



ADAPTATION OF SURYANAMASKAR AND BRISK WALKING PRACTICES ON BODY MASS INDEX OF OBESE MEN

¹Mr. Chandan Manna, ²Dr. Abhijit Thander

¹Ph.D. Research Scholar, ²Assistant Professor of Physical Education

¹Department of Physical Education and Sport Science, Visva-Bharati, Santiniketan, Birbhum, West Bengal, India.

Abstract

The present study was to analyze the adaptation of Suryanamaskar and Brisk walking practices on the Body Mass Index of obese men. Forty-five (N=45) obese men were selected at Nepura, Midnapur. Their age ranged from 30 to 40 years. The subjects were randomly divided into three equal groups, Group I Suryanamaskar practices, Group II Brisk walking, and Group III Control each consisting of 15 subjects. Two experimental groups were participated in two different training programmes i.e. suryanamaskar and brisk walking practices for six weeks for five days a week in the morning hours between 7.00 am to 7.45 am and the control group did not participate in any training except their daily routine works. The data was collected before and after the training programme. Analysis of covariance (ANCOVA) and Scheffe's Post Hoc test was applied to find out the significance of mean difference among the three groups. The results show that the obtained 'F' ratio value of Body Mass Index 4.116 was significantly higher than the table value 3.23 ($p < 0.05$). There was a statistically significant decrease in body mass index for both groups. The findings of the study indicated that the significant reduction in Body Mass Index for the Suryanamaskar practices group is better than the Brisk walking group. But both the groups have shown beneficial effects when compared to the control group.

Keywords: Body Mass Index, Suryanamaskar practices, Brisk walking.

INTRODUCTION

In yogic practices, the vibrant series of asanas are also familiar as Suryanamaskar (salutation to the sun) which is the most important for the treatment of obesity as various studies as concerned. Surya namaskar is a wide-ranging repetition in itself because it includes asana, pranayama, mantra, and meditation. This practice has a unique influence on the endocrine and nervous system, helping to correct metabolic imbalances that cause and perpetuate obesity (Koubova and Guarente, 2003). On the other hand, brisk walking is the pace used by most exercise walkers to cover a mile in 15 minutes, it can give the heart and blood vessels a good workout to keep that pace up for 50 or more minutes and burn about 550 calories an hour. Brisk walking is an alternative to jogging for a low-to-moderate exercise regime, for instance, 60–80% of maximum heart rate (Kenneth H. Cooper). Brisk walking is a form of aerobic training. This exercise increases the heart rate for an extended time. Aerobic exercise helps to strengthen than heart, lungs, and muscles. Obesity is a medical condition in which excess body

fat has accumulated to the extent that it may harm health, leading to reduced life and/or increased health problems. Obesity in general is a chronic condition defined by an excess amount of body fat. The normal amount of body fat (expressed as a percentage of body fat) is between 25%-30% in men and 18%-23% in men. Men with over 30% body fat and men with over 25% body fat are considered obese Kanazawa M, Yoshiike N, Osaka T, Numba Y, Zimmet P, Inoue S (2005).

The researcher took this topic because there is a lack of literature and studies in the same fields, and especially for obese men. Obesity among men is increasing day by day because of current lifestyle and food habits and lack of exercise. Obesity men have high cholesterol deposits, more sweating, increased blood pressure, etc, as well as psychological problems like stress and aggression, etc, as well as biochemical problems like cholesterol level, etc. Thus the investigator has chosen these variables for the present study.

STATEMENT OF THE PROBLEM

The purpose of the study was to investigate the adaptation of Suryanamaskar and Brisk walking practices on Body Mass Index among obese men.

OBJECTIVES

The objective of the study was to find out

1. The effect of suryanamaskar on Body Mass Index among obese men
2. The effect of brisk walking practices on Body Mass Index among obese men.

METHODOLOGY

Subject

In the present study, forty-five obese men from Midnapur were selected as subjects randomly. The age of the subjects was ranged from 30 to 40 years. The subjects were informed regarding the purpose and nature of the study.

Variables

The selected subjects were divided into three equal groups of fifteen subjects each namely Experimental Group (EG)-1, Experimental Group EG-2, and Control Group (CG). Experimental Group I consisted of the subjects who practiced suryanamaskar, Experimental Group II consisted of the subjects who practiced Brisk walking, and Group III was Control Group. Experimental Group-I has administrated the suryanamaskar practices for five days per week for six weeks. Experimental Group-II underwent brisk walking practice for 6 weeks. Group III acted as control which did not undergo any special training programme.

Experimental Programme

The training program was scheduled from 7.00 am to 7.45 am for five days per week for six weeks. All the subjects of three groups were tested for Body Mass Index before and immediately after the training programme.

Training Schedule

Training programme for Suryanamaskar Group	
First Three (03) Weeks	4—6 Weeks
1. Opening prayer -----2min. 2. Sithilakarana Vyayama-----5-10min. 3. Suryanamaskar with beej mantra---10-20min. 4. Deep Relaxation Technique-----5-10min. 5. Ending Prayer-----2min.	1. Opening prayer -----2 min. 2. Sithilakarana Vyayama-----5-10 min. 3. Suryanamaskar with beej mantra---15-25 min. 4. Deep Relaxation Technique-----5-10 min. 5. Ending Prayer-----2 min.

Experimental Group- I: Suryanamaskar Practices

Attention was brought to them when performing Surya Namaskara.

The following mantras were pronounced in each asana:

SL.NO.	SEED	MANTRA SALUTATION	CHAKRA	ASANA
1.	<i>om hrām</i> (ॐ ह्रां)	<i>om mitrāya namaḥ</i> (ॐ मित्राय नमः)	Anahata	Pranamasana
2.	<i>om hrīm</i> (ॐ ह्रीं)	<i>om ravaye namaḥ</i> (ॐ रवये नमः)	Vishuddhi	Hasta Uttanasana
3.	<i>om hrūm</i> (ॐ ह्रूं)	<i>om sūryāya namaḥ</i> (ॐ सूर्याय नमः)	Swadhisthana	Hastapaadasana
4.	<i>om hraim</i> (ॐ ह्रैं)	<i>om bhānave namaḥ</i> (ॐ भानवे नमः)	Ajna	Aekpaadprasarnaasana
5.	<i>om hraum</i> (ॐ ह्रौं)	<i>om khagāya namaḥ</i> (ॐ खगाय नमः)	Vishuddhi	Dandasana
6.	<i>om hraḥ</i> (ॐ ह्रः)	<i>om puṣṇe namaḥ</i> (ॐ पूष्णे नमः)	Manipur	Ashtanga Namaskara
7.	<i>om hrām</i> (ॐ ह्रां)	<i>om hiranya garbhāya namaḥ</i> (ॐ हिरण्यगर्भाय नमः)	Swadhisthana	Bhujangasana
8.	<i>om hrīm</i> (ॐ ह्रीं)	<i>om marīcaye namaḥ</i> (ॐ मरीचये नमः)	Vishuddhi	Adho Mukha Svanasana
9.	<i>om hrūm</i> (ॐ ह्रूं)	<i>om ādityāya namaḥ</i> (ॐ आदित्याय नमः)	Ajna	Ashwa Sanchalanasana
10.	<i>om hraim</i> (ॐ ह्रैं)	<i>om savitre namaḥ</i> (ॐ सवित्रे नमः)	Swadhisthana	Uttanasana
11.	<i>om hraum</i> (ॐ ह्रौं)	<i>om arkāya namaḥ</i> (ॐ अर्काय नमः)	Vishuddhi	Hasta Uttanasana
12.	<i>om hraḥ</i> (ॐ ह्रः)	<i>om bhāskarāya namaḥ</i> (ॐ भास्कराय नमः)	Anahata	Pranamasana

Training programme for Brisk Walking Group	
First Three (03) Weeks	4—6 Weeks
1. Stretching Exercise & Warm up---5-10min. 2. Brisk Walk-----20-30min. 3. Worm Down-----5-10 min.	1. Stretching Exercise & Worm up---5-10min. 2. Brisk Walk-----25-35min. 3. Worm Down-----5-10 min.

Experimental Group –II (Brisk walking)

The following pieces of training were given.

- Mode of exercise - Brisk walking on flat even ground
- Frequency - Five days per week for 6 weeks
- Duration - Approximately forty-five min
- Intensity - Mild intensity of 50% - 60%

DATA ANALYSIS

The analysis of covariance (ANCOVA) was used to analyze the significant difference if any in between the groups. Scheffe's test was used to find out the differences between the Adjusted Post Test Paired Means of Body Mass Index. The level of significance was tested at a 0.05 level of confidence.

RESULTS

The analysis of covariance on Body Mass Index of the pre and post-test scores of Brisk Walking Group, Suryanamaskar Practices Group, and Control Group have been analyzed and presented in the table.

Standing height is measured with an individual in stocking feet, fully erect, and stretched to full height while keeping the heels flat on the floor. The body mass index is Determine as follows. **BMI = Body weight (kg) / Height (m)²** (Gorsuch Scarisbrick, 1989).

Table-I

Analysis of Covariance of the Data on Body Mass Index of Pre and Post Test Scores of Brisk walking, Suryanamaskar Practices, and Control Groups

Test	Suryanamaskar Practices Group	Brisk Walking Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	'F' ratio
Pre Test								
Mean	31.88	32.58	32.63	Between	5.25	2	2.264	1.102
SD	1.52	1.29	1.78	Within	100.04	42	2.382	
Post Test								
Mean	30.57	31.55	32.28	Between	21.99	2	10.99	4.116*
SD	1.70	1.32	1.85	Within	112.19	42	2.67	
Adjusted Post Test								
Mean	31.02	31.35	32.04	Between	7.81	2	3.906	5.426*
				Within	28.8	41	0.720	

*Significant at 0.05 level of confidence

The table value required for significance at 0.05 level of confidence with 2 and 42 were 3.23 respectively.

Table-I shows that the pre-test means of Suryanamaskar practices group, Brisk walking group, and control group are 31.88, 32.58, and 32.63 respectively. The obtained 'F' ratio of 1.102 for pre-test score was less than the table value of 3.23 at 0.05 level of confidence on body mass index.

The post-test mean of suryanamaskar practices group, Brisk walking group, and control group are 30.57, 31.55, and 32.28 respectively. The obtained 'F' ratio of 4.116 for the post-test score was greater than the table value of 3.23 at 0.05 level of confidence on body mass index.

The adjusted post-test mean of suryanamaskar practices group, Brisk walking group, and control group are 31.02, 31.35, and 32.04 respectively. The obtained 'F' ratio of 5.426 for the adjusted post-test score was greater than the table value of 3.23 at 0.05 level of confidence on body mass index.

Table-II**Scheffe's Test for the Difference between the Adjusted Post Test Paired Means of Body Mass Index**

Control Group	Suryanamaskar Practices Group	Brisk walking Group	Mean Difference	Confidence Interval
32.04	31.02	-	1.02*	0.56
32.04	-	31.35	0.69	0.56
-	31.02	31.35	0.33	0.56

**Significant at 0.05 level of confidence*

DISCUSSION

The purpose of the study was to investigate the effect of Suryanamaskar and Brisk walking practices on Body Mass Index among obese men.

It was observed from the pre-test results, that there were no significant differences between control and experimental groups. While the post-test results of control and experimental groups had been analyzed statistically and revealed that, there was a significant mean difference in favor of experimental groups. In the analysis of co-variance of the Body mass index among control and experimental groups, a significant difference was seen and which shows light on the positive effect of six weeks of Suryanamaskar and Brisk walking practices on BMI. From the statistical analysis, it is clear that both training programmes had their effects. Suryanamaskar Practices group showed more effects in decreasing the Body Mass Index when compared to Brisk Walking and control groups.

The result of the study brisk walking and Suryanamaskar practices showed that there was a significant reduction in BMI in obese men.

The above findings are corroborated with the previous studies conducted by the following researchers. The present study was also supported by the studies of Milind V. Bhutkar, Pratima M. Bhutkar, et al., (2011), Shivesh Shukla (2010), Bhagirathi (2011), and Fondran Kristine Marie (2008). The earlier investigation was conducted by Tran. M. D, et.al (2001) established that the effects of hatha yoga practices on the health-related characteristics of physical fitness. In a study Raju. P. S, et al (2003) stated significant changes in BMI. Some previous studies also have shown that systolic and diastolic blood pressure decreased after aerobic exercise (Sohn, 2007; Gordon, 1997; Ghai, 2007). Systolic blood pressure falls due to decreased sympathetic discharge after walking programme and a decrease in diastolic blood pressure after exercise. It might be caused to decrease in peripheral resistance by producing vaso-dilatation through an accumulation of metabolites like carbon dioxide and hydrogen ions. (Tiwari Sushma et al. 2011).

CONCLUSION

Based on the reviews and results the following conclusions were drawn

Within limitations of the present study, the conclusion was drawn that Experimental Group – I (Suryanamaskar group) and Experimental Group – II (Brisk walking group) was better than the control group of obese men.

It was proved that if comparing the Experimental group – I (Suryanamaskar) and Experimental group - II (Brisk walking) that there was no significant difference between these groups on Body mass index (BMI) of obese men.

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