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An assessment study on reaction ability kinesthetic perception and percentage of body fat of pre adolescence students among different educational boards

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Abstract

The aim of the present study was to compare reaction ability, kinesthetic perception and percentage of body fat of pre adolescence student of three different educational boards i.e., CBSE, UPMS and ICSE mostly prevalent in Uttar Pradesh. Sixty male students age ranging from 11-14 years from 6th to 8th standard were selected as subject for the study out of which 20 students each were from: • Jawahar Navodaya Vidyalaya (Ghaziabad) (Central Board of Secondary Education).

- S.D.A. Senior Secondary School (Meerut District) (Indian Certificate of Secondary Education)
- Dela Devi Higher Secondary School (Sikandrabad) (Board of High School and Intermediate Education Uttar Pradesh)

The variables undertaken for the study were kinesthetic perception, measured by distance perception jump (Nelson & Johnson), Reaction ability, measured by Nelson hand reaction test (Nelson & Johnson) and percentage of body fat, measured by Body Fat Monitor, an electronic device manufactured by Omron model no. HBF 306. In order to investigate the existence of significant difference among the students of three educational boards in kinesthetic perception, Reaction ability and percentage of body fat, analysis of variance statistics was used at 0.05 level of significance. Statistical calculation of the gathered data showed that there was significant difference between the three Educational boards of which the students of Navodaya Vidyalaya, Ghaziabad under CBSE board was found better in comparison to the students of other Educational boards.

Keywords: kinesthetic perception, reaction ability, body fat percentage, adolescence

Introduction

Sports is the best weapon for peace in the world – Alfred Nobel. Fitness is now becoming the highest priority on the agenda of modern era, as because it is real fact that regular exercise can develop physical, physiological and psychological fitness and also improve sense of several wellbeing and enhanced self-image. The term kinesthetic perception refers in physical education that - The ability of the sports man to perceive the position effort and movement of parts of the body or the entire body during muscular action is sometimes referred to as the sixth sense. The kinesthetic sense is under psychological condition. (Nelson & Johnson, 1982) [3]. The term Reaction time may be refers that – Reaction time is the interval of time between the presentation of the stimulus and the initiation of response, it is under physiological condition. (Nelson & Johnson, 1982) [3] Whereas body fat percentage is the amount of fat tissue in your body as a percentage of total body weight. Body fat percentage in an average healthy women is about 17-27 percent and in a man the average body fat percentage is 10-20 percent. Present study was done on pre adolescence boys. So it may be define as “The period of childhood just before the set of puberty. Often designed as between the age of 10 to 12 in girls and 11 to 13 in boys”. Pre-adolescence is the stages where the talent of a child has reflected in the field of sports and it may be very easier for coach to carried out then in to the global sports arena. This general belief encouraged the investigator to take up the present project in an effort to compare Kinesthetic Perception, Reaction Time & Percentage of Body fat status of pre-adolescence students among different educational board in Uttar Pradesh.

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Methodology

Seventy-Five male students age ranging from 11-14 years of VI to VIII standard were selected as subjects for the study out of which 25 students each were from: (i) Jawahar Navodaya Vidyalaya (Ghaziabad) (Central Board of Secondary Education), (ii) S.D.A. Senior Secondary School (Meerut District) (Indian Certificate of Secondary Education), (iii) Dela Devi Higher Secondary School (Sikandrabad) (Board of High School and Intermediate Education Uttar Pradesh). The subjects were tested in their respective school on three suitable days. On the evening of the first day the subjects of Jawahar Navodaya Vidyalaya were given demonstration of the tests in respect to kinesthetic perception, Reaction time and percentage of body fat which was measured by distance perception jump (Nelson & Johnson), Nelson hand reaction test (Nelson & Johnson) and Bioelectrical impedance technology” a Body Fat Monitor, an electronic device manufactured by Omron model no. HBF 306 respectively. After that the subjects were asked to give the test and the data were recorded. Then after two days same test was conducted in the others two institution respectively, S.D.A. Senior Secondary School (Meerut District) and Dela Devi Higher Secondary School (Sikandrabad) in same condition as on the first day in two consecutive days.

Statistical procedure

For the purpose of comparing the reaction ability kinesthetic perception and percentage of body fat of pre adolescence students among different educational board’s analysis of variance statistics was used. The level of significance was set at 0.05 level of confidence.

Findings

Table 1: Analysis of variance of the mean of kinesthetic perception among the students of three educational boards

Sources of Variance	df	SS	MSS	‘F’ Value
Between	2	2171.41	1085.70	3.77*
Within	72	20743.66	288.11	

*Significant at 0.05 level of confidence. Tab $F_{05} (2, 72) = 3.11$

Table 2: Paired adjusted final means difference of kinesthetic perception among the students of three educational boards

ICSE	CBSE	UPMSP	Mean Difference	Critical Difference
45.60	32.66		12.94*	
45.60		36.97	8.64*	3.51
	32.66	36.97	4.31*	

*Significant 0.05 level of confidence

Table 3: Analysis of variance of the mean of reaction ability among the students of three educational boards

Sources of Variance	df	SS	MSS	‘F’ Value
Between	2	0.06	0.03	3.86*
Within	72	0.51	0.01	

*Significant at 0.05 level of confidence. Tab $F_{05} (2, 72) = (3.11)$

Table 4: Paired adjusted final means difference of reaction ability among the students of three educational boards

ICSE	CBSE	UPMSP	Mean Difference	Critical Difference
0.22	0.15		0.07*	
0.22		0.17	0.05*	0.05
	0.15	0.17		

*Significant 0.05 level of confidence

Table 5: Analysis of variance of the mean of percentage of body fat among the students of three educational boards

Sources of Variance	df	SS	MSS	‘F’ Value
Between	2	255.41	127.71	4.01*
Within	72	2291.61	31.83	

*Significant at 0.05 level of confidence. Tab $F_{05} (2, 72) = 3.11$

Table 6: Paired adjusted final means difference on percentage of body fat among the students of three educational boards

ICSE	CBSE	UPMSP	Mean Difference	Critical Difference
23.04	18.60		4.44*	
23.04		20.07	2.97	3.16
	18.60	20.07	1.47	

*Significant 0.05 level of confidence

Discussion of the findings

After seeing all the table findings, it clearly indicated that there were significant difference in respect of kinesthetic perception Reaction time and percentage of Body fat among the pre-adolescence students of three different educational boards in Uttar Pradesh and also it was evident that the students of Navodaya Vidyalaya (CBSE Board) is better in comparison to S.D.A. Senior Secondary School (ICSE Board), and Dela Devi Higher Secondary School (Sikandrabad) (UPMSP) in repute of kinesthetic perception, Reaction times and percentage of body fat, so research hypothesis may be accepted.

Kinesthetic is our movement sense. It simply refers to an awareness of changes in momentum, balance, and pressure and body position in general. It is very easy to identify kinesthetic perception of the student of Navodaya Vidyalaya because they enjoy and usually or seen to be successful in active sports, as they are bounded by scientifically constructed Physical Education programmed including playing, Dancing, handon- tasks working with scientific probe and microscope, robotics instrument which is not possible for Dela Devi Higher Secondary School (Sikandrabad) (UPMSP) & S.D.A. Senior Secondary School (Meerut District), due to lack of economic support of the Government and scarcity of space.

In Reaction time it was believed that the body and mind are powerfully connected. A human mind made a decision, the body acted immediately and it is related with human discipline in day today life which is basically suited for student of Jawahar Navodaya Vidyalaya (Ghaziabad) because they are restricted in a residential campus and they had to followed strictly all instruction from morning assembly to evening assembly given by the teachers, so they are found to be quick in reaction time in respect of the students of other two educational boards where they are not having the practical activity like Navodaya Vidyalaya. Pre adolescence obesity reaching epidemic proportions, Nutritional status & physical activity vastly influence percentage of body fat. It is said that in this stage the boy have to intake rich level of nutrients and do regular physical activity but they take heavy diet and are not habituated with physical activity, so they develop as obese. Therefore the mean performance of percentage of body fat of S.D.A. Senior Secondary School (Meerut District) is too high than other two schools. In this case also Navodaya Vidyalaya was found better in comparison because the ratio of nutritional status and physical activity are quietly standard. Navodaya Vidyalaya is a part & parcel of CBSE board. Currently there was a strong argument that Navodaya Vidyalaya has to be paid more attention for sports and physical education to encourage children to take

then up a profession. In the present study we have found students of Jawahar Navodaya Vidyalaya (Ghaziabad) excel better in the undertaken variables because of their all scientific and systematic curriculum and facilities.

Conclusion

- Significant difference was found among the students of three educational boards in respect of kinesthetic perception.
- Significant difference was found among the students of three educational boards in respect of Reaction time.
- Significant difference was found among the students of three educational boards in respect of percentage of body fat.
- Navodaya Vidyalaya was better in comparison to others two institute in respect of kinesthetic perception, reaction time & percentage of body fat.

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