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Effects of variation of yogic practices on BMI and flexibility among obese college men

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Abstract
The purpose of the study was to investigate the effect of variations of yogic practices on BMI and flexibility among the obese men. To achieve the purpose of the study 75 men subjects were selected from the VEL Tech. Engg. College, Avadi, Chennai. The selected subjects were equally divided into three groups with 25 subjects in each group. The Experimental group –I (N=25) underwent Suryanamaskar with Pranayama practice (SPPG), The Experimental group –II (N=25) underwent Suryanamaskar with Meditation practice and The Control group (N=25) did not undergo any specific training. The experimental groups engaged with yoga training schedules planned for the period of 8 weeks for three alternative days in a week. The study variables including Body Mass Index (BMI) and Flexibility(sit and reach); The results showed Suryanamaskar with Pranayama practice Group (SPPG), Suryanamaskar with Meditation practice groups significantly decreased in BMI; however no changes of BMI in the control group and not showed any significant improvement. The flexibility increased due to Suryanamaskar with Pranayama group, Suryanamaskar with Meditation practice group.

Keywords: SPPG- Suryanamaskar with Pranayama Practice Group, SMPG- Suryanamaskar with Meditation Practice Group, CG-Control Group, BMI-Body Mass Index, Flexibility

1. Introduction
Yoga is one of the most effective treatments in reducing stress, tension, anxiety and developing physical fitness and cardiac efficiency. It is noticed that neural system control is achieved through yoga training, Regarding the effect of yoga, Nidhi and colleagues (2012) conducted a study on two groups of females (90 females); one group practiced aerobic exercises and the other practiced yoga. The study reported that the WHR in both groups were decreased, although the change was not significant; these changes in the yoga group were higher than aerobic group. Also a study by Moliver *et al*. (2011) on the effects of yoga on women's body mass index, reported that the BMI in the experimental group significantly decreased in comparison with the control group. In another study, it was also found that yoga helps the individuals to lose weight, not frequently sick, feel less stressed and improve their quality of life. It was also reported that yoga is very effective in improving and maintaining the body stature. Several studies have been conducted on adult and middle-aged people, and positive results were obtained from these exercises; for instance, people who practiced yoga exercises, for 30-min sessions for 2 times a week for 4 consecutive years, were able to maintain a normal BMI; for example if they were overweight, they can reach the optimal weight. The current study was conducted on the variations of yogic practices on BMI and Flexibility of obese men. More attention should be paid to the effect of yogic practices with pranayama and meditation for the male obese students. The importance of this research is the selection of right exercises during the training season for selected subjects. S. Suthakar (2014) [5]. proved that yogic practice with Silambam training improved flexibility. The present study sought to examine the effect of variations of suryanamaskar with pranayama practice and suryanamaskar with meditation practices of obese male students also improved in flexibility.

1.1 Objectives of the study

To find out the effects of Suryanamaskar with Pranayama practices would significantly improve the BMI and Flexibility among obese men.

To find out the effects of Suryanamaskar with Meditation practices would significantly improve the BMI and Flexibility among obese men.

1.2 Hypotheses

It was hypothesised that the Suryanamaskar with Pranayama practices would significantly improve the BMI and Flexibility among obese men.

It was hypothesised that the Suryanamaskar with Meditation practices would significantly improve the BMI and Flexibility among obese men.

2. Methodology

The present study was to determine the effect of variations of yogic practices on BMI and flexibility among obese men. To achieve the purpose of the study, 75 male variables were selected from VEL Tech. Engg. College, Avadi, Chennai and they were randomly divided into three equal groups. Experimental group –I (N=25) underwent Suryanamaskar with Pranayama Practice (SPPG), Experimental group –II (N=25) underwent Suryanamaskar with Meditation Practice (SMPG) and finally Control Group (N=25) did not practice any specific training (CG). The experimental groups participated in yoga training schedule for the period of 8 weeks, three alternative days in a week. The study variables including Body Mass Index (BMI) and flexibility (sit and reach), The data were analysed by using‘t’ ratio, analysis of variance, Schefee’s post hoc test.

3. Analysis of Data and Interpretation

Table 1: Significance of Mean Gain/ Losses between Pre –Post Test on Suryanamaskar with Pranayama practice group of obese men**.**

Variables	Mean	S.D	M.D	S.E.M	‘t’ Ratio
BMI Pre-Test	33.72	2.11	4.72	0.14	32.01*
BMI Post-Test	29.00	2.56			
Flexibility Pre-Test	27.04	2.40	2.08	0.08	26.00*
Flexibility Post Test	29.12	2.42			

Table value (2.06)0.05 level of Significance

Table 2: Significance of Mean Gain/ Losses between Pre –Posttest on Suryanamaskar with Meditation practice group of obese men.

Variables	Mean	S.D	M.D	S.E.M	‘t’ Ratio
BMI Pre-Test	33.7600	2.04	5.96	0.29	20.06*
BMI Post-Test	27.8000	2.79			
Flexibility Pre-Test	26.9600	2.93	3.96	0.19	20.24*
Flexibility Post Test	30.9200	2.75			

Table value (2. 06)0.05 level of Significance

Table 3: Significance of Mean Gain/ Losses between Pre –Posttest on Control Group of obese men**.**

Variables	Mean	S.D	M.D	S.E.M	‘t’ Ratio
BMI Pre-Test	33.6800	2.49	0.08	0.08	1.00
BMI Post-Test	33.6000	2.549			
Flexibility Pre-Test	27.0000	1.755	.12	0.06	1.80
Flexibility Post Test	27.1200	1.855			

Table value (2.06)0.05 level of Significance

Table 4: Analysis of variance on Pretest among the SPPG, SMPG and CG on BMI and Flexibility of obese men.

Variables	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
BMI	Between Groups	.080	2	.040	.008	.992
	Within Groups	357.040	72	4.959		
Flexibility	Between Groups	.080	2	.040	.007	.993
	Within Groups	419.920	72	5.832		

0.05 level of Significance (3.12)

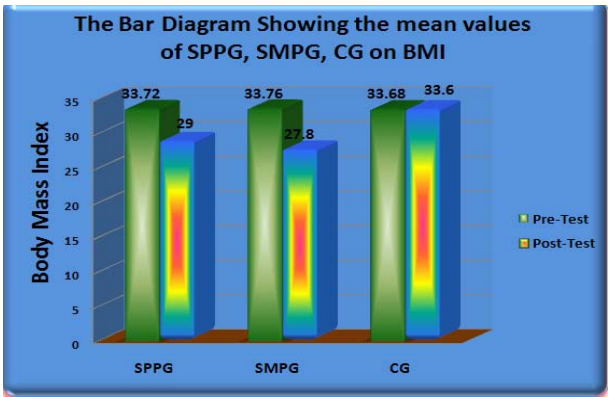

Fig 1

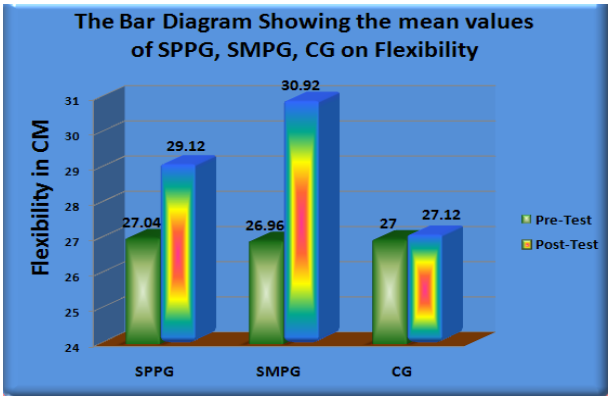

Fig 2

Table 5: Analysis of variance on Post test among the SPPG, SMPG and CG on BMI and Flexibility of obese men.

Variables	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
BMI	Between Groups	468.667	2	234.333	33.610*	.000
	Within Groups	502.000	72	6.972		
Flexibility	Between Groups	180.667	2	90.333	16.055*	.000
	Within Groups	405.120	72	5.627		

0.05 level of Significance (3.12)

Table 6: Analysis of co-variance on adjusted Post test among the SPPG, SMPG and CG on BMI and Flexibility of obese men.

Variables	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
BMI	Between Groups	481.488	2	240.744	259.41*	.000
	Within Groups	65.889	71	.928		
Flexibility	Between Groups	184.140	2	92.070	231.19*	.000
	Within Groups	28.275	71	.398		

0.05 level of Significance (3.12)

4. Discussion of the study

Previous studies explained Khalsa *et al* (2009) [2]. found that two months of yoga and meditation techniques can reduce performance anxiety and mood disturbance in young professional musicians. Patra and Telles (2009) [3]. studied the effect of cyclic meditation, a technique that combines yoga postures interspersed with supine rest on polysomnographic measures and self-rating of sleep on the night following the day on which 30 male participants practiced cyclic meditation. Telles *et al* (2007) evaluated the effect of three yoga breathing practices (right, left, and alternate nostril breathing) on performance of letter-cancellation task. The letter-cancellation task scores were significantly improved, i.e., there were fewer errors following right and alternate nostril yoga breathing.

4.1 BMI

Suryanamaskar with Pranayama practice, Suryanamaskar with meditation practice group significantly decreased in BMI from Pre Test to Post Test. The BMI decreased in the Suryanamaskar with Pranayama Practice (SPPG) group pretest mean (33.72 ± S.D 2.11) and posttest mean was (29.00 ± S.D 2.56). The difference between the mean values was 4.72. Suryanamaskar with Meditation Practice (SMPG) group BMI pretest mean (33.76 ± S.D 2.04) and posttest mean was (27.80 ± S.D 2.79). The difference between the mean values was 5.96. Control group Pre Test mean (33.68 ± S.D 2.49) and Post Test mean was (33.60 ± S.D 2.54). The difference between the mean values was 0.08. BMI was significantly decreased Pre Test to Post Test in experimental groups and there were no changes noted in control group.

4.2 Flexibility

Suryanamaskar with Pranayama practice, Suryanamaskar with Meditation practice group significantly increased the flexibility from pretest to posttest values. The flexibility increased in the Suryanamaskar with Pranayama practice (SPPG) group pretest mean (27.04 ± S.D 2.40) and posttest mean was (29.12 ± S.D 2.42). The difference between the mean values was 2.08. Suryanamaskar with Meditation Practice (SMPG) group flexibility pretest mean (26.96 ± S.D 2.93) and posttest mean was (30.90 ± S.D 2.75). The difference between the mean values was 3.94. Control group Pretest mean (27.00 ± S.D 1.75) and Posttest mean was (27.12 ± S.D 1.85). The difference between the mean values was 0.12. Flexibility was significantly increased Pretest to Post test in experimental groups and there were no changes noted in control group.

5. Conclusions

It was concluded that the Suryanamaskar with Pranayama Practices would significantly improved the BMI and Flexibility among obese men.

It was concluded that the Suryanamaskar with Meditation Practices would significantly improved the BMI and Flexibility among obese men.

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