International Journal of Yoga, Physiotherapy and Physical Education
Online ISSN: 2456-5067; Impact Factor: RJIF 5.24
www.sportsjournal.in
Volume 2; Issue 2; March 2017; Page No. 01-04

Effect of selected yoga: Pranayam on obesity of affected individuals

Dr. Subhash S Dadhe

Assistant Professor, Department of Physical Education and Sport, Dhanwate National College, Nagpur, Maharashtra, India

Abstract
The purpose of the Study is to analyze effect of selected yoga- Pranayama on obese person of affected individuals, in Nagpur Municipal Corporation. A total 60 person examined and declared 50 of them were medically fit for this study and they were randomly divided in to two groups of Twenty five each, out of which group I (N-25) Underwent Yoga-Pranayama, and group II (N-25) Underwent control group. Pre-test were conducted for all two groups on BMI and waist & Hip Circumference. The experimental group participated in their respective selected yoga- Pranayama for a period of six weeks. Post-test were conducted on the above mentioned dependent variables after six weeks of the training period. The t test was use to find out the effect of Yoga-Pranayama on obese person of affected individuals in society. The results of the study indicate that the daily exercise and yoga-Pranayama activity done by those people indicate that there was low BMI than the sedentary men. Its related weight problems can be higher in the sedentary people than those who do daily Yoga-Pranayama activity. It reasons are listed below. In short the Post-test study clearly indicates that there is a significant difference of BMI and waist & Hip Ratio than the pre-test. It is finally concluded that the sedentary persons may get Weight and Heart related problems due to insufficient exercise and yoga-Pranayama.

Keywords: yoga, pranayama, weight loss, waist & hip circumference, BMI and obesity

Introduction
The universal need and importance of daily Yoga and Pranayama systematically planned and known as Yoga and Pranayama cannot be ignored at least in the present modern high-tech artificial world. Because of the inventions of the man-made machines the man himself has made its organs so weak that its survival has been in dangerous situation resulting less life span and many serious life killing diseases like Obesity, Blood sugar, Heart Disease etc. One of the major problems they are facing today is to control their body Wight due to inactivity. In order to overcome the above problem they adopt short cut and easy methods to reduce their weight by taking various medications or crash diets to lose unwanted pounds and improve their health. Because of this phenomenon. The benefits of Yoga and Pranayama have been overlooked. The most popular Yoga and Pranayama help to improve cardiovascular system and reduce fat and weight.
The present discussion is in relation to the Control Weight and obesity thought Yoga-Pranayama only, Because Yoga-Pranayama has surest remedies for man's physical as well as psychological ailments. It makes the organs of the body active in their functioning and has good effect of internal functioning of the human body. A part from being therapeutic, it is an exhilaration experience harmonizing the body, mind and spirit. The greatest advantage of these activities is that Yoga-Pranayama the organs of our body like the lungs, glandular system, liver, and Pancreas, Thyroid, Genital and Urinary systems and maintains them in perfect health all through our life span. This reason I found positive way to control fat and weight without expenses and assess of the benefit of exercise and yoga- Pranayama on person suffering from abnormal Weight.

What is obesity?
First symptom of obesity is increase in weight, body loses its shape and due to accumulation of fats in various parts of body sometimes body balance is affected. The obese person has to spend extra energy for any movement, So we need to control the weight from the beginning. For the daily work we spend calories, which we get from the food we eat. But if we take more calories and spend less than the calories are accumulated in the form of fats. Increase in fats reduces body movements, which again increases the weight. So as to reduce the fat one must control the food habits. Weight can increase because of digestive problems. Useful part of the food is absorbed in blood during the digestion. If there are some problems in this process then it may result in accumulation of fats. If the digestive problem is cured then obesity can reduce.

What is Body Mass Index?
Body Mass Index (BMI) is a relationship between weight and height that is associated with body fat and health risk. Research has identified the health risks associated with a wide range of BMIs (both high and low values)

Less Than 18.5	18.5-24.9	25-29.9	More than 30-34.9
Underweight	Normal	Overweight	Obese

$BMI = Weight (Kg)/ Hieght^2 (M)^2$
Use this BMI formula for calculate over Body Mass Index

What is Waist Circumference?
According to the National Institutes of Health, a high Waist Circumference (WC) is associated with an increased risk for type 2 diabetes, hypertension and cardiovascular disease when the BMI is between 25 and 34.9. (A BMI greater than 25 is

considered overweight and a BMI greater than 30 is considered obese.) Waist Circumference can be useful for those people categorized as normal or overweight in terms of BMI.

Waist to Hip Ratio Calculator

Your waist to hip ratio is an important tool that helps you determine your overall health risk. People with more weight around their waist are at greater risk of lifestyle related diseases such as heart disease and diabetes than those with weight around their hips. It is a simple and useful measure of fat distribution.

Yoga

Yoga's an important role to play in the treatment of obesity. Yoga techniques affect body, internal organs, endocrine glands, brain, mind and other factors concerning Body - Mind complex. Various Yoga techniques can be practiced effectively to reduce the weight and achieve normal healthy condition of Body and Mind.

What is Pranayama?

Pranayama is made of two words "prana" and "yam". Prana means energy or vital force and yam means control. Breath and Pran are two different things altogether. But we cannot see them apart from each other. Breath is Sthula (gross) and Pran is Suksham (subtle). Breath is the external manifestation of Pran. Therefore, Pranayama is "Control of Breath". One can control the rhythms of pranic energy with Pranayama and achieve healthy body and mind. The different types of Pranayama are the Bhastrika Pranayama, Anuloma-Viloma, Kapalbhati, Bhramri, Sitlee, Sitkari, Ujjayi, and VedheneBandh.

Purpose of the study

The purpose of the study is to study the effect of selected Yoga-Pranayama on obese person of affected individuals Including BMI and waist & Hip Circumference of affected individuals in society and control general people Weight without expenditure. Because yoga-pranayama are very effective in throwing our body exec fat and in activating our glands and to cure the various disease

Hypotheses

It is hypothesized that there must be some effect of selected Yoga-Pranayama on different on obese person of affected individuals.

Significance of the study

The present study would be important for national health as the results of this study will fight on the complicated disease as well as obesity and beneficial for control general people weight without expenditure be given a positive results for society.

Sources of data

To execute this investigation the investigator randomly selected forty five men in Nagpur Municipal Corporation only belonging to the age group of 45-50 years they were divided in to two equal groups of fifteen subjects each and assigned as an Experimental Group-I, and Control Group.

Selection of variables

For this study following variable were selected 1) BMI 2) waist & Hip Ratio

- **Dependent variables**
  1) BMI – Weight (Kg) / Hieght2 (M) ^{2}
  2) Waist & Hip Ratio –test
- **Independent variables**
  1) Experimental Group-I –Selected Yoga-Pranayama

Experimental Design

The study was formulated as a true random group consisting of pre-test and post-test for this purpose in Nagpur Municipal Corporation 60 person examined and declared 50 of them were medically fit for this study and they were selected by lot method and they were divided randomly in to three groups as one control and second experimental group. The selected fifty subjects were randomly divided in to two groups of Twenty five each, out of which group I (N-25) Yoga-Pranayama and group II (N-25) remained as control. Pre-test were conducted for all two groups on BMI 2) waist & Hip Ratio. The experimental group participated in their respective Exercise for a period of six weeks. Post-test were conducted on the above mentioned dependent variables after six weeks of the training period. The training programmed was scheduled at morning 6.00 a.m. to 7.00 a.m. and evening 6.00 p.m. to 7.00 p.m. Collection of data for measuring BMI and waist & Hip Circumference, A digital weighing scale that could measure to the nearest 0.1kg was used to record weight, and height was measured to the nearest centimeter using a stadiometer, in the Frankfurt plane position. The Body Mass Index is calculated by dividing the body weight in kilograms by the body height squared in meters.in pre and post training session.

Statistical technique

The Analysis of mean values and SD. The't' test was used. A significance level of $P<0.05$ was considered significantly different. Data was analyzed using SPSS. 't' test statistical techniques was use to find out the effect of Yoga and pranayama on Obesity of affected individuals in society.

Table 1: Comparison of Experimental Group pre-training and post-training BMI – Weight (Kg) / Hieght2 (M) 2 and Waist & Hip Ratio

Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
BMI – Weight (Kg) / Hieght2 (M) 2	Pre-Training	25	27.66	1.70	8.32	2.62	3.1706*	2.0106
	Post -Training	25	25.66	2.28				
Waist & Hip Ratio	Pre-Training	25	1.14	0.14	5.6	0.483	4.5931*	2.0106
	Post -Training	25	0.71	0.13				

Significant at 0.05 level of confidence

An examination of the table 1 revealed that the mean of BMI in pre-training is 27.66 and SD 1.70 and in post training mean is found 25.66 and SD 2.28 similarly an examination of same table revealed that there is significance difference in the mean for choBMI of Pre-training and Post training as the obtained 't' ratio value 3.1706 is more than the required 't' ratio value 2.0106 at 0.05 level of confidence.

The mean of Waist & Hip Ration in pre-training is 1.14 and SD 0.14 and in post training mean is found 0.71and SD 0.13 similarly an examination of same table revealed that there is significance difference in the mean for Waist & Hip Ration of Pre-training and Post training as the obtained 't' ratio value 4.5931 is more than the required 't' ratio value 2.0106 at 0.05 level of confidence.

Table 2: Comparison of Control Group pre-training and post-training BMI – Weight (Kg) / Hieght2 (M) 2 and Waist & Hip Ratio

Variables	Test	N	Mean	SD	M. D.	S.E.	t' Ratio	Required 't' Ratio
BMI – Weight (Kg) / Hieght2 (M) 2	Pre-Training	25	27.50	1.59	7.08	14.76	0.4795	2.0106
	Post -Training	25	27.22	1.90				
Waist & Hip Ratio	Pre-Training	25	1.10	0.14	-5.2	31.43	0.1654	2.0106
	Post -Training	25	1.07	0.16				

An examination of the table 2 revealed that the mean of BMI in pre-training is 27.50 and SD 1.59 and in post training mean is found 27.22 and SD 1.90 similarly an examination of same table revealed that there is significance difference in the mean for Body Mass Index of Pre-training and Post training as the obtained 't' ratio value 0.47 is less than the required 't' ratio value 2.0106 at 0.05 level of confidence.

An examination of the table 2 revealed that the mean of total Waist & Hip Ratio in pre-training is 1.10 and SD 0.16 and in post training mean is found 1.07and SD 0.16 similarly an examination of same table revealed that there is not significance difference in the mean for Waist & Hip Ratio of Pre-training and Post training as the obtained 't' ratio value 0.16 is less than the required 't' ratio value 2.0106 at 0.05 level of confidence.

Significant at 0.05 level of confidence

Discussion

The effect of Yoga on different parameters observed in our study correlate with the findings of Tundwala V et al. i.e., a significant decrease in the parameters of obesity like BMI, significant decrease in both systolic and diastolic blood pressure and improvement in various lipid profile parameters i.e., decrease in total cholesterol, LDL, triglycerides, VLDL and increase in HDL. Singh et al. reported a significant reduction in BP (12mm Hg in SBP; 11.2 mm Hg in DBP) with a 40-day Yoga regimen among type 2 diabetics Schwickert et al. and Frumkin et al. considered yoga to be a relaxation technique that is highly effective in reduction of elevated BP and management of stress

Findings of BMI **result**

There was a significant difference between pre and post training. The Experimental Groups BMI is decreased because they are physically more active and their endocrine secretion is more suitable. As the sedentary person is physically less active their secretion of endocrine gland is less, automatically Yog-Pranayama,the organs of our body like the lungs, glandular system, liver, Pancreas, Thyroid, Genital and Urinary systems and maintains them in perfect health all through our life span

Findings of the research

Finding indicated that heart related problems can be higher in the sedentary people than the trained person and the reasons are listed below. Within the limitation of the study the following conclusion were drawn

1. Result shows that there was significant reduction in BMI due to training.
2. Study indicates the duration of training and changes in Waist & Hip Ratio

Conclusion

From our study we observed a significant decrease in BMI, both systolic and diastolic blood pressures in subjects who were practicing yoga for a period of 3 months. Yoga and certain Asana's have beneficial effect on certain cardiovascular risk factors like obesity, hypertension and dyslipidemia. Randomized controlled trials are needed to confirm and elucidate the effects of standardized yoga programs. There is a need to provide a better recognition of yoga by the health care community as a complement to conventional medical care. It was concluded that the Pranayama and exercise can BMI and Waist & Hip Ratio decrease significantly. If the sedentary person follows the Pranayama and exercise training will improve.

1. Regular Yoga and Pranayama can help decrease BMI and Waist & Hip Ratio
2. Change of lifestyle also can help in decrease BMI and Waist & Hip Ratio
3. Eat a healthy diet, get regular physical activity and avoid smoking
4. Lifestyle changes are the first line of defense against weight gain.

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