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ROLE OF YOGA AS A THERAPEUTIC REGIMEN IN THE MANAGEMENT OF OBESITY

Physiology

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ABSTRACT

Obesity involves accumulation of excess fat in the body to the extent that it may have adverse health effects. Yoga has been proved to have curative as well as preventive value. The aim of this study was to find out whether regular practice of Yoga has benefits in weight reduction and control in obese individuals. 60 male subjects who were obese as determined by their Body Mass Index and Waist Hip Ratio were selected for the study. We found that there was 18% reduction in BMI and 5% reduction in WHR after 12 weeks of Yoga training in these subjects which is statistically significant. Hence, we conclude that regular practice of Yoga can be used as a therapeutic regimen for weight reduction and weight control in obese individuals.

KEYWORDS

Yoga, Obesity, Body Mass Index, Waist Hip Ratio

Introduction:

Yoga is a science which originated in India and is being practiced since thousands of years. Yoga includes a wide range of exercises called asanas which involve gentle stretching of muscles making them strong, supple and improving flexibility. Also, pranayamas are integral part of Yoga that includes various controlled breathing exercises. Yoga has a role in both prevention and cure of a wide range of disorders. A number of studies have proved the beneficial effect of Yoga in a number of co-morbid conditions like heart disease, hypertension and diabetes mellitus[1].

Obesity is defined as Body Mass Index > 30 and Waist Hip ratio > 0.90 according to WHO(2). Obesity is a monumental problem which is being faced by the modern world. There has been a rapid increase in prevalence of obesity amongst children, adolescents and adults. Obesity is a clinical condition characterized by excess fat accumulation in the body to the extent that it may have adverse effect on the health of an individual. Potential medical complications of obesity include hypertension, coronary artery disease, diabetes mellitus, dyslipidemia, cholecystitis, premature joint destruction, arthritis, stroke, some cancers, premature death and many others(3,4). Many researchers have shown that Yoga has a significant role in weight reduction(5,6). The present study was undertaken to find out whether regular practice of Yoga by obese individuals may be used as a therapeutic regimen for weight control.

Method:

60 male subjects in the age group of 20 to 50 years who were obese as determined by their BMI and WHR were selected for the study. Subjects with Body Mass Index > 30 and Waist Hip ratio > 0.90 who otherwise did not complain of any other significant co-morbidity were included in the study. The nature of the study was explained to them and written informed consent was obtained. None of the subjects had any Yoga training and did not involve in athletics or sports. Since the parameters were tested in the same subjects before and after the intervention, each subject acted as his or her own control. Prior to the study, the weight of each subject was determined and noted.

The subjects were then instructed about the Yoga training regime by a well known Yoga teacher. The training program started with Suryanamaskar or Sun-salutation. This was followed by Pranayamas which included Bhastrika pranayama, Kapalabhati Pranayama and Anulom-Vilom Pranayama for 5 minutes each. This was followed by various asanas which were Halasana, Naukasana, Pawanmuktasana, Bhujangasana, Chakrasana, Matsyendrasana, Gomukhasana, Paschimottanasana, Tadasana and Shavasana. The asanas were performed for approximately 40 minutes. The session ended with 'Om' chanting for 2-3 minutes. The details of these pranayamas and asanas is available in most of the standard books of Yoga.

The subjects were instructed to follow this Yoga regime 6 days a week (except Sunday) at the same time in the morning under the guidance of the Yoga teacher. The duration of this training program was 12 weeks. After completion of 12 weeks of Yoga training, the Body Mass Index (BMI) and Waist Hip ratio (WHR) of the subjects were measured again to see whether there has been any significant weight reduction. The data entry was done in MS-EXCEL and the analysis was done by SPSS-IS software. The descriptive statistics were used i.e. mean and standard deviation (SD) for describing the parameters. We used paired 't' test to compare BMI of the subjects before and after the Yoga training program. The P-value < 0.05 was considered significant.

Results:

The results of the study are expressed as mean + SD (n=53) and depicted in Table. 2 and Fig. 1 and Fig. 2.

The BMI of the subjects was 33.28 + 2.68 before the Yoga training program. BMI decreased to 27.83 + 2.35 after 12 weeks of Yoga training which is statistically highly significant (Z = 11.84, P< 0.001). We also found that the WHR decreased significantly from 0.96 + 0.17 to 0.91 + 0.08 after Yoga Training (Z = 2.06, P< 0.05).

Table 1: Comparison of BMI and WHR before and after 12 weeks Yoga training

Parameter	Before Training	After Training	P- Value	Z Score
BMI	33.28 + 2.68	27.83 + 2.35	< 0.001	11.84
WHR	0.96 + 0.17	0.91 + 0.08	< 0.05	2.06

Values expressed as mean + SD, n=60; P < 0.05 significant.

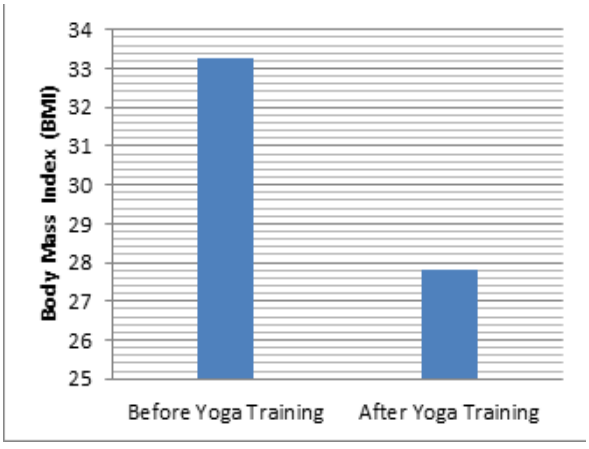

Figure 1: Comparison of BMI before and after 12 weeks Yoga training

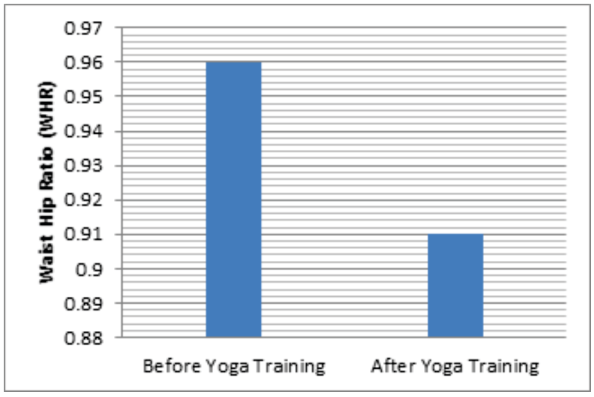

Figure 2. Comparison of WHR before and after 12 weeks Yoga training

Discussion:

The intensity and duration of the Yoga training regime in this study was of sufficient intensity and duration to elicit significant changes in the parameters tested in the subjects.

We found that there was a highly significant decrease in the BMI by approximately 18% in the subjects after 12 weeks of Yoga training. BMI is a simple and reliable index for classification of overweight and obesity according to body weight and height. WHO has classified BMI between 18.5–24.9 kg/m2 as normal weight, between 25.0–29.9 kg/m2 as overweight, and ≥30.0 kg/m2 as obese[7].

Manchandana et al studied the effect of Yoga intervention in atherosclerotic patients and found that there was a weight reduction by 8.2 6.8 % (P=0.0019) which are consistent with our results(8). Similar results were also observed by Schmidt et al(9) and Calle–Pascual et al(10) who found a significant decrease in BMI after Yoga practice in obese subjects.

Post 12 weeks of Yoga training, the Waist Hip Ratio (WHR) decreased significantly by approximately 5% in the subjects. Our findings are consistent with Bera et al who studied body composition, cardiac complications and aerobic power in yoga practitioners and found a significant decrease in WHR due to practice of Yoga in these subjects[11].

Yogasanas include various postures and stretching exercises that help to strengthen the muscles and improve flexibility of the body. They involve gentle movements of body parts as well as isometric contraction of various muscles and muscle groups. Asanas are of a wide range practically exercising every part of the body. These asanas as well as pranayamas entail considerable expenditure of energy and burning of calories which may be responsible for decrease in weight.

Conclusion:

We conclude that regular Yoga practice for a significant duration of time decreased BMI and WHR in obese individuals and therefore can be used as a therapeutic regimen for weight control in obese individuals.

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