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EFFECTS OF 6 WEEKS YOGIC TRAINING ON SELECTED ANTHROPOMETRIC AND BODY COMPOSITION VARIABLES OF FEMALE UNIVERSITY LEVEL STUDENTS

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Abstract

The practice of Yoga, according to Yogic scriptures, leads to the union of individual consciousness with universal consciousness. Yoga takes a holistic approach to everyone, considering their physical, mental, spiritual, and social well-being. Yoga practice beneficial for promotion of good health and mental well-being of the children and helps them to adopt with the changing environment. The present study has been designed to find out the effects of six weeks of yogic training on selected anthropometric and body composition variables of female university level students. Twenty-one healthy female university students from Guru Ghasidas Vishwavidyalaya age ranged 18 to 26 years were selected. Yoga practice was planned as 90 min/d, 06 d/week for 6 weeks. Height, Body weight, Resting Metabolism, BMI, Visceral Fat percentage, Body Age, and Whole-Body Fat percentage were recorded to compare pre- and post-camp parameters. All the selected variables Height, Body weight (Sig. 2-tailed-.000), Resting Metabolism (Sig. 2-tailed-.000), BMI (Sig. 2-tailed-.000), Visceral Fat percentage (Sig. 2-tailed-.000), Body Age (Sig. 2-tailed-.000), and Whole-Body Fat percentage (Sig. 2-tailed-.034) found significance difference except Height. So yogic training may be suggested to improves selected anthropometric and body composition functions of females except Height and it may predict due to the short-term training program.

Keywords: Yoga, Resting Metabolism, Visceral Fat, Body Age etc.

Introduction

Yoga is primarily a spiritual practice that focuses on bringing harmony between the body and mind. It is based on a very subtle science. It is both an art and a science to live a healthy lifestyle. Yoga is derived from the Sanskrit root ‘yuj’, which means "to join," "to yoke," or "to unite.". Yoga is a combination of eight elements, including postures breathing techniques, deep relaxation, and meditation, which can significantly improve health on many different levels.

The practice of Yoga, according to Yogic scriptures, leads to the union of individual consciousness with universal consciousness. According to modern scientists, everything in the universe is just a manifestation of the same quantum firmament. A yogi who has attained a state of freedom, known as Mukti, nirvna, kaivalya, or moksha, is said to be "in Yoga."

The World Health Organization reports that in 2016, 39% of adults aged 18 and over (39% of men and 40% of women) were Around 13% of adults worldwide (11% of men and 15% of women) were obese and overweight, respectively. According to estimates from the "World watch Institute," the proportion of overweight people worldwide has surpassed that of undernourished people, even though starvation is still a major issue in many regions of the world. Obesity increases morbidity and mortality in many diseases, in addition to being an aesthetic issue and a predisposing factor. A person's body fat percentage and mortality are inversely correlated. Blood pressure and the lipid profile of the serum are two cardiovascular risk factors that are linked to BMI and BF.

Yoga takes a holistic approach to everyone, considering their physical, mental, spiritual, and social well-being. like how the WHO defines health. Yoga therapy is a flexible form of exercise that has many benefits. Lowering blood pressure (BP) reduces stress, increases parasympathetic activation, and changes baroreceptor sensitivity. Yoga has recently gained popularity as a method of managing obesity, and people are swarming to yoga studios to control their weight and blood pressure. Yoga has positive long-term effects on weight management because it encourages moderation in both diet and exercise.

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Yoga includes a variety of physical activities, different postures, and repeated contractions and relaxations of the abdominal muscles, all of which may contribute to a decrease in body fat. Numerous authors made similar observations about body fat reduction following yoga training.[1]

Yoga is one such intervention, with research indicating long-term adherence and benefits in a variety of health conditions, including obesity. Yoga postures, particularly forward bending, twisting, and backward bending, aid in the reduction of fat around the abdomen, hips, and other areas.[2] Yoga is a solution for a healthy lifestyle because it is a full-body workout that includes wonderful cardiovascular and dynamic exercises without the use of machines or a lot of space.[3]

Due to the dearth of studies examining the physical effects of short-term yoga, there is not enough data to make a formal recommendation regarding the effectiveness of short-term yoga in managing obesity and hypertension. The goal of this study was to determine how a brief lifestyle intervention based on yoga affected Height, Body weight, Resting Metabolism, BMI, Visceral Fat percentage, Body Age, and Whole-Body Fat percentage over time.

Materials And Methods

The study was carried out at a six-week non-residential yoga training camp hosted by the Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India.

Selection of Subject

For the purpose of the study 21 healthy female students age group between 18 to 26 were included in this study. Rest of the subjects practiced as usually. People who were physically unable to perform the required yogic exercises for the required time and intensity were the main exclusion criteria. The participants underwent a daily yoga program of 90 minutes for six weeks (6 days/week) under the guidance of trained yoga instructors. Height, Body weight, Resting Metabolism, BMI, Visceral Fat percentage, Body Age, and Whole-Body Fat percentage were recorded to compare pre- and post-camp parameters. All measurements were taken before yogic training (first day) and again at the last day of six week training. Data were analysed through SPSS version 26.0, using a paired sample 't'-test.

Training Protocol

Warm-up exercises, pranayama, and backward, forward, and side bending and twisting asanas were followed by Savasana and meditation in the Yoga training program's protocol. Each exercise was timed under the supervision of the trainers, and the durations were roughly as follows: Warm-up exercises and 10 minutes of sitting with legs moving like butterflies. 10 minutes of bhastrika, kapalbhati, and anulom-vilom pranayama. For 60 minutes, practice asanas such as padmasana, vajrasana, mandukasana, vakrasana, gomukhasana, makarasana, bhujangasana, naukasana, dhanurasana, paschimotanasana, uttanpadasana, and pavanmuktasana; for 10 minutes, practice.

Data Collection

Data was collected through reliable machine like all the fat percentage were measured by Omron KARADA Scan Body Composition & Scale HBF-375, Height (meter/centimetre) and weight (Kg) was cross checked by standard weighing machine and stadiometer. Resting Metabolism in calories per unit of time, BMI in kg/m2, visceral fat percentage, whole body fat percentage and body age were measured.

Statistical Analysis

All the gathered data was entered in SPSS version 26 to test the normality, correlation, descriptive statics and finally paired sample 't' test. The level of significance was set as 0.05.

Results

After analysed data it was found that after the 6 weeks of yogic training No mean difference was found in the Height of the Participant's but in weight mean differences was found. Rest in each body composition variables mean differences were found which is presented in Table-1.

Table-1

Paired Samples Statistics				
		Mean	N	Std. Deviation
Height	Pre Test	158.0238	21	5.45086
	Post Test	158.0238	21	5.45086
Weight_	Pre Test	54.0952	21	6.12662
	Post Test	52.5810	21	5.58772

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Resting Metabolism	Pre Test	1221.2381	21	148.15732
	Post Test	1207.5714	21	136.27530
BMI	Pre Test	21.7667	21	2.60448
	Post Test	21.0905	21	2.31428
Visceral Fat%	Pre Test	3.7619	21	1.64027
	Post Test	3.3810	21	1.52401
Body Age	Pre Test	27.2857	21	6.56615
	Post Test	25.4286	21	5.83585
Whole Body Fat%	Pre Test	28.2905	21	5.09018
	Post Test	26.8524	21	4.48371

In table-2 correlations were checked for pre and post test data and it was found that except Height all the data were correlated. The correlation cannot be computed because the standard error of the difference is 0.

Table-2

Paired Samples Correlations		
	Correlation	Sig.
Weight Pre & Post	.995	.000
Resting Metabolism Pre & Post	.998	.000
BMI Pre & Post	.988	.000
Visceral Fat Percentage Pre & Post	.993	.000
Body Age Pre & Post	.992	.000
Whole Body Fat Percentage Pre & Post	.990	.000

In table-3 paired sample 't' test was computed. The 't' test cannot be computed because the standard error of the difference is 0 in height for pre and post-test of the subject. Due to the Yogic training in Weight Pre _Post (Sig. (2-tailed)-.000), Resting Metabolism Pre – Post (Sig. (2-tailed)-.000), BMI Pre-Post (Sig. (2-tailed)-.000), Visceral Fat Percentage Pre _Post (Sig. (2-tailed)-.000), Body Age Pre -Post (Sig. (2-tailed)-.000), Whole Body Fat Percentage Pre - Post (Sig. (2-tailed)-.000) found at 0.05 level.

Table-3

Paired Samples Test				
	Paired Differences		t	Sig. (2-tailed)
	Mean	Std. Deviation		
Weight Pre _Post	1.51429	.79453	8.734	.000
Resting Metabolism Pre - Post	13.66667	15.04438	4.163	.000
BMI Pre-Post	.67619	.48053	6.449	.000
Visceral Fat Percentage Pre _Post	.38095	.21822	8.000	.000
Body Age Pre -Post	1.85714	1.06234	8.011	.000
Whole Body Fat Percentage Pre - Post	1.43810	.91076	7.236	.000

Discussion

This study assessed the effect of 6 weeks of yoga training program on Height, weight, Resting Metabolism, BMI, Visceral Fat Percentage, Body Age, Whole Body Fat Percentage.

The current study found yogic exercise reduce gross body weight. Similar result also found by Dr. Kamakhya Kumar in his study and conclude body weight significantly decreased after Hatha yogic practices. A controlled trial held in India supports that yogic practices contribute to reduced excessive bodyfat not only among school students but also in obese patients .[6]

According to Na Nongkhai et al., (2021) findings, the yoga group had BMI and BFM that were significantly lower. the Mama study from 2019, practicing yoga for 12 weeks significantly reduced body fat. The subjects may have engaged in an abnormal state of yoga exercise for an extended period, which resulted in a decrease in the body fat rate, explaining the decrease in body fat. Yoga involves deep nostril breathing, limb adaptability, and extension of various body parts, which may account for the subjects' decreased body fat levels. The present study discovered a significant reduction in body mass in the subject's practicing yoga, suggesting that the decrease in body fat may have an impact on body mass.

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Similar observations were made in numerous studies where, following yoga training, a reduction in body fat was observed.[4]

Furthermore, studies on the long-term effects of yoga on the BMR of normal healthy subjects have shown that yoga groups had lower BMR compared to non-yoga groups which has also been confirmed by our study.[5] Current study also found that due to Yoga training program metabolic rate is decreased.

Visceral fat is highly toxic and must be avoided because it continues to pump poisons into the bloodstream. This causes serious issues such as heart disease, diabetes, and even cancer. It also enters your intestines, causing inflammation. As cortisol levels rise, hormonal secretions are disrupted, resulting in mood swings and increased stress. The study shows long term yogic exercise can reduce Visceral Fat Percentage.

The current study found that The Body age reduces after regularly performing yogic exercises. According to the results of self-evaluations of one's health, regular yoga classes increase activity, have a positive impact on well-being, and lower the threshold for morbidity and stress (Yang, 2007; Strehli et al., 2020).

It is also in accordance with a scientific theory that regular exercise (asanas) helps to maintain muscle strength, tone, and overall body balance that girls' static balancing times are improving. According to Sereda 2017; Vhavle et al. 2019, yoga is one of the crucial steps to slowing down biological aging and maintaining the capacity for an active and fulfilling life.[8]

Regular yogic exercise practice may keep up the normal level of body fat and lowers the risk of obesity, diabetes, etc., and helps to maintaining healthy lifestyle. Yoga has a role in maintaining good health and physical fitness. In the present study, significant reduction in body fat was noted among the female students after six week of yoga practice. The reduction in body fat might be since the children underwent a high level of yogic exercise over a period, which resulted in lowering of body fat percentage. Yoga involves deep nostril breathing, flexibility of limbs, and stretching of different body parts, which might be the cause of reduction of body fat of the subject. The reduction of body fat might influence the body mass and hence in the present study significant reduction of body mass was noted among the subjects.

Conclusion

Six weeks of yoga intervention does cause some reduction in weight, Resting Metabolism, BMI, Visceral Fat Percentage, Body Age, Whole Body Fat Percentage, and does not effects on height in the current study because of short duration. Regular yoga for longer durations may benefit to increase height.

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