

# Consequences of Orange Theory Fitness Training and Coalesce of Yogic Practice on Stress among Obese Students

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## Abstract

The purpose of this investigation was to examine the effects of Orangetheory fitness training, yogic practices, and their combined application on psychological stress among obese school students. Sixty obese students aged between 12 and 14 years from schools in and around Thoothukudi, Tamil Nadu, were selected as participants. The subjects were randomly assigned into four groups consisting of fifteen students each. Group I participated in Orangetheory fitness training, Group II performed yogic practices, Group III underwent a combined programme of Orangetheory training and yoga, while Group IV served as the control group without any specific intervention. Psychological stress was considered the dependent variable and was measured using the standardized Every and Grinodo Psychological Stress Scale. The experimental programmes were conducted for twelve weeks with five sessions per week. Data were collected before the commencement of the training and immediately after the completion of the intervention period. The collected data were analysed using the dependent t-test and Analysis of Covariance (ANCOVA). Whenever the adjusted post-test F-ratio was found significant, Scheffe's post-hoc test was applied to determine the paired mean differences. The level of significance was fixed at 0.05. The findings revealed significant differences among the experimental and control groups, and the combined training programme produced greater stress reduction compared with the individual training methods.

**Keywords:** Orangetheory Fitness Training, Yogic Practice, Coalesce, Obese, Psychology, Stress.

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## INTRODUCTION

Orangetheory fitness training represents a structured exercise approach that integrates cardiovascular conditioning with total-body strength development. This training model combines interval-based aerobic exercise with resistance movements, aiming to improve metabolic efficiency, muscular endurance, and overall physical fitness. Such combined training methods are widely recognized for enhancing calorie expenditure, improving lean body mass, and supporting long-term health outcomes.

High-intensity interval training (HIIT), which forms a central component of Orangetheory programmes, involves repeated bouts of high-intensity activity alternated with short recovery periods. This training method elevates heart rate to a high percentage of maximum capacity and has been shown to improve cardiovascular performance, metabolic functioning, and exercise tolerance. Due to its time-efficient nature and

measurable physiological benefits, HIIT has gained considerable acceptance in modern exercise prescription.

In contrast, yogic practices provide a holistic approach to health by integrating physical postures, controlled breathing techniques, and meditative practices. Regular yoga participation has been associated with reduced physiological stress responses, improved emotional regulation, and enhanced psychological wellbeing. By promoting parasympathetic activation and reducing excessive sympathetic arousal, yoga contributes to relaxation, mental clarity, and emotional stability.

Stress has emerged as a significant concern among school-aged populations, particularly among students experiencing obesity-related health challenges. Persistent psychological stress may negatively influence emotional balance, academic functioning, and physical health. Therefore, identifying effective physical activity interventions capable of reducing stress among obese

adolescents remains an important research priority. Both structured fitness programmes and traditional yogic practices offer promising approaches; however, the combined effect of these interventions requires further systematic investigation.

## METHODOLOGY

The study was designed to evaluate the impact of Orangetheory fitness training, yogic practices, and their combined intervention on psychological stress among obese students. Sixty obese school students from institutions located in and around Thoothukudi, Tamil Nadu, aged between 12 and 14 years, were selected as participants for the investigation.

The selected participants were randomly divided into four equal groups of fifteen students each. Group I followed an Orangetheory fitness training programme, Group II performed a structured yogic practice schedule, Group III participated in a combined programme consisting of both Orangetheory training and yogic practices, and Group IV functioned as the control group without any specialized training intervention.

Psychological stress served as the dependent variable and was assessed using the Every and Grinodo Psychological Stress Scale. The intervention period lasted twelve weeks, with training sessions conducted

five days per week. Measurements were recorded before the commencement of the experimental programme and immediately after the completion of the twelve-week training period.

The collected data were statistically analysed using the dependent t-test to determine within-group changes and Analysis of Covariance (ANCOVA) to identify differences among groups. Whenever significant adjusted post-test differences were observed, Scheffe's post-hoc test was applied to determine the direction of paired group differences. The level of statistical significance was set at 0.05.

### 3. Analysis of Data

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted posttest means on selected criterion variables separately. Whenever they obtained f-ratio value in the simple effect was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on stress of experimental groups and control group have been analyzed and presented in Table -1.

**Table -1: The Summary of Mean and Dependent 't' Test for the Pre and Post Tests on Stress of Experimental Groups and Control Group**

Mean	Orangetheory Fitness Training Group	Yogic Practices Group	Coalesce Orangetheory Fitness Training and Yogic Practices Group	Control Group
Pre- Test Mean	42.73±3.34	43.00±3.10	44.27±3.04	42.73±3.40
Post-Test Mean	35.20±2.86	34.20±2.51	31.33±3.00	42.93±3.45
't'-test	5.06*	6.33*	8.79*	0.13

\* Significant at 0.05 level.

(Table value required for significance at .05 level for 't'-test with df 14 is 2.15)

Table-1 shows that the pre-test means on Stress of Orangetheory Fitness Training group, Yogic Practices group, Coalesce Orangetheory Fitness Training and Yogic Practices group and Control group are 42.73±3.34, 43.00±3.10, 44.27±3.04 and 42.73±3.40 respectively. The post-test means are 35.20±2.86, 34.20±2.51, 31.33±3.00 and 42.93±3.45 respectively. The obtained dependent t-ratio values between the pre and posttest means on Stress of Orangetheory Fitness Training group, Yogic Practices group, Coalesce Orangetheory Fitness Training and Yogic Practices group and Control group are 5.06, 6.33, 8.79 and 0.13 respectively.

The table value required for significant difference with df 14 at 0.05 level is 2.15. It was

concluded that experimental groups such as Orangetheory Fitness Training group, Yogic Practices group & Coalesce Orangetheory Fitness Training and Yogic Practices group had registered significant improvement on Stress.

To find out the significance improvement between groups on Stress analysis of covariance (ANCOVA) was applied. Whenever the 'F' ratio for adjusted posttest means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant.

**Table – 2: Computation of Analysis of Covariance of Experimental Groups and Control Group on Stress**

Test	Orange Theory Fitness Training Group	Yogic Practice Group	Coalesce of Orange Theory Fitness Training and Yogic Practice Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Pre-Test Mean	42.73	43.00	44.27	42.73	Between	24.18	3	8.06	0.72
					Within	622.80	56	11.12	
Post Test Mean	35.20	34.20	31.33	42.93	Between	1105.52	3	368.51	38.86*
					Within	531.07	56	9.48	
Adjusted Post Test Mean	35.42	34.29	30.81	43.15	Between	1196.40	3	398.80	57.06*
					Within	384.43	55	6.99	

\* *Significant at 0.05 level of confidence, (Stress Scores in Numbers)*

*Table value for df (3, 56) at 0.05 level = 2.76 Table value for df (3, 55) at 0.05 level = 2.78*

The table-2 shows that the pretest mean value on Stress of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice and Control group are 42.73, 43.00, 44.27 and 42.73 respectively. The obtained 'F' ratio of 0.10 for pre test scores was lesser than the table value of 0.72 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Stress.

The posttest mean values on Stress of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice and Control group are 35.20, 34.20, 31.33 & 42.93 respectively. The obtained 'F' ratio of 38.86 for post- Test scores was higher than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Stress.

The adjusted post-test mean on Stress of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice and Control group 35.42, 34.29, 30.81 & 43.15 respectively. The obtained 'F' ratio of 57.06 for adjusted post-Test scores was higher than the table value of 2.78 for degrees of freedom 3 and 55 required for significance at 0.05 level of confidence on stress.

The results of the study indicate that there are significant differences among the adjusted posttest mean of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice and Control group in Stress.

To determine which of the paired means have a significant difference, the Scheffe's test is applied as Post hoc test and the results are presented in Table – 3.

**Table – 3: The Scheffe's Test for the Differences Between the Adjusted Post Tests Paired Means on Stress**

Adjusted Post-test Means				Mean Difference	Confidence Interval
Orange Theory Fitness Training Group	Yogic Practice Group	Coalesce of Orange Theory Fitness Training and Yogic Practice Group	Control Group		
35.42	34.29			1.13	2.78
35.42		30.81		4.61*	2.78
35.42			43.15	7.73*	2.78
	34.29	30.81		3.48*	2.78
	34.29		43.15	8.86*	2.78
		30.81	43.15	12.34*	2.78

\* *Significant at 0.05 level of confidence*

The above shows that the adjusted posttest mean differences on Stress between Orange Theory fitness training group and Coalesce of Orange Theory fitness training group, Orange Theory fitness training group and Control group, Yogic Practice group and Coalesce of Orange Theory fitness training group, Yogic Practice group and Control group & Coalesce of Orange Theory fitness training group and Control group 4.61, 7.73, 3.48, 8.86 & 12.34 respectively, which are greater than the confidence interval value of 2.78 at 0.05 level of confidence. Further the above shows that the adjusted

posttest mean differences on Stress between Orange Theory fitness training group and Yogic Practice group is 1.13, which is less than the confidence interval value of 2.78 at 0.05 level of confidence.

The results of the study showed that there was a significant difference between Orange Theory fitness training group and Coalesce of Orange Theory fitness training group, Orange Theory fitness training group and Control group, Yogic Practice group and Coalesce of Orange Theory fitness training group, Yogic Practice

group and Control group & Coalesce of Orange Theory fitness training group and Control group on Stress. Further the results of the study showed that there was no significant difference between Orange Theory fitness training group and Yogic Practice group on Stress.

The above data also reveal that Coalesce of Orange Theory fitness training and Yogic Practice group had shown better performance than Orange Theory fitness training group, Yogic Practice group and Control group in Stress.

The pre and posttest mean values of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice group and Control group on Stress are graphically represented in the Figure -1.

The adjusted posttest means values of Orange Theory fitness training group, Yogic Practice group, Coalesce of Orange Theory fitness training and Yogic Practice group and Control group on Stress are graphically represented in the Figure -2.

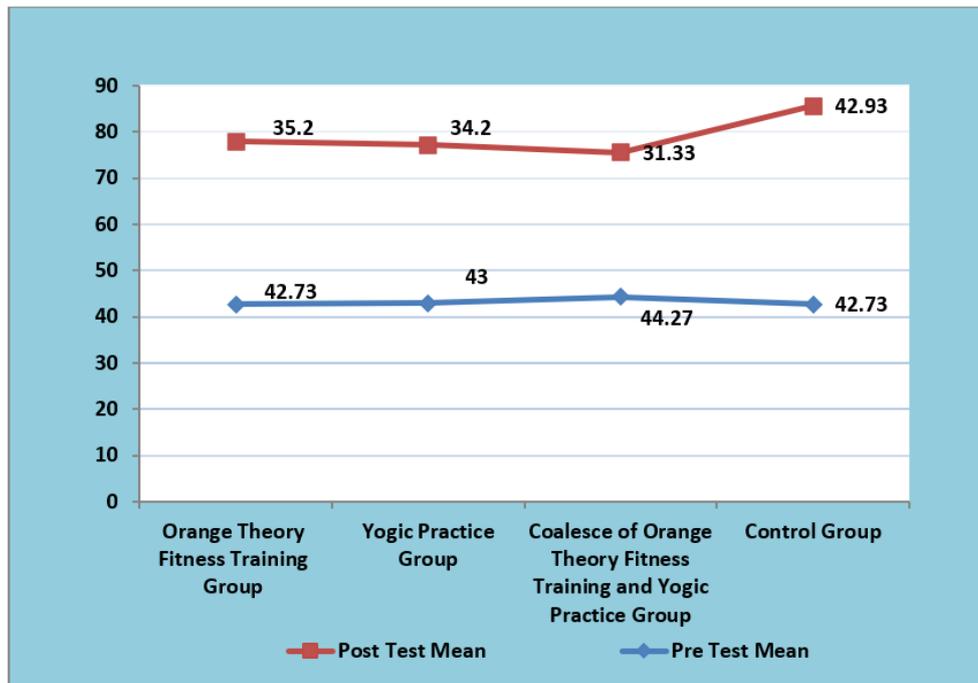


Fig. 1: Pre, Post test on Stress among Experimental Groups and Control Group (In Numbers)

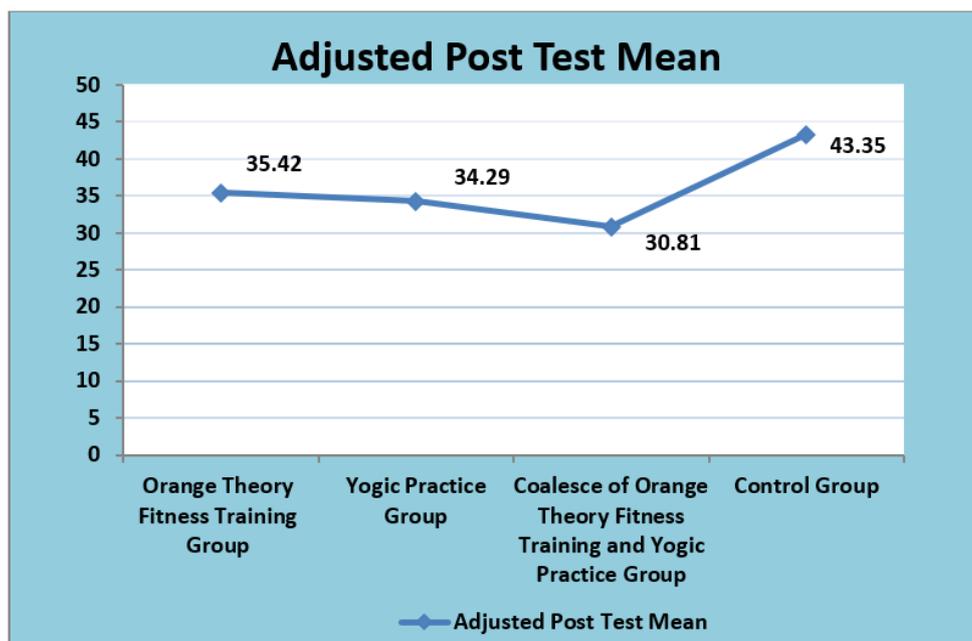


Fig. 2: Adjusted Post test on Stress among Experimental Groups and Control Group (In Numbers)

#### 4. CONCLUSIONS

Based on the statistical analysis, it was concluded that both Orangetheory fitness training and yogic practices were effective in reducing stress among obese students. All experimental groups showed significant improvement compared with the control group. However, the group that participated in the combined programme of Orangetheory training and yoga demonstrated the greatest reduction in stress levels. This indicates that an integrated training approach may be more beneficial for psychological stress management in obese school children than single-method interventions.

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