

## Impact of model physical education curriculum on selected speed (visual reaction speed) parameters among preadolescent dextrous school boys

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### Abstract

A Preference for using one hand rather than the other to perform most manual tasks and activities. Historically, it has been theorized that handedness is associated with a dominance of the opposite cerebral hemispheres of the brain. Handedness is an attribute of humans defined by their unequal distribution of fine motor skills between left and right hands. An individual who is more dexterous with right hand is called (right handed dextralista), and who is more skilled with left hand is said to be (left handed sinistralists). The purpose of the study was to find out the impact of model physical education curriculum on selected speed (visual reaction speed) parameters of dextrous preadolescent school boys. For that purpose 40 right handed dominance preadolescent students with an age category of 10-11 years from Government High School Hablashi Kulgam Jammu and Kashmir India were selected as subjects. The subjects were divided into two groups (n=20), the experimental group and control group. The model physical education curriculum was implemented on the experimental group. The experimental group underwent training for 15 weeks, 4 days a week and 45 minutes per class including warming-up and cooling down exercises. The visual reaction speed on left and right hand were selected as dependable variable was and tested before and after experimental period. The collected data was analyzed by using ANCOVA. Level of significance was fixed at 0.05. The result of the study shows that the model physical education on curriculum improves the visual reaction speed of selected subjects (experimental group) as compared to control group.

**Keywords:** physical education curriculum, preadolescent, dextrous, speed (visual reaction speed)

### Introduction

Physical training has been shown to be an effective way to improve the force-producing capacity of hand muscles and to partially reverse the changes observed in the muscle architecture (Izquierdo M, 2003) [1]. Mysterious reasons, the right hand significantly gains on the left hand, it is many times superior in accuracy, facility to dominate coordination. Trough dexterity testing is usually provided the result that shows the both quickness and accuracy of the subject in performing any kind of dexterity tasks. Dexterity testing products examine a person's motor skills with regards to the fingers, hands, and arms Bernstein N.A, (1991) [2].

Curriculum is a comprehensive plan for an educational training program course to offer new improved work force to fulfill the rising needs of a dynamic society. The physical education curriculum framework is structured to ensure that students can enjoy an open, flexible and balanced program featuring a variety of movement experiences.

For elementary and middle school curriculum include activities that help kids obtain and improve skills, such as running, catching, throwing and striking, applicable to sports such as baseball, volleyball or karate. Balancing skills could be applied to dance or gymnastics. High school curriculum should focus on life time sports skills like tennis or aerobic dance, with a secondary emphasis on team sports. High school curriculum prepares students to become highly proficient in one or more sports or fitness activity of their choice. The

health and physical education curriculum also promotes important educational values and goals such as, tolerance, understanding excellence and good health. These values are reinforced in other curriculum areas, as well as, in society itself.

Dextrous refers to the skill and grace in physical movement, especially in the use of the hands; adroitness. In other words, ability to manipulate fine objects with the hands. Handedness is the preferred use of the right hand, the left hand, or one or the other depending on the task. Handedness is the natural or biological preference for using one hand more than the other in performing special tasks depending on which hemisphere is dominant for the task (Rice, 1998) [3].

The adaptive response by the physiological system of the body to physical training, including the neuromuscular system is directly related to the training stimulus. The physical training involves prolonged muscular work increases physical capacity such as strength, endurance, flexibility, co-ordination and so on. The abilities that involve the use of hands develop over time, starting with primitive gestures such as grabbing at objects to more precise activities that involve precise hand coordination. Fine motor skills, are skills that involve a refined use of the small muscles controlling the hand, fingers, and thumb. The controversial idea, people are not either left-handed or right-handed but "strong-handed" or "mixed-handed" (Guiard, Y. 1987) [4].

Handedness is a better(faster or more precise) performance or

individual preference for use of a hand, known as the dominant hand, the less capable or less preferred hand is called the non-dominant hand (Holder, 2012) [6].

Fine motor skills include the ability to manipulate small objects, transfer objects from hand to hand, and various eye-hand coordination tasks. The training through physical education curriculum is an effective means of training people to develop the ability to control the movements of their eyes. The exercise helps in the development of hand-eye

coordination. The physical education curriculum can help in improving the fine motor skills of the hands' grasping power and finger flexibility. Physical training using varying softness and hardness being on a continuous basis can build the hand grip. It also makes the hands and fingers stronger (Kabbash, P, 1994) [7]. These physical training methods to develop fine motor skills and improve hand-eye coordination. It also improves visual skills by showing how to distinguish and associate between dexterous and motor co-ordination.

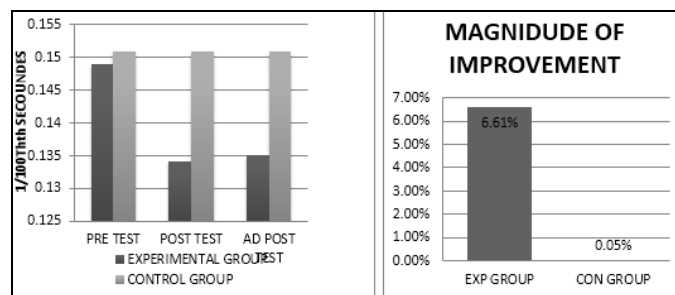
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**Table 1:** Ancova of Experimental and Control Group among 10 Years Boys on Speed (Visual Reaction) Tool of Dexteraty Test

Test		Experimental group	Control Group	SOV	SS	df	MS	F
Pre Test	Mean	0.149	0.151	B	3.645E-5	1	3.645E-5	0.943
	SD	0.0060	0.0063	W	.003	78	3.865E-5	
Post Test	Mean	0.134	0.151	B	.005	1	.005	130.183*
	SD	0.0064	0.0063	W	.003	78	4.199E-5	
Adjusted Post Test	Mean	0.135	0.151	B	.005	1	.005	213.386*
				W	.002	77	2.201E-5	
Magnitude of improvement %		10.37%	0.0%					

\*Significant (SOV – Source of Variance, B –Between, W – With-in, df – Degree of Freedom)

\* Significant at.05 level of confidence (The table values of df 1 and 78 and 1 and 77 was 3.96 and 3.97 respectively)



**Fig 1**

**Material and Methods**

For the purpose of the study 40 right handed dominant preadolescent students from Government High School (Hablashi) Kulgam Jammu and Kashmir India were selected as subjects. The subjects were divided into two groups (n=20), the experimental group and control group. The model physical education curriculum was implemented on the experimental group. The curriculum contains four parts ‘A’ (the physical exercises), ‘B’ (the yogic asana), ‘C’ (theoretical part) and ‘D’ (the recreational part).The physical exercises contain the simple exercises and some special exercises like Bouncing the basketball (right and left hand alternatively), Wall catching (right and left hand alternatively), Ball juggling (both right and left hand). The yogic part includes the asana like Dhanoor asana, Bhujang asana, Ananda Bal asana etc.

Every three weeks the load and intensity of exercises was increased by 5%; so that the physiological will adopt by the model physical education curriculum on speed development among Dextrous Pre adolescents.

The model physical educational curriculum was implemented on the experimental group for 15 weeks, 4 days a week and 45 minutes per class including warming-up and cooling down exercises. The visual reaction speed was selected as criterion variable. The hand reaction timer (chronometer) was selected

as testing tool. The subjects were tested for speed of left and right hand with the help of chronometer. The data was collected from two groups left and right hand was statically examined by applying ANCOVA to find out significant difference. Level of significance was fixed at 0.05.

The result of above table shows that, there was a significant difference between experiment group and control group on visual reaction test for dextrality among 10 years old preadolescent dexterous school boys. Further, the result shows that the experimental group shows better improvement on visual reaction test for dextrality when compared with 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 hand reaction 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 finding of the researcher was in conformity with this study.

Xing-Dong Yang *et al.*, (2008) [9] have conducted a study on hand motion on haptic perception of force direction. Most studies on the haptic perception of force direction have been conducted without hand movements, were as hand movements have been conducted without hand movements, and were as hand movements are normally required in real world applications. This paper reports a study on the perception of haptic force direction during hand movement. Discrimination thrush holds for force direction were determined for two hand movement speeds, slow and fast, and for five references force directions. The results show that the perception of force direction is not affected by hand movement speed. We also found that the perception of force direction was not impaired

by the hand motion, nor by the direction of the reference force.

Dane and Erzurumluoglu (2003) <sup>[10]</sup> revealed the sex and handedness difference in eye hand visual reaction times in hand ball players. Sex and handedness differences in the eye dominant hand, the right eye –right hand and the left eye left hand visual reaction times were studied in 270 right handed and 56 left handed young hand ball players. Reaction time was assessed by a software package. All visual reaction times were longer in women than in men. In the eye dominant hand and the left eye –left hand visual reaction times, the left hander's has superiority over the right handers, but there was no difference between right eye and right hand visual reaction times of the right and left-handers. In right hander's all visual reaction times were longer in women than in men, but there was no sex difference in left handers. The results suggest that left handed players have probably an intrinsic neurological advantage.

### Conclusion

It was concluded that the model physical education curriculum that includes a set of exercises and helps in improving the visual reaction speed of dexterous hands. Hence the dominant hand shows better improvement on hand reaction speed. The non-dominant hand has also improves speed when compared to base level.

### Implication

The results of the study give an idea that model physical education curriculum which contains a set of physical exercises and yogic asana which were implemented through proper and selected physical education curriculum plan in order to develop the level of dexterity. If an individual is heaving better dexterity, they can able to do any sort of work with both hands simultaneously without getting tired. The findings of the study are helpful for physical educationists and coaches to enhance the dexterity of players who involved in various sports activities. The players can use their dominant and non-dominant hands effectively while performing any kind of physical activity. Being ambidextrous (using both hands) in sports activity is especially helpful during the competition.

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