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Effect of circuit training programme on self-esteem on pre-obese adolescents

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Abstract
The present study was conducted to assess the effect of Circuit Training Programme on Self-esteem on Pre-Obese Adolescents. The objective of the study was to found out the effect of 30 minutes Circuit Training Programme on Self-esteem sedentary pre-obese adolescent for a total duration of 21 days. For the purpose of the study, thirty (n=30) subjects were selected. The age group of the subjects ranged from 12 years to 18 years. The subject selected were the students from Kendriya Vidyalaya, Shalimar Bagh New Delhi. The Statistical Technique employed for analysing the data were Mean, Standard Deviation and 't' test. The level of significance was set at 0.05 for interpreting the results. The result of the study indicates was no significant difference in Self-esteem between Experimental and Control group. However there was increase in experimental group but it did not reach the significant level. Further, Experimental group had significantly higher average performance mean score as a result of 21 days of Circuit Training than the control group subjects who were not engaged in any training programme.

Keywords: Circuit training programme, self-esteem

Introduction
Physical activity (PA) is defined as any bodily movement produced by the contraction of skeletal muscles that results in a substantial increase in energy expenditure over resting levels Caspersen *et al*. (1985) [1]. The World Health Organization recommends that adults aged 18–64 years should engage in at least 150 minutes of moderate-intensity PA or 75 minutes of vigorous-intensity PA throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity. For additional health benefits, adults should increase their moderate-intensity PA to 300 minutes per week, or equivalent. Muscle strengthening activities involving major muscle groups should be undertaken on two or more days a week who. int (2016) [2].

Both moderate- and vigorous-intensity PAs are important for physical and mental health Biddle *et al*. (2008) [3]. In this regard, both the scientific community and lay people claim that regular PA impacts positively on self-esteem (SE). SE can be defined as a person's evaluative judgment of the self and is best understood within the framework of theoretical models of the self Levy *et al*. (2005) [4] SE is important for a successful and satisfying life and constitutes a fundamental aspect of psychological well-being Rosenberg (1965) [5]. Sonstroem and Morgan's framework of PA and SE suggests that exercising is associated with global SE through perceptions of self-efficacy, physical competence, and physical acceptance Sonstroem *et al*. (1994). Recently, change in SE has been shown to be significantly associated with perceived athletic competence and moderate-to-vigorous PA in children. Noordstar *et al*. (2016) [7]. Positive relationships between PA and SE have also been observed in children and adolescents Guinn *et al*. (2012). In an early meta-analysis, Gruber (1986) [9] reviewed the results of 27 studies and found that, among preadolescents, PA was significantly and moderately associated with SEA similar conclusion has been reached by other researchers. However, significant relationships have not been identified in all subsequent studies Walters *et al*. (2000) [10].

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Problem Statement

The purpose of the present investigation was to find the effect of Circuit Training Programme on Self-esteem on Pre-Obese Boys Adolescents with an objective to find out the effect of 30minutes of Circuit Training Programme on Self-esteem.

Methodology

The study was formulated as an experimental design of 21 days of training to find out the effect of Circuit Training Programme on. Thirty (30) male subjects who were selected for the study was randomly assigned to two different groups namely Circuit Training as Experimental group & Control group (Not exposed to any training).Circuit Training group consisted of 15 subjects, and Control group consisted of 15

subjects. The age group of the subjects ranged from 12 years to 18 years. The data was collected prior to the start of training session (pre –training data), and after completion of 21 days of circuit training (post- training data) on Self-esteem Psychological variable. For measuring the Self-esteem of the subjects' the research scholar was assessed with the help of

Rosenberg Self-Esteem Scale (1965).

Circuit training group was given 5 days a week for 3 weeks and 4th week having 6 days. The control group was not exposed to any training programme. Circuit Training unlisted eight exercise grouped used 8 different states which constituted one circuit. The eight states included following exercise:
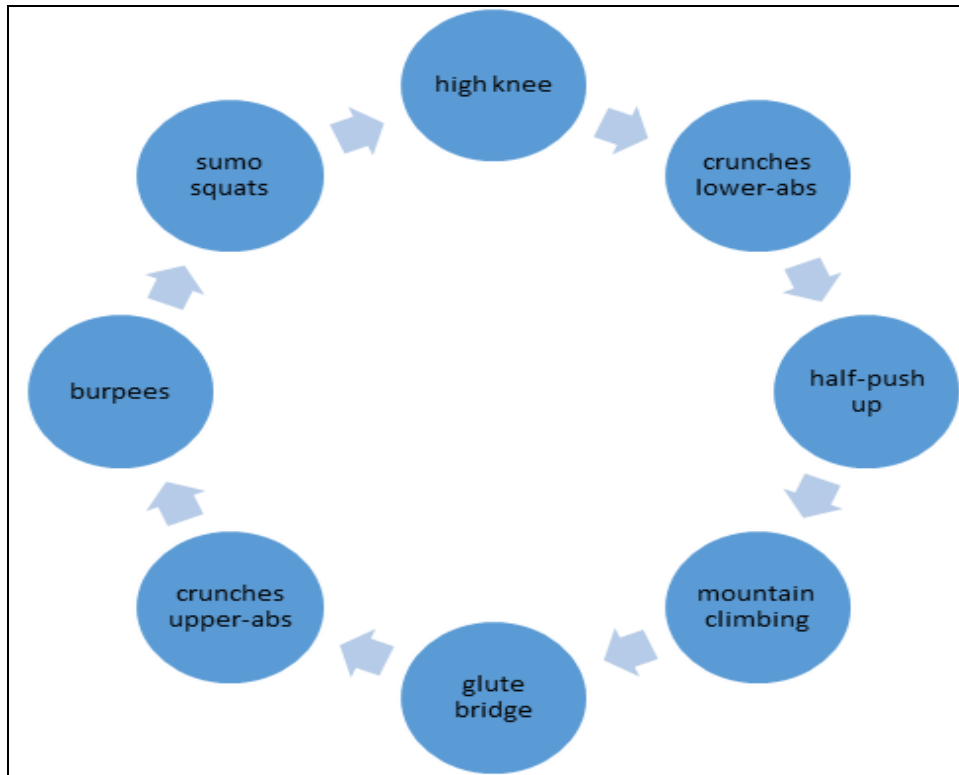

Fig 1: Show the exercise of circuit training programme.

Findings

To find out the effect of 21 days of circuit training on Self-esteem on pre –obese adolescents the mean, standard deviation and the 't' test were calculated which are presented in the following table.

Table 1: Descriptive statistics & paired 't' test of psychological variables of Experimental and control Group

Variables	Groups	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Self-esteem	Exp-Pre	20.86	2.89	0.748	0.73	14	0.477
	Exp-Post	21.33	3.45	0.892			
Self-esteem	Control-Pre	21.13	2.64	0.682	0.425	14	0.677
	Control-Post	21.46	2.69	0.696			

From table no. 1 the results indicate that there was no significant difference in self-esteem between pre and post data of experimental group t (14) = 0.73, P = 0.477, which is greater than 0.05. That is the average score of pre data of experimental group (M=20.86, SD=2.89) was not statistically different from that of post data of experimental group (M=21.33, SD=3.45). Thus, it could be concluded that there was no significant difference in self-esteem between pre and post data of experimental group. However, there was increase in the mean score of self-esteem after 21 days of participation in circuit training programme.

From table no.1 the results indicate that there was no significant difference in self-esteem between pre and post data of control group t (14) =0.425, P =0.677, which is greater than 0.05. That is the average score of pre data of control group (M=21.13, SD=0.682) was not statistically different from that of post data of control group (M=21.46, SD=0.696). Thus, it could be concluded that there was a no significant difference in self-esteem between pre and post data of control group. However, there was increase in the mean score of self-esteem after 21 days of participation in circuit training programme.

Table 2: Descriptive statistics & Independent 't' test of self-esteem of Experimental & Control Group:

Variables	Groups	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Self-esteem	Exp-Pre	20.86	2.89	0.748	0.265	28	0.79
	Control- Pre	21.13	2.64	0.682			
Self-esteem	Exp-Post	21.33	3.45	0.892	0.118	28	0.90
	Control-Post	21.46	2.69	0.696			

From table no. 2 the results indicate that there was no significant difference in self-esteem between pre data of experimental and control group t (14) = 0.263, P = 0.79, which is greater than 0.05. That is the average score of pre data of experimental group (M=20.86, SD=2.89) was not statistically different from that of pre data of control group (M=21.13, SD=2.64). Thus, it could be concluded that there was no significant difference in self-esteem between pre and pre data of experimental group.

From table no.2 the results indicate that there was no significant difference in self-esteem between post and post data of experimental and control group t (14) =0.118, P =0.90, which is greater than 0.05. That is the average score of post data of experimental and control group (M=21.33, SD=3.45) was not statistically different from that of post data of experimental and control group (M=21.46, SD=2.69). Thus, it could be concluded that there was a no significant difference in self-esteem between pre and post data of control group. However, there was increase in the mean score of self-esteem after 21 days of participation in circuit training programme.

The graphical representation of mean scores of table no.1 & 2 and its sub variables for shown in Figure No. 2.
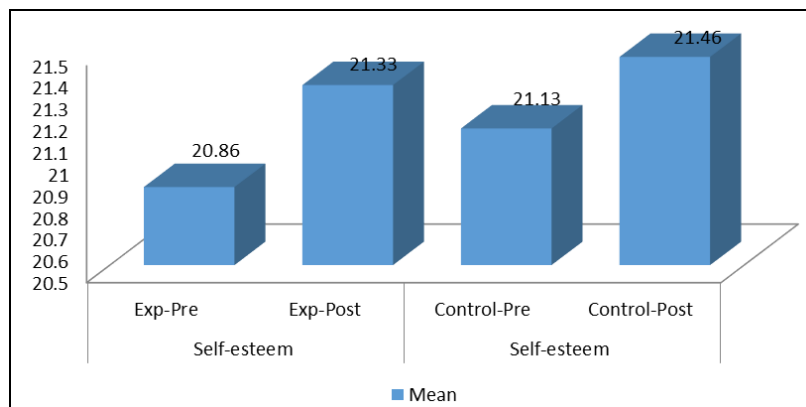
Fig 2: Graphical Representation of Mean Score from Table 1& 2

Based on our inspection of the above figure, it is clear that the circuit training group had significantly average performance mean score as a result of 21 days circuit training than the control group.

Discussion of findings
Analysis of the data revealed no significant difference in the 't' value between the circuit training group and control group in psychological variable of Self-esteem. Further, The result of the study revealed that after the completion of 21 days of circuit training program, no significant difference was found on the variable of Self-esteem in the post data of experimental group and control group. However there was an increase in both groups but it did not reach the significant level.

Conclusions
The result obtained after the implementation of circuit training on the psychological variable Perceived Stress of experimental group, following conclusion are drawn:
1. The result of the study revealed that after the completion of 21 days of circuit training program, no significant difference was found on the variable of Self-esteem in the post data of experimental group and control group. However there was an increase in both groups but it did not reach the significant level.

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