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Influence of surya namaskar and pranayama practices on body mass index, muscular strength and endurance, breath holding time among middle aged obesity men

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Abstract

The purpose of the study was to find out the influence of Surya Namaskar and Pranayama practices on BMI (Body Mass Index) Muscular Strength and Endurance, Breath Holding Time among middle aged obese men. To achieve the purpose of the study 30 men subjects were randomly selected from the oxygen yoga center, Coimbatore District. The selected subjects were divided into two equal groups with 15 subjects in each group. The Experimental group-I (N=15) underwent Surya namaskar and pranayama practice and Control group (N=15) did not undergo any practices. The data were collected before and after the training period of 12 weeks and the data collected were statistically analyzed with 't' ratio, which was used to find out the significant difference on selected variables of Body Mass Index (BMI), Muscular strength and Endurance, Breath Holding Time. The result shows that surya namaskar and pranayama practice showed significant improvement in Body Mass Index (BMI), Muscular Strength and Endurance, Breath Holding Time.

Keywords: Surya Namaskar, Body Mass Index (BMI), Muscular Strength and Endurance, Breath Holding Time.

Introduction

Obesity is a pathological condition in which excess body fat has accumulated. It is a chronic disorder with complex interaction between genetic and environmental factors. It is being characterized by high cholesterol, fatty acid levels, Insulin desensitization; high blood pressure; and excessive adipose mass accumulation. Currently more than 1 billion adults are overweight and at least 300 million of them are clinically obese. It is defined by body mass index and further evaluated by both percent body fat and total body fat. Obesity is a risk to many secondary conditions like cardiovascular disorders, insulin pathological resistance, retinopathy, neuropathy and cancer. To create awareness among obese working men research has selected surya namaskar and pranayama as a daily practice to maintain healthy life style surya namaskar is a set of 12 postures, preferably to be done at the time of sunrise. The regular practice of surya namaskar improves circulation of blood throughout the body, maintains health, and helps one to remain disease-free. From head to toe, every part of the body is greatly benefitted by surya namaskar that is why it is highly recommended by all yoga experts.

Surya Namaskar is an excellent cardiovascular workout and a good way to lose weight. Some of the Sun Salutation poses help lose extra fat on belly by stimulating sluggish glands like the thyroid gland (which has a big effect on our weight) to increase hormonal secretions. Regularly practicing Surya Namaskar can regulate irregular menstrual cycles among women and also ensure an easy childbirth, reduces the feeling of anxiety and restlessness, and improves flexibility in spine and in limbs. Pranayama improves overall performance of the body. Your body is like the wick of a candle and the mind is like the glow all around it. 'Prana' is the vital energy needed by our physical and subtle layers, without which the body would perish. It is the prana or life force in us that nourishes the mind and keeps the body alive. 'Prana' refers to the universal life force and 'Ayama' means to regulate or lengthen. Pranayama means working in the dimension of prana. If the prana level is high and its flow is continuous, smooth and steady, the mind remains calm, positive and enthusiastic. Increases and enhances the quantity and quality of prana clears blocked nadis and chakras,

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clears the whole energy around you, expands your aura and heightens the spirit. As the benefits of surya namaskar and pranayama on human body countless which is published by many author. The scholar conducted a study to find out the effects of surya namaskar and pranayama practices would be significantly improve Body Mass Index (BMI), Muscular Strength and Endurance, Breath Holding Time, among middle aged obesity men. It was hypothesized that the surya namaskar and pranayama practice would have significantly improvement on Body Mass Index (BMI), Muscular Strength and Endurance, Breath Holding Time among middle aged obesity men.

Technique of Surya Namaskar

One round of Surya Namaskar consists of following twelve postures

Stand upright and join both the feet. The heels should be united while the toes should be apart. Head, neck and body should be in one line. Join the hands in namaskar position. Breathe normally. This is the initial posture. When the round is over this is 12th posture. Now chant First name of the Lord Sun and start first round of Surya Namaskar.

1. Prathanasana. Om Mitraya Namah, Stand facing the Sun with palms folded and both the thumbs touching the chest. Breathing: Inhale while raising the hands and exhale as hands are brought down to chest level.
2. Prayasana. Om Ravaye Namah, Raise both hands upward, with feet firmly on the ground; bend backwards, stretch arms fully. Breathing: Inhale.
3. Padhahusthasana. Om Suryaya Namah, Slowly bend forward, both hands touching the earth with respect, head touching the knees. Breathing: Exhale.
4. Ashwasanjalasana. Om Bhanave Namah, Set both hands with the palms down firmly on the ground, pull the left leg backward, raise the head looking at the sun, full weight resting on the two palm and ten fingers. Breathing: Inhale.
5. Parvathasan. Om khagaya Namah, Bring right leg back close to left leg, keeping hands and legs straight, bend the body at the hip forming an arch, just like a mountain, known as mountain pose. Breathing: Exhale.
6. Saashtanga. Om Pushanye Namah, Stretch yourself fully on the ground in the namaskar pose (all eight 'anga' or parts of the body on the ground. In reality, feet, knees, thighs, chest, forehead touch the ground with the hands stretched out and in folded position, with your mind and thoughts on the full namaskar, then slowly turn the head to the sides first to left and then to right so that each ear touches the ground. Breathing: Inhale first and then Exhale fully.
7. Bhujangasana. Om hiranyagarbhaya Namah, Slowly raise the head, bend backward as much as possible, hands straight, in the cobra pose. Breathing: Inhale.
8. Parvathasan. Om marichaye Namah, – same as Step 5. Breathing: Exhale.
9. Ashwasanjalasana. Om Adityaya Namah, Same as Step 4 with the difference that the right leg is brought forward. Breathing: Inhale.
10. Padhahusthasana. Om Savitre Namah, Same as Step 3. Breathing: Exhale.
11. Prayasana. Om Arkaya Namah, Same as Step 2. Breathing: Inhale.
12. Prathanasana. Om Bhashkaraya Namah. Same as Step 1. Breathing: Exhale, Inhale and Exhale.

Training Procedure

For this study the training programme consist of surya

namaskar and pranayama. The training was given for 5 days in a week for 12 week of total duration. The training programme last for 60 minutes for a session in a day. The training started with stretching exercise for 10 minutes and followed by surya namaskar for 5 to 10 repetitions with a rest in between set for 30 seconds and increased the repetitions gradually for 12 weeks. After completing surya namaskar 60 seconds rest was given and pranayama was given for 5 to 10 repetitions with rest in between set for 30 seconds and increased the repetitions gradually which was given the training schedule given below.

Sequence of Training

The first and second weeks of the surya namaskar practices four repetitions, the name of pranayama 1.Suryabhadhana, 2.Chandra Bhadhana, 3.Nadisuthy Pranayama, 4.Ujjayi Pranayama, for four sets. Third and fourth weeks of the surya Namaskar practices four repetitions and the name of pranayama 1. Bhastrika Pranayama, 2.Bahya Pranayama, 3.Moorchai Pranayama, 4. Shitali pranayama for four sets. Fifth and sixth weeks surya namaskar number of reputation six and name of pranayama 1. Kapalabathy Pranayama, 2.Nadisodhana Pranayama, 3.Bramary Pranayama, 4.Udgit Pranayama for six sets. Seventh and eight weeks Surya Namaskar number of reputation six and name of pranayama 1. Sakthi Pranayama 2. Shithakari Pranayama, 3.Digra Pranayama, 4.Anuloma Viloma Pranayama for six sets. Ninth and ten weeks Surya Namaskar number of reputation eight and name of pranayama 1. Shadhantha Pranayama, 2. Ujjayi Pranayama, 3. Kapalabathi Pranayama, 4. Moorchai Pranayama for eight sets. Eleventh and twelfth weeks surya namaskar number of reputation eight and name of pranayama, 1. Bhastrika Pranayama, 2. Nadisodhana Pranayama, 3.Shitali Pranayama, 4.Shitakari Pranayama, 5.Sakthi Pranayama, 6.Bramary Pranayama, 7.Kapalabathi Pranayama, 8.Udgit Pranayama eight.

Means and Methods

For the present study 30 middle aged obese men, who were working in Pothigai complex in which the oxygen yoga center is located were selected as subjects among them 15 subjects were selected for experimental group. Who volunteered to participate in the training programme and the remaining 15 subject were taken as control group and they did not participatory in any training programme. The training programme schedule for 12 weeks with 60 minutes in every morning session from 6.00 am to 8.00 am (two pages) pre and post test was conducted before and after the end of the training session for group-I and group-II. The variables tested are BMI which measured using the formula weight kg/height in meter², Muscular strength and endurance was tested by Sit Ups measured in number/minutes and Breath holding time was tested using Nose clip method and measured in seconds.

Statistical Technique

Statistical analysis of the data was performed for each group using the mean and standard deviations. The subject paired test was used to compare the pre and post test values of both the groups. The different between the two groups for the variables were determined using the of 't' test. The derived results are discussed as follows tables.

Table 1: Computation of 't' Ratio on BMI, Muscular Strength and Endurance, Breath Holding Time Experimental Group and Control Group

Groups	Variables	Tests	Mean	N	SD	Std. Error	't' ratio
Experimental Group	BMI	Pre test	28.46	15	0.50	0.17	4.89*
		Post test	27.62	15	0.94		
	Muscular Strength Endurance	Pre test	14.26	15	1.66	0.30	7.43*
		Post test	16.46	15	1.68		
	Breath Holding Time	Pre test	32.98	15	1.78	1.76	2.72*
		Post test	37.79	15	7.10		
Control Group	BMI	Pre test	28.46	15	0.62	0.09	0.17
		Post test	28.47	15	0.60		
	Muscular Strength Endurance	Pre test	14.33	15	1.63	0.61	0.21
		Post test	14.26	15	1.62		
	Breath Holding Time	Pre test	32.31	15	1.88	1.13	0.39
		Post test	31.87	15	4.36		

*Significant level 0.05 level, Degree of freedom (2.145, 1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected variables namely BMI (Body Mass Index), Muscular Strength and Endurance, Breath Holding Time on experimental group. The obtained 't' ratio on BMI (Body Mass Index), Muscular Strength and Endurance, Breath Holding Time, were 4.89, 7.43, and 2.72 respectively. The required table value was 2.145 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the required table value it was found to be statistically significant on experimental group. Further the computation of mean, standard deviation and 't' ratio on selected variables namely BMI (Body Mass Index), Muscular Strength and Endurance, Breath Holding Time, control group. The obtained 't' ratio was 0.17, 0.21 and 0.39 respectively. The required table value was 2.145 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the required table value it was found to be statistically insignificant.

Discussion

The major finding of this study was that surya namaskar and pranayama practice produced significant increase on the entire variable of the experimental group. As for as BMI is considered, there was decrease in percentage of BMI by doing surya namaskar with repeated set of workout continuously which induced the efficiency of cardiorespiratory endurance. It was done in slow pace this tone the muscles. When repetition is gradually increased than it slowly increased the calorie burns. This practice influences the glandular function and nervous system to help in correct metabolic imbalance that cause and perpetuate obesity. So when metabolism is regulated then burning of fats takes place. This also help to release the toxic substance and also to balance the energy saving and accumulating system. The finding of various tests show that the muscular strength and endurance is increased due to number of repetition done in surya namaskar and in this our own body weight is used as too to train the strength and also muscle tone. This surya namaskar strengthens the core muscle of the abdomen, back and pelvis. As the surya namaskar is an isometric strength it is specific to the muscle group, joint angle there was increased in muscular strength and endurance. This improve the peripheral blood flow to the contracting muscles and also increase the neuromuscular efficiency as a result of surya namaskar and also it lead to increase in capillaries and oxidative enzymes. It is similar to aerobic exercise as it involves static stretching and slow dynamic component with optimal stress on cardio respiratory system. Breath holding time increases due to the repetition of pranayama exercises. When pranayama exercises is

performance the expansion of lungs is created with the help of the intercostals muscles and the diaphragm muscles. The inhalation of air and holding and doing it repeatedly for 12 weeks help in increase in lungs capacity surya namaskar also assist the external muscle around the thoracic region get relaxed and aid the intercostals muscles too. When Pranayama practice is done inhalation of more oxygen takes place then oxygen enters the lungs and fills the alveoli, so the stored in oxygen is more which leads to the expansion of the thoracic region. When obese people performed this surya namaskar and pranayama, there is significant changes from the pre line to post line and it's supported by BKS. Iyengar and in yoga mender.

Conclusion

The present study establishes that 12 weeks (weekly 5 days) practice of Surya Namaskar and Pranayama practice helped the middle aged obese persons to reduce their BMI (Body mass index), and increases the Muscular strength and Endurance, and Breath holding time.

References

- Vallimurugan Dr. V. Effects of variation of yogic practices on BMI and flexibility among obese college men 201 6; 2(7): 391 -3 9 3 ISSN Print: 2394-7500 ISSN Online: 2394-5869 Impact Factor: 5.2 International journal of Applied research. 2016; 2(7):391-393.
- Holly RG, Barnett JG, Ashmore CR, Taylor RG, Molé PA. Stretch-induced growth in chicken wing muscles: a new model of stretch hypertrophy. *Am J Physiol.* 1980; 238(1):C62-71
- Sinha B1, Ray US, Pathak A, Selvamurthy W. Energy cost and cardiorespiratory changes during the practice of Surya Namaskar. *Indian J Physiol Pharmacol.* 2004; 48(2):184-90.
- Rajni N. Effect of Surya Namaskar on weight loss in obese persons. *International Journal of Science and Consciousness.* 2016; 2(1):1-5.
- Sasi Kumar A, Sivapriya DV. Effects of suryanamaskar on cardio vascular and respiratory parameters in school student's recent research in science and technology. 2011;3(10):19-24 ISSN : 2076-5061.
- Balaji PA, Smitha R, Varne, Syed Sadat Ali. Physiological Effects of Yogic Practices and Transcendental Meditation in Health and Disease. *North American journal of medical science.* 2012; 4(10):442-448. doi: 10.4103/1947-2714.101980.
- Deba Prasad Sahu, Debabrata Samanta. Effect of 6 weeks asana and pranayama on physiological variables of pre-

- adolescent school students. International Journal of Yogic, Human Movement and Sports Sciences. 2016; 1(1):29-31.
8. Amalesh Adhikari, Dr. Deba Prasad Sahu. Effect of yogic exercises on physiological variables among the adolescents. International Journal of Yogic, Human Movement and Sports Sciences. 2016; 1(1):62-64.
 9. Yuvaraj D. Effect of asana and pranayama practices on selected physical and physiological variables of college men. International Journal of Physical Education, Sports and Health. 2016; 3(5):204-205.
 10. Mr. Sathish. Effect of yogasana practice on physical fitness variables of college obese students. 2013; 2(1) ISSN: 2278 – 0211(Online).
 11. Saraswati, Swami Satyananda. Asana Pranayama Mudra Bandha (2nd ed). Bihar Yoga Bharati, Munger, India, 1996.
 12. (Gopalananda S. (September 1997) Treating obesity thought yoga magnazre. Yoga Magazine of the Bihar school of yoga published, 1963.