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Effect of orange theory fitness training and yogic practices on selected physical and physiological variables among obese college men

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Abstract
The purpose of the study was to examining the effect of orange theory fitness training and yogic practices on selected physical and physiological variables among obese college men. For this purpose, forty-five obese college students having BMI 25-29 studying in holy cross engineering college, Thoothukudi were selected as subjects and the age of the subject were ranged between 18 to 21 years. They were assigned randomly into two experimental groups and one control group of fifteen each. The group I underwent orange theory fitness training and the group II underwent yogic practices and control group was not exposed to any specific training but they participated in the regular curriculum programme. The training period for the experimental group were three days per week for eight weeks. The subjects underwent orange theory fitness training and yogic practices are under strict supervision. Prior to every training session, the experiment groups underwent 10 minutes warm-up exercises which included jogging and stretching. abdominal strength, agility and flexibility were selected as the dependent variable for this study and it was assessed by sit-ups, T-test and sit and reach respectively. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables. The data obtained from the experimental groups and control group were statistically analysed by analysis of covariance (ANCOVA). The level of significance was fixed at 0.05 for all the cases. The result of the study reveals that the dependent variables are significantly improved due to orange theory fitness training and yogic practices. Flexibility shows more significant in yogic practices compare to orange theory fitness training, Abdominal strength and agility shows more significant in orange theory fitness training compare to yogic practices group.

Keywords: Orange theory fitness training, yogic practices, muscular strength, agility, flexibility, obese

Introduction

Orange theory fitness

Orange Theory Fitness is a high-intensity interval training (HIIT) workout that incorporates cardiovascular and strength training exercises. Each workout is designed to be a full-body workout that includes intervals of cardio and strength training, designed to boost your heart rate and burn calories.

The workout consists of a combination of treadmill exercises, rowing exercises, and weight training exercises. The workout is led by a coach who motivates and guides you through the exercises.

The workout is designed to maximize calorie burn and provide a full-body workout. The workout is also designed to be challenging and intense, so it is recommended that individuals consult with a doctor before beginning any exercise program.

Orange Theory Fitness (OTF) is a high-intensity interval training (HIIT) program that incorporates cardiovascular and strength training exercises. HIIT has been shown to improve cardiovascular fitness, body composition, and insulin sensitivity in obese individuals (1). Additionally, resistance training can improve muscle strength and mass, which can aid in weight loss and metabolic health (2). Therefore, it is likely that OTF training could lead to improvements in health and fitness outcomes in obese individuals.

Yogic Practices

Yoga is a physical, mental and spiritual practice that originated in ancient India. First codified by the sage Patanjali in his Yoga Sutras around 400 C.E, the practice was in fact handed down

from teacher to student long before this text arose. Traditionally, this was a one-to-one transmission, but since yoga became popular in the West in the 20th century, group classes have become the norm.

The word yoga is derived from the Sanskrit root *yuj*, meaning "to yoke," or "to unite". The practice aims to create union between body, mind and spirit, as well as between the individual self and universal consciousness. Such a union tends to neutralize ego-driven thoughts and behaviors, creating a sense of spiritual awakening.

Yoga has been practiced for thousands of years, and whilst many different interpretations and styles have been developed, most tend to agree that the ultimate goal of yoga is to achieve liberation from suffering. Although each school or tradition of yoga has its own emphasis and practices, most focus on bringing together body, mind and breath as a means of altering energy or shifting consciousness

Methodology

The purpose of the study was to examining the causes of effect of orange theory fitness training and yogic practices on selected physical and physiological variables among obese college men. For this purpose, forty-five obese college students having BMI 25-29 studying in holy cross engineering college, Thoothukudi were selected as subjects the age of the subject were ranged between 18 to 21 years. They were assigned randomly into two experimental groups and one control group of fifteen each. The group I underwent orange theory fitness training and the group II underwent yogic practices and control group was not exposed to any specific training but they participated in the regular curriculum programme. The training period for the experimental group were three days per week for eight weeks. The subjects underwent orange theory fitness training and yogic practices under strict supervision. Prior to every training session, the experiment groups underwent 10 minutes warm-up exercises which included jogging and stretching. Abdominal strength, agility and flexibility were selected as the dependent variable for this study and it was assessed by sit-ups, T-test and sit and reach Test respectively. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables. The data obtained from the experimental groups and control group were statistically analysed by analysis of covariance (ANCOVA). The level of significance was fixed at 0.05 for all the cases.

Analysis of Data

Abdominal Strength

Analysis of covariance of orange theory fitness training, yogic practices and control group on abdominal strength (Scores in Count)

	Orange Theory Fitness	Yogic practices	Control Group	Source of variance	Sum of Square	df	Mean square	F ratio
Pre Test mean	10.80	10.86	10.66	Between	0.31	2	0.5	0.05
				Within	131.46	42	3.13	
Post Test mean	11.93	11.46	10.66	Between	12.31	2	6.15	1.34*
				Within	192.00	42	4.57	
Adjusted Test mean	11.91	11.39	10.76	Between	10.02	2	5.01	2.05*
				Within	99.85	41	2.43	

Significant at 0.05 Level

The above table shows that the pre-test mean value on muscular strength of orange theory fitness training, yogic practices and control group are 10.8, 10.86 and 10.66 respectively. The obtained 'F' ratio of 0.05 for pre-test score is less than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on abdominal strength. The post-test mean value on muscular strength of orange theory fitness training, yogic practices and control group are 11.93. 11.46 and 10.66 respectively. The obtained 'F' ratio of 1.34 for post-test score is greater than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on muscular strength. The adjusted post-test mean value on abdominal strength of orange theory fitness training, yogic training and control group are 11.91, 11.39 and 10.76 respectively. The obtained 'F' ratio of 2.05 for adjusted post-test score is greater than the table value of 3.22 for df 2 and 41 required for significance at 0.05 level of confidence on abdominal strength. The results of the study indicated that there was a significant difference between the adjusted post-test means of orange theory fitness training, yogic practices and control groups on abdominal strength. Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Schiff post hoc test was employed and presented in below table

The schiff's test for the difference between paired means orange theory fitness training, yogic practices and control group abdominal strength (Scores in Count)

Orange Theory Fitness	Yogic practices	Control group	Mean Difference	Require CI
11.91		10.76	1.15*	0.52
	11.39	10.76	0.63*	0.52
11.91	11.39		0.52	0.52

Significant at 0.05 Level of confidence

The table III shows that the adjusted post-test mean difference in abdominal strength between yogic practices group and control group is 1.15it is significant at 0.05 level of confidence and proved there was a significant improvement. orange theory fitness training group and control group is 0.63 it is significant at 0.05 level of confidence and proved there was a significant improvement. Hence, there was significant difference between control and experimental groups in muscular strength among obese college men's. The mean differences between the two experimental groups were 0.52 there is no significant at 0.05 level of confidence.

Agility

Analysis of covariance of orange theory fitness training, yogic practices and control group on agility (Scores in Seconds)

	Orange Theory Fitness	Yogic practices	Control Group	Source of variance	Sum of Square	df	Mean square	F ratio
Pre Test mean	13.15	13.19	13.03	Between	0.19	2	0.10	0.45
				Within	8.79	42	0.21	
Post Test mean	12.49	12.45	13.15	Between	4.68	2	2.34	11.05*
				Within	8.89	42	0.21	
Adjusted Test mean	12.47	12.42	13.20	Between	5.57	2	2.79	17.51*
				Within	6.52	41	0.16	

Significant at 0.05 Level

The above table shows that the pre-test mean value on Agility of orange theory fitness training, yogic practices and control group are 13.15, 13.19 and 13.03 respectively. The obtained F ratio of 0.45 for pre-test score is less than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on agility. The post-test mean value on agility of orange theory fitness training, yogic practices, and control group are 12.49, 12.45 and 13.20 respectively. The obtained 'F' ratio of 11.05 for post-test score is greater than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on agility. The adjusted post-test value on agility of orange theory fitness training, yogic training and control group are 12.47,12.42 and 13.20 respectively. The obtained 'F' ratio of 17.51 for adjusted post-test score is greater than the table value of 3.22 for df 2 and 41 required for significance at 0.05 level of confidence on agility. The results of the study indicated that there was a significant difference between the adjusted post-test means of orange theory fitness training, yogic practices and control groups on agility. Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Schiff post hoc test was employed and presented in below table.

The schiff's test for the difference between paired means orange theory fitness training, yogic practices and control group agility (Scores in Seconds)

Orange Theory Fitness	Yogic practices	Control group	Mean Difference	Require CI
12.47		13.20	0.73*	0.03
	12.42	13.20	0.78*	0.03
12.47	12.42		0.05*	0.03

Significant at 0.05 Level of confidence

The above table shows that the adjusted post-test mean difference in agility between yogic practices and control group is 0.73 it is significant at 0.05 level of confidence and proved there was a significant improvement. orange theory fitness training and control group is 0.78 it is significant at 0.05 level of confidence and proved there was a significant improvement. Hence, there was significant difference between control and experimental groups in agility among college obese men's. The mean differences between the two experimental groups were 0.05 which is also significant at 0.05 level of confidence. It may be concluded from the results of the study orange theory fitness training group is better than the yogic practices group.

Flexibility

Analysis of covariance of orange theory fitness training, yogic practices and control group on flexibility (Scores in Centimetre)

	Orange Theory Fitness	Yogic practices	Control Group	Source of variance	Sum of Square	df	Mean square	F ratio
Pre Test mean	6.75	6.8	6.73	Between	0.05	2	0.2	0.05
				Within	19.38	42	0.46	
Post Test mean	7.61	7.33	6.84	Between	4.59	2	2.30	4.24*
				Within	22.74	42	0.54	
Adjusted Test mean	7.62	7.28	6.87	Between	4.19	2	2.09	29.22*
				Within	2.94	41	0.07	

Significant at 0.05 Level

The above table shows that the pre-test mean value on flexibility of orange theory fitness training, yogic practices and control group are 6.75, 6.8 and 6.73 respectively. The obtained "F" ratio of 0.05 for pre-test score is less than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on flexibility. The post-test mean value on flexibility of orange theory fitness training, yogic practices and control group are 7.61, 7.33 and 6.84 respectively. The obtained 'F' ratio of 4.24 for post-test score is greater than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on flexibility. The adjusted post-test mean value on flexibility of orange theory fitness training, yogic practices and control group are 7.62, 7.28 and 6.87 respectively. The obtained 'F' ratio of 29.22 for adjusted post-test score is greater than the table value of 3.22 ford f2 and 41 required for significance at 0.05 level of confidence on flexibility. The results of the study indicated that there was a significant difference between the adjusted post-test means of orange theory fitness training, yogic practices and control groups on flexibility. Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Schiff post hoc test was employed and presented in below table

The schiff's test for the difference between paired means orange theory fitness training, yogic practices and control group flexibility (Scores in Centimeter)

Orange Theory Fitness	Yogic practices	Control group	Mean Difference	Require CI
7.62		6.87	0.17*	0.01
	7.28	6.87	0.41*	0.01
7.62	7.28		0.34*	0.01

Significant at 0.05 Level of confidence

The above table shows that the adjusted post-test mean difference on flexibility between yogic practices and control group is 0.75it is significant at 0.05 level of confidence and proved there was a significant improvement. orange theory fitness training and control group is 0.41 it is significant at 0.05 level of confidence and proved there was a significant improvement. Hence, there was significant difference between control and experimental groups in flexibility among obese college men's. The mean differences between the two experimental groups were 0.34 which is also significant at 0.05 level of confidence. It may be concluded from the results of the study yogic practices group is better than the orange theory fitness training group on flexibility.

Conclusions

Within the limitation of the study the following conclusion were drawn

1. Due to yogic practices, there was a significant improvement on abdominal strength, agility and flexibility.
2. Due to orange theory fitness training there was a significant improvement on abdominal strength, agility and flexibility.
3. Based on the results it is observed that the yogic practices group is better in flexibility then the orange theory fitness training group.
4. Based on the results it is observed that the orange theory fitness training, group is better in muscular strength and agility than the yogic practices group.

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