



INFLUENCE OF HIGH INTENSITY INTERVAL TRAINING PROGRAMME ON BODY FAT PERCENTAGE IN OVERWEIGHT AND OBESE CHILDREN

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ABSTRACT

The idea of the study was to understand the effect of High Intensity Interval Training program on body fat percentage in overweight and obese children. Total twenty-seven subjects were selected on the basis of BMI (IAP Boys Body Mass Index Charts). Further divided into overweight (10), obese (7) and control groups (10). Purposive sampling technique was used in selection. The skinfold thickness was measured by Skinfold Calliper from four sites i.e. Biceps, Triceps, Subscapular and Suprailiac. J.V.G.A. Durnin and M.M. Rahaman {Fat %=[(4.95/density)-4.5]x100} equation was applied to find out the Fat percentage. The means of different treatment were compared by applying the pair-t test. Statistical significance was tested at 0.05 level. Based on obtained data, it can be concluded that HIIT program can be used both in overweight and obese children groups to reduce the body fat percentage.

Key words: High Intensity Interval Training, Body Fat Percentage, Overweight and Obese.

INTRODUCTION

Obesity is a condition in which extra body fat has stored to the extent that it may rise the health problem within the individual. Obesity is highly correlated with some of the factors like diet, exercise, genetic etc. Obesity happens when we take a lot of calories than required and we don't burn the calories. Most of the people agree that physical activity is essential component to maintain a healthy lifestyle. Expert recommends at least 45 min/day of

physical activities are important to keep the body healthy. Physical exercise is very helpful for people who need weight loss or gain weight. So it is a multiuse that can be applied by anyone with proper training programme. Isotonic is one method of muscular exercise that includes concentric and eccentric. The length of muscle is shortening and lengthening during exercise. High Interval Intensity Training is a repetitions of high intensity exercise alternated with the active recovery or low intensity exercise. Recent studies showed that HIIT is effective to increase cardiopulmonary fitness and to improve insulin sensitivity. And some of the studies showed that HIIT is better results with regard to weight reduction compared to high volume, medium intensity. But in this study, High Intensity Interval Training (HIIT) has been used to see the effect on Body Fat percentage. High Intensity Interval Training is one of the most effective way of training used to reduce the fat or body weight. It includes the high intensity workout and followed by active recovery. Many of the researchers found that the effect of HIIT on different variables and different population was significant. But in this study, the training programme is conducted on the subject belongs to overweight and obese children. Secondly, it was interested to see the effect of HIIT and in which group is more effective.



METHODOLOGY

Total twenty-seven subjects were selected on the basis of BMI, further divided into Overweight (N=10), Obese (N=7) and Control group (N=10). Purposive Sampling technique was used to select the subjects. High Intensity Interval Training and Body fat percentage were selected as variables. The total duration of training programme was three times a week for twelve weeks. The training programme was consisting of 30-45 min. For skinfold testing, correct anatomical points were located and the skinfold site was marked. All the measurements were made on the right hand side of the subjects. The measurements were made on Biceps, Triceps, Suprailiac, and Subscapular. The gathered data was duly analysed through SPSS and Pair-t test was used and level of significance was set at 0.05.

RESULTS

**TABLE 1
PAIRED T TEST**

Group	Mean	SD	MD	SE Mean	T Value	df	Sig.
Pre	23.441	1.39	1.78	.22	8.02*	9	.000
Post	21.661	1.26					

*Significant at 0.05 level of significance

In table 1, the value of t statistic is 8.02. This t value is significant as the p value is .000 which is less than .05. Thus the null hypothesis of equality of average body fat percentage before and after treatment is rejected. So the body fat percentage in overweight children before and after the training program is not same. Therefore, by looking at the Table 1, it can conclude that body fat percentage is reducing after 12 weeks HIIT program in overweight children.

**TABLE 2
PAIRED T TEST**

Group	Mean	SD	MD	SE Mean	df	T Value	Sig.
Pre	27.077	0.649	1.25	0.15	6	8.61	.000
Post	25.822	0.819					

*Significant at 0.05 level of significance

In table 2, the value of t statistic is 8.61. This t value is significant as the p value is .000 which is less than .05. Thus the null hypothesis of equality of average body fat percentage before and after treatment is rejected. So the body fat percentage in obese children before and after the training program is not same. Therefore, by looking at the Table 2, it can conclude that body fat percentage is reducing after 12 weeks HIIT program in obese children.

**TABLE 3
PAIRED T TEST**

Group	Mean	SD	MD	SE Mean	df	T Value	Sig.
Pre	24.10	1.14	0.53	.25	9	2.13	.062
Post	24.62	1.19					

*Significant at 0.05 level of significance

In table 3, the value of t statistic is 2.134. This t value is not significant as the p value is .062 which is more than .05. Thus the null hypothesis of equality of average body fat percentage before and after treatment is fail to rejected. So the body fat percentage in control group children before and after the training program is same. Therefore, by looking at the Table 3, it can conclude that body fat percentage is not reducing after 12 weeks HIIT program in control group children.



DISCUSSION OF FINDINGS

The result of the study reveals that there is significance difference of HIIT in both overweight and obese children.

The study of M. Wewege revealed that body composition can be significantly effected by high intensity interval training and moderate-intensity continuous training in overweight and obese adults. He conducted in adults with minimum four weeks. A study by Islam Mosaad Ali Mahmoud showed that BMI and Body Fat were significantly effected after 12 weeks. The time duration of the training program is still unclear. The present study was conducted on body fat percentage in overweight and obese children for 12 weeks. Both the groups showed significant difference after training program. The study of Y.Turk concluded that training at high intensity is superior to improve cardiopulmonary fitness and reduce body fat percentage in adults with obesity. Eighteen studies were included in the meta-analysis. Most of the studies were conducted in adult's male and female. In the present study subjects were 8 to 18 years old boys. The idea is to control the adult obesity, since the children with obese is highly correlated with adult obesity. In table 6, the p value is not significant but the mean value in table 5 shown that post test value is higher than pre test value, it means that the fat percentage in children may be increase due to the inactivity.

Conclusion

Within the limitation identified and on the basis of present study the following conclusions have been found that

HIIT program can reduce the body fat percentage in overweight children and HIIT program can be applied in obese children to reduce the body fat percentage.

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