exercises), B (yogic asana), C (theoretical instruction), and part 'D' (recreational activities). The experimental group received training over a 15-week period, four days a week, with each class lasting 45 minutes, inclusive of warm-up and cool-down exercises. The visual reaction speed of both left and right hands served as the dependent variable and was assessed before and after the experimental period. Data collected were analyzed using ANCOVA, with a significance level set at 0.05. The findings indicate that the model physical education curriculum contributes to the enhancement of dexterity among preadolescent school boys.

Keywords: physical education curriculum, preadolescent, school boys.

INTRODUCTION

The landscape of physical education is shaped by both formal and informal regulations, incorporating elements of competition and leisure to promote a robust lifestyle. Positioned within the broader spectrum of education, physical education aims not only for physical development but also the holistic enrichment of individuals through physical activities (Drewe, 2001). It serves as a conduit for fostering general capabilities and positive values, emphasizing qualities like perseverance and sportsmanship (Barkan et al., 1973). The educational dimension of physical education has always been its primary focus, contributing to substantial experiences for individuals (Freeman, 2001).

Formulated by both structured guidelines and informal norms, physical education endeavors to instill a healthy and active lifestyle. The objectives encompass the development of physical, mental, social, skill-oriented, career, and emotional aspects through physical activities. The core goals include enhancing various aspects of the body, socializing individuals, expanding mental capacities, and cultivating fundamental skills such as walking, jumping, playing, dancing, running, riding, and swimming—essential for participation in sports and games.

The importance of a well-structured physical education curriculum lies in its daily activities, fostering the overall development of children from the early stages of their schooling. This curriculum plays a pivotal role in refining both gross and fine motor abilities, contributing to the subsequent development of dexterity (Heilman, 2005). Dexterity, defined as skill in performing tasks, especially those involving the hands, includes fine motor skills that coordinate small muscle movements throughout the body, particularly in the fingers, in conjunction with the eyes. These skills are instrumental in intellectual growth and evolve continuously across different stages of human development (Holder, 2012).

The term "dexterous" denotes skill and grace in physical movement, especially in hand use, often referred to as "adroitness." It involves the ability to manipulate small objects with precision. School-based physical education programs actively contribute to the enhancement of fine motor skills, encompassing aspects like grasping power and finger flexibility. These training methods not only develop fine motor skills but also enhance eye-hand coordination and visual skills, aiding in distinguishing and associating between dexterous and motor coordination.

Moreover, the language surrounding left-handedness varies, with terms like "southpaw" or "goofy" used colloquially. Some references, like the technical use of "sinistral" for left-handed and "sinistrality" for left-handedness, provide alternatives to more informal expressions, steering clear of potential offensiveness or demeaning connotations (Sinistral, 2006).

METERIAL AND METHODS:

To achieve this goal, a total of 40 preadolescent students from Government Higher Secondary School in Kulgam, Jammu and Kashmir, India, were enlisted as participants. Specifically, 13-year-old preadolescent school boys were chosen for inclusion in the study. The participants were then categorized into two groups, namely the experimental group and the control group, with each group consisting of 20 subjects (n=20). The experimental group underwent the implementation of a model physical education curriculum, which comprised four components: 'A' (physical exercises), 'B' (yogic asana), 'C' (theoretical content), and 'D' (recreational activities).

The physical exercises included both simple movements and specialized exercises, such as bouncing the basketball (alternating between right and left hands), wall catching (alternating between right and left hands), and ball juggling (using both right and left hands). The yogic component encompassed various asanas, including Dhanoor asana, Bhujang asana, Ananda Bal asana, among others. To progressively challenge the participants, the load and intensity of exercises were increased by 5% every three weeks, aiming to induce physiological adaptation and enhance speed development among preadolescents.

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The implementation of the model physical education curriculum took place over a span of 15 weeks, with sessions held four days a week, each lasting 45 minutes and incorporating warm-up and cool-down exercises. Visual reaction speed was selected as the criterion variable for assessment, and a hand reaction timer (chronometer) served as the testing tool. Subjects were evaluated for the speed of both their left and right hands using the chronometer. The data collected from the two groups, focusing on left and right hand speeds, underwent statistical examination through ANCOVA to identify any significant differences. The predetermined level of significance was set at 0.05

TABLE- 1

Test		Experimental Group	Control Group	Source of Variance	Sum of Squares	Degree of Freedom	Mean Square	F value
Pre Test	**Mean**	0.151	0.15	**B**	2.812	**1**	2.81	**0.06**
	SD	0.005	0.006	**W**	0.003	**78**	4.06	
Post Test	**Mean**	0.136	0.152	**B**	0.005	**1**	0.005	**117.82***
	SD	0.007	0.005	**W**	0.003	**78**	4.21	
Adjusted post test	**Mean**	0.136	0.152	**B**	0.005	**1**	0.005	**121.52***
				W	0.003	**77**	4.11	

***Significant**

The degrees of freedom for tables with 1 and 78 and 1 and 77 were observed to be 3.96 and 3.97, respectively. Table 4.36 presents the pre-test mean values for the experimental and control groups in the visual reaction test for dextrality as 0.1517 and 0.1514. The calculated 'F' value was 0.06, which was lower than the table value of 3.96 for degrees of freedom 1 and 78 in the visual reaction test for dextrality. In contrast, the post-test mean values for the experimental and control groups in the chronometer test for dextrality were 0.136 and 0.152. The calculated 'F' value was 117.82, exceeding the table value of 3.96 for degrees of freedom 1 and 78 in the visual reaction test for dextrality. Furthermore, the adjusted post-test mean values for the experimental and control groups in the visual reaction test for dextrality were 0.136 and 0.152. The calculated 'F' value was 121.52, surpassing the table value of 3.97 for degrees of freedom 1 and 78 in the visual reaction test for dextrality.

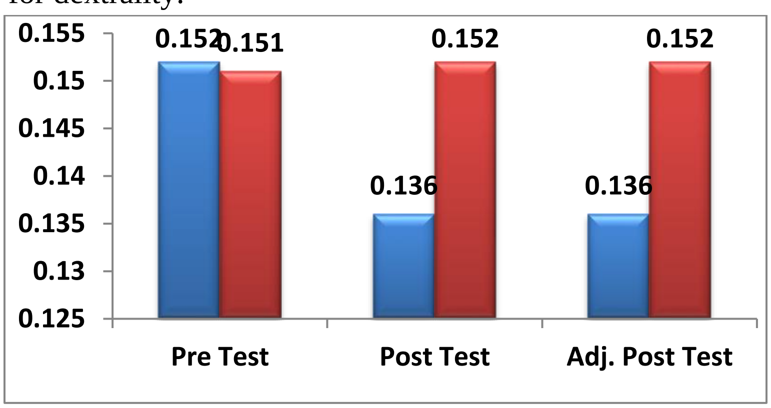

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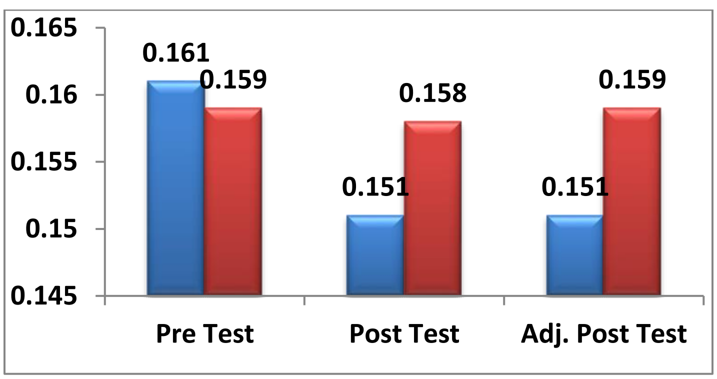
TABLE 2
VISUAL REACTION SPEED
(Sinistrality Visual Reaction Speed 13 year boys)

Test		Experimental Group	Control Group	Source of Variance	Sum of Squares	Degree of Freedom	Mean Square	F value
Pre Test	Mean	0.161	0.159	B	4.500	1	4.500	1.89
	SD	0.005	0.005	W	0.002	78	2.875	
Post Test	Mean	0.151	0.158	B	0.001	1	0.001	62.03*
	SD	0.002	0.005	W	0.001	78	1.683	
Adjusted post test	Mean	0.151	0.159	B	0.001	1	0.001	58.61*
				W	0.001	77	1.696	

***Significant**

The degrees of freedom for tables with 1 and 78 and 1 and 77 were observed to be 3.96 and 3.97, respectively.According to Table 4.37, the pre-test mean values for the experimental and control groups in the visual reaction test for Sinistrality were 0.161 and 0.159. The calculated 'F' value was 1.89, which fell below the table value of 3.96 for degrees of freedom 1 and 78 in the visual reaction test for Sinistrality. In contrast, the post-test mean values for the experimental and control groups in the visual reaction test for Sinistrality were 0.151 and 0.158. The calculated 'F' value was 62.03, exceeding the table value of 3.96 for degrees of freedom (1 and 78) in the visual reaction test for Sinistrality.

Furthermore, the adjusted post-test mean values for the experimental and control groups in the visual reaction test for Sinistrality were 0.151 and 0.159. The calculated 'F' value was 58.61, surpassing the table value of 3.97 for degrees of freedom 1 and 78 in the visual reaction test for Sinistrality.



RUSELT:

The findings from Table 1 indicate a notable discrepancy between the experimental group and the control group in the visual reaction test for dextrality among boys under 13. Additionally, the outcomes suggest that the experimental group exhibited more substantial improvements in the visual reaction test for dextrality compared to the control group.

Similarly, the outcomes presented in Table 2 reveal a significant distinction between the experimental group and the control group in the visual reaction test among boys under 13. Furthermore, the results suggest that the experimental group demonstrated superior enhancements in the visual reaction test for Sinistrality in comparison to the control group.

DISCUSSION:

The findings confirm that model physical education curriculum that includes the part A (Physical Exercises) Part B (Yogic Asana) Part C (Theoretical part) Part D (The Recreational Part) especially the physical exercises and yogic part has made a significant effect on speed. All these parts have a good impact on the neuromuscular system of the body which helps in the improvement of dexterous among pre-adolescent school boys. The following findings of different researchers were in conformity with this study

CONCLUSION:

The inference drawn is that the model physical education curriculum, encompassing a series of exercises, contributes to the enhancement of visual reaction speed in dexterous hands. Consequently, the dominant hand exhibits more significant improvement in speed, while the non-dominant hand also demonstrates enhanced speed compared to the initial baseline level.

IMPLICATION:

The study results suggest that the model physical education curriculum, incorporating a set of physical exercises and yogic asanas strategically implemented through a well-designed curriculum plan, has a significant impact on dexterity and sinistrality. Enhanced dexterity and sinistrality skills enable individuals to perform tasks with both hands simultaneously, demonstrating increased efficiency and reduced fatigue. These findings offer valuable insights for physical education professionals and coaches, providing guidance on how to improve the dexterity and sinistrality of players engaged in diverse sports activities. The development of ambidextrous skills, using both hands effectively, proves particularly advantageous during competitive sports.

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