

Effect of school curriculum on fat percentage of students

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■ ABSTRACT

The purpose of the study was to find out the effect of school curriculum on fat percentage between school going students. To attain this aim, a total of 100 students (50 each from CBSE and State Board) with 15 ± 2 years of age and were randomly selected from the four schools at Kottayam, Kerala. The data collected from the participants was analyzed by employing independent t-test. The results of the study showed that students studying in CBSE Schools have high level fat percentage in comparison to students studying in State Board Schools. By revealing the importance of the educational settings, this study clarifies the effect of school curriculum to gain a fat per cent among school students. However, the error associated with level of body fat is not negligible and requires further investigation.

■ **Key Words** : Obesity, Fat percentage, School children, State Board, C.B.S.E. Board

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School sites offer multiple advantages for implementation of efforts to prevent and control overweight by affording continuous and intensive contact with the majority of children and adolescents. School programmes can capitalize on existing (although often constrained) resources and tools to develop student knowledge, attitudes, and skills essential for healthy lifestyles. School curriculum, personnel, policy interventions and changes in the physical environment have the potential to promote healthful dietary practices and regular physical activity (David L. Katz *et al.*, 2005). The incidence of overweight and obesity among adults and children is increasing at alarming rates (Reilly and Dorosty, 1999; Chinn and Rona, 2001; Rudol \acute{e} t *et al.*, 2001). Obesity is the result of being in a state of sustained positive energy balance, the causes of which are multi-factorial. Whilst knowledge about the genetic causes and aetiology of obesity is growing, it is likely that changes in lifestyle, particularly the increased consumption of energy-dense food and the marked decline in physical activity, are the major influences. Studies in the UK and the US suggest that childhood obesity appears to account for 33 per cent of adult obesity (Power *et al.*, 1997; Dietz, 1998). The increased

prevalence of overweight or obese children is being reported extensively by numerous epidemiological surveys in several countries (for a review, see Livingstone, 2000). Fatness in children is likely to persist into adulthood and is the forerunner of obesity-linked pathologies and early mortality in adults (Must *et al.*, 1992; Nieto *et al.*, 1992). In many countries the problem of childhood obesity is worsening at a dramatic rate. Surveys during the 1990s show that in Brazil and the USA, an additional 0.5 per cent of the entire child population became overweight each year. In Canada, Australia and parts of Europe the rates were higher, with an additional 1 per cent of all children becoming overweight each year (Lobstein *et al.*, 2004). The purpose of the study here was to check the status and see the difference in the fat percentage level of the students from two selected Boards *i.e.* State Board and Central Board for Secondary Education.

■ METHODOLOGY

For the purpose of the study a total of 100 students (50 from each group *i.e.* C.B.S.E and State Board) were randomly selected from the four schools at Kottayam, Kerala. The age of the students was 15 ± 2 years. The subjects

were tested for their fat percentage. The method of assessment of fat percentage chosen by the researcher was Skinfold thickness. The method for assessing fat percentage through skinfolds thickness was developed by Durnin and Womersley. This method provides fairly consistent and meaningful information about the body fat and its distribution. The correlation coefficients between the skinfold thicknesses, either single or multiple and density is in the region of -0.80 (McArdle *et al.*, 2001). The skinfold thickness was measured from four sites of the body (*i.e.* Biceps, triceps, Supra-iliac and Sub-scapula). The body density was calculated with the help of equation given by Durnin and Womersley. Fat percentage was calculated by using Siri formula. Permission for participation of school children was taken from the principal of the respective schools. Data was analyzed and compared by employed independent t-test.

■ OBSERVATIONS AND DISCUSSION

Table 1 reveals the characteristics of the subjects with the help of descriptive statistics. The above given table shows that the mean fat percentage of the children in C.B.S.E Board Schools (16.2 ± 0.63) was more than the State Board children (12.7 ± 0.59).

	Educational board	N	Mean	Std. deviation	Std. error mean
Fat percentage	C.B.S.C. board	50	16.2	4.47	.63
	State board	50	12.7	4.17	.59

The fat percentage of the students from C.B.S.E Board and State Board is shown in the Fig. 1. It is clearly visible that the percentage of fat was more in C.B.S.E Board in comparison to State Board schools.

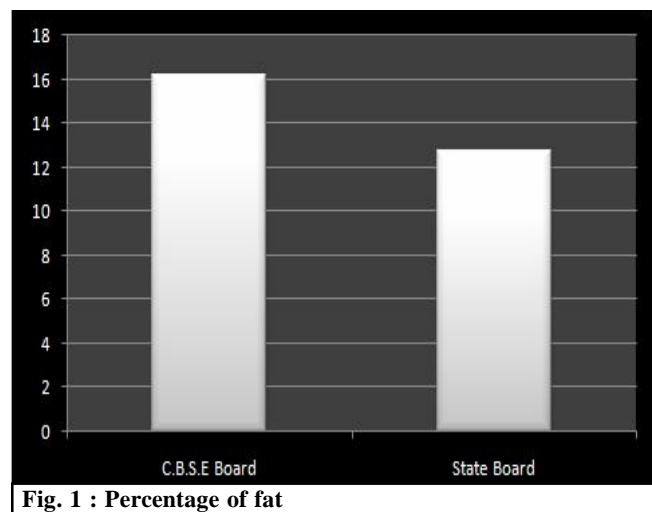


Table 2 reveals that there was a significant difference in fat percentage of students from C.B.S.E and State board as calculated value (4.015) of 't' was greater than the tabulated value (1.980) with degree of freedom 98. The p-value was found to be 0.000 which suggests a high level of confidence in the findings.

	df	t	Sig. (2-tailed)	Mean difference
fat percentage	98	4.015	.000	3.4

*significant $t_{05}(98) = 1.980$

Based on the analysis and within the limitation of present study, it may be concluded that there was a significant difference in fat percentage of students of C.B.S.E Schools and State board schools. The findings of this study had shown that C.B.S.E students were having more fat percentage level in comparison to State board students. So, physical educators and coaches should keep this matter in mind while treating students at different educational set-ups. These differences may be due to the different type of their lifestyles, unequal load of studies, unequal level of physical activities done, and different socio-economic status of their families. These differences are also may be due to the effects of modernization, affluence, increased food consumption and the concomitant changes to sedentary lifestyles. There may be many reasons for being obese and it needs further investigation. The same type of study was done by Mohsen in Saudi Arabia to see the difference in obesity level in children from different provinces of Saudi Arabia and he found that there was a significant difference in the obesity level. Plotnikoff also did a study to see the differences in obesity level among males (youth) of rural and urban areas of Canada and he found a significant difference in obesity level. Tyrrell also did a study to see the difference in body mass index and fat percentage among various ethnic groups in Auckland but he did not find any significant difference in the fat percentage and body mass index in the ethnic groups.

Recommendation :

The same type of study may be done in other regions of India.

The same type of study may be done with a large number of subjects.

The same type of study may also be done on the college going students.

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