

Effect of Tabata Training for Weight Loss in Overweight Middle Age Female of Ahmedabad City: An Experimental Study

Nishtha Shah¹, Alpa Purohit²

¹Pursuing MPT in Musculoskeletal Conditions, Ahmedabad Institute of Medical Sciences

²MPT Orthopedic Conditions and Senior Lecturer, Ahmedabad Institute of Medical Sciences

Corresponding Author: Nishtha Shah

ABSTRACT

Aim- This study aims to Investigate the effect of Tabata training for weight loss in overweight middle age female in Ahmedabad city- An experimental study.

Background- Tabata is a High Intensity Interval Training; consisted of 4 circuits, Each circuit has 4 exercises which is performed for 20 seconds each followed by 10 seconds of rest in between each circuit is repeated twice and 1 minute break is given between 2 circuits, so the total duration of one circuit is $4 * 4 = 16$ min, and total 4 min rest thus total training period is of 20 min. In Tabata training there is calorie burn which leads to weight loss. There are many studies for traditional method for weight loss but, there is limited research regarding tabata training and weight loss in our region. Therefore, need arises to see the effect of tabata training on weight loss.

Methodology- 16 middle aged women, age between 20-45 years with $BMI > 24.9$ kg/m^2 are included according WHO classification. Tabata training was given for 20 min/day. Training was given for 14 days and Pre and Post Intervention data was taken.

Results- The results showed that there is significant Improvement of tabata on reducing waist circumference and BMI on subjects, where p value is < 0.05 . Analysis was done using SPSS version 20 software. The mean value of Waist circumference pre treatment was 35 inches which was reduced after training to 32.5 inches. And the Pre BMI was 28.2 kg/m^2 which was reduced post training to 27.3 kg/m^2 .

Conclusion- According to the results of this study tabata training shows significant

improvement in reducing the waist circumference and BMI. Future studies should be done on larger population and on male and female both.

Key Words: Weight loss, Inch loss, BMI, Tabata training, Circuit training, overweight, exercise, High intensity Interval training.

1. INTRODUCTION

Tabata is a high intensity interval training, introduced by Japanese scientist Izumi Tabata in 1996.¹ It is an interval training protocol which is a cardio workout for fat loss.² It consists of circuit training exercises of short bouts of time. Tabata and his colleagues (1996) conducted a study that compared moderate-intensity continuous training at 70% of maximal oxygen consumption (VO_{2max}) for 60 minutes, with HIIT conducted at 170% of VO_{2max} . HIIT consisted of eight, 20-second all-out exercise bouts followed by 10 seconds of rest for a total of 4 minutes of exercise. The study found that HIIT improved aerobic capacity to a similar degree as moderate intensity continuous training, but also resulted in a 28% increase in anaerobic capacity. Those findings led to the development of a wide variety of HIIT programs. Tabata training has evolved to include a variety of modes and exercises performed in the classic 20-10 pattern (i.e., 20 seconds of all-out effort followed by 10 seconds of rest). While the physiological responses to traditional steady-state exercise

are well-documented, there is limited research regarding the relative fat loss and weight loss for tabata training. Therefore, the need arises to see the effect of tabata training on weight loss.

AIM & OBJECTIVES- This study aims to Investigate the effect of Tabata training for weight loss in overweight middle age female in Ahmedabad city.- An experimental study.

OBJECTIVES- 1.To study the effect of tabata training in weight reduction.2.To check the effect of tabata training on waist and height ratio.

2. METHODOLOGY

The study was performed on 16 middle aged female of Ahmedabad city. Pre exercise data of waist and height ratio was taken using measure tape and weight was measured using digital body weight machine and BMI was taken. Data was analysed using SPSS 20 software.

INCLUSION CRITERIA- female aged between 20-45 years.

Overweight female having BMI>24.9 kg/m² to 29.9 kg/m².

EXCLUSION CRITERIA- Any acute musculoskeletal condition, Hypertension, Pregnancy and postpartum period and during menses.

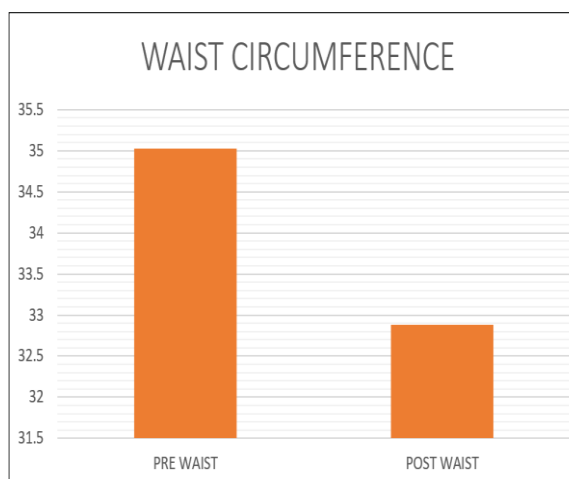
Training was started with warm up in which stretching of biceps, wrist extensors, finger extensors, flexors and quadriceps, hamstring, calf was done. followed by which 4 circuits*2=16 min and 1 min of rest in between each circuit was done and lastly cool down period in which again stretching and slow breathing was done. Each circuit contained high intensity exercises like following:

CIRCUIT 1	CIRCUIT 2	CIRCUIT 3	CIRCUIT 4
JUMPING JACKS	UNEVEN PLANKS	BUTT KICKER	RUSSIAN TWIST
PUSH UPS	MOUNTAIN CLIMBERS	BICYCLE CRUNCHES	SQUAT JUMPS
SQUATS	LUNGES	SIDE LUNGES	HIGH KNEES
HEEL TOUCHES	STANDING ABS TWISTS	PLANK	HIP EXTENSION

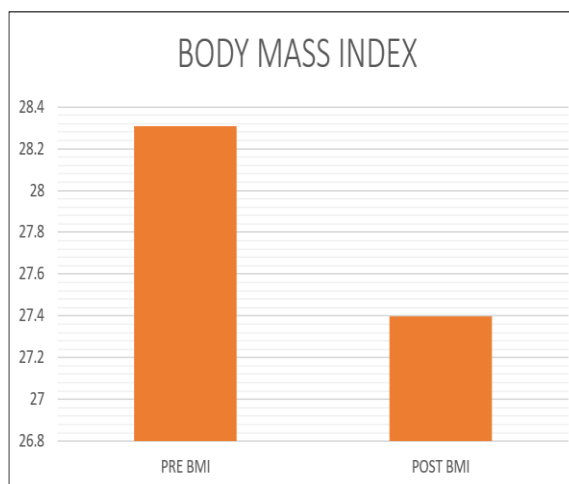
3. RESULTS

Pre intervention mean of waist circumference was 35 inches and after 14 days of tabata training the mean waist circumference was 32.8 inches. The p value is <0.05 thus, it is statistically significant.

Pre intervention BMI was 28.3 kg/m² and after 14 days of tabata training it was 27.4 kg/m². The p value is <0.05 thus, it is statistically significant.



GRAPH 1: Pre and Post tabata training mean waist circumference.



GRAPH 2: Pre and post tabata training mean BMI.

4. DISCUSSION

Here the results shows significant reduction in Body mass Index reduction and waist circumference reduction, The mechanism behind it is : after the HIIT there is removal of lactate and H⁺, resynthesis of glycogen and elevation of GH levels which results in post exercise fat oxidation, which leads to fat loss and thus weight reduction.³ Tabata improves athletic performance and glucose metabolism and acts as an excellent catalyst for fat burning. The excess post-exercise oxygen consumption (EPOC) effect for Tabata occurs immediately after the workout, so you keep burning calories. Possible mechanisms underlying the HIIE-induced fat loss effect include increased exercise and post exercise fat oxidation and decreased post exercise appetite. As mentioned, Gaitanos et al. have suggested that towards the end of an HIIE session that consists of numerous repeat Journal of Obesity 7 sprints (e.g., ten 6-second bouts of maximal sprinting) an inhibition of anaerobic glycogenolysis occurs and ATP resynthesis is mainly derived from PCr degradation and intramuscular triacylglycerol stores. That increased venous glycerol accompanied HIIE in both trained female cyclists and untrained women supports the notion that acute HIIE progressively results in greater fatty acid transport. Also Burgomaster et al. and Talanian et al. have shown that 6 to 7 sessions of HIIE had marked increases in whole body and skeletal muscle capacity for fatty acid oxidation. As mentioned previously, the EPOC or post exercise response to HIIE does not appear to have been examined. It is feasible that the catecholamines generated by HIIE could influence post exercise fat metabolism. Increased fat oxidation after HIIE may also occur as a result of the need to remove lactate and H⁺ and to resynthesize glycogen. The elevated GH levels documented after a bout of HIIE may also contribute to increased energy expenditure and fat oxidation .There are many studies

done on athletes for effect of tabata on energy transfer and increasing aerobic capacity but weight loss was never the primary outcome Thus, this study will help to gain knowledge regarding it.

5. CONCLUSION

According to the results of this study tabata training shows significant improvement in reducing the waist circumference and BMI. Future studies should be done on larger population and on male and female both.

6. Clinical Significance

Nowadays major musculoskeletal conditions have risk factor of obesity. Thus, for this scenario weight loss training is a new era of physiotherapy.-Combining weight loss training with physiotherapy knowledge will help to achieve more positive results and good analysis.- Moreover apart from traditional weight loss methods tabata will help for weight loss and waist circumference reduction in shorter duration of time and it is not equipment based so will be cost effective.

7. Limitations- Sample size was very small. Study was done only on male subjects.

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Authors' profile:



Dr. Nishtha Shah is pursuing MPT in Musculoskeletal conditions.



Dr. Alpa Purohit MPT
in Orthopedic
conditions, Senior
lecturer at Ahmedabad
institute of medical
sciences since 13 years.

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