



## THE ROLE OF YOGA ON HEALTHY WEIGHT MANAGEMENT AMONG COLLEGE GIRLS

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### ABSTRACT

This study investigates the role of yoga as an intervention for healthy weight management in college-aged girls identified as being at risk of becoming overweight. In recent years, there has been a marked increase in the prevalence of weight-related concerns among college students, particularly females, owing to sedentary lifestyles, academic stress, and unhealthy dietary patterns. Yoga, as a time-tested integrative practice, combines physical movements, breathing exercises, and mindfulness techniques that may address both physiological and psychological contributors to weight gain. This experimental study involved 40 female college students aged 18 to 22, randomly assigned to either a control or experimental group (n = 20 each). The experimental group engaged in a structured 12-week yoga program (four sessions per week), while the control group received no such intervention. The Body Mass Index (BMI) was measured before and after the intervention period and used as the sole metric of weight-related health. Results demonstrated a statistically significant reduction in BMI in the experimental group ( $p < 0.0001$ ), in contrast to non-significant changes in the control group. These findings support the use of yoga as a holistic and sustainable method for weight management, contributing to both physical and emotional well-being among young women.

**Keywords-**Yoga, weight loss, college girls, healthy lifestyle, BMI, physical fitness

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## 1. INTRODUCTION

Weight management during early adulthood is a critical public health concern. The transition from adolescence to adulthood is often marked by changes in physical activity levels, dietary behaviors, and lifestyle routines. Numerous studies have shown that college-aged individuals, especially women, are susceptible to unintentional weight gain due to increased stress, poor eating habits, sedentary behavior, and inadequate sleep (Nelson et al., 2008). This period of life is a vital window for establishing lifelong health habits.

Young women are particularly vulnerable due to a range of sociocultural, hormonal, and behavioral influences. Societal pressures and media portrayal of body image may contribute to unhealthy weight control behaviors, emotional eating, or body dissatisfaction (Lowry et al., 2000). These pressures, combined with the demands of academic life, may increase the risk of developing overweight or obesity and related chronic conditions in adulthood.

Yoga, a discipline with origins in ancient Indian philosophy, has gained considerable attention in recent decades as a health-promoting intervention. Asanas (postures), pranayama (breath control), and dhyana (meditation) are integral aspects of yoga that collectively support not just physical strength and flexibility, but also enhance mental clarity and emotional stability. Modern research underscores yoga's multifaceted benefits, including improved metabolic function, enhanced mood, reduced anxiety, and better sleep quality (Ross et al., 2016; Streeter et al., 2010).

Yoga has been specifically associated with weight regulation through multiple mechanisms. It enhances self-regulation, reduces stress-induced cortisol secretion (which can contribute to abdominal fat), improves insulin sensitivity, and increases awareness around hunger and satiety cues (Cramer et al., 2016). Furthermore, regular practice has been linked with positive lifestyle changes, including better dietary choices and reduced consumption of processed foods (Kristal et al., 2005).

Despite this growing body of evidence, the use of yoga as a tool for structured weight management programs within the college ecosystem remains limited. College students, especially females, could greatly benefit from non-invasive, cost-effective, and psychologically supportive approaches like yoga. Thus, this study aims to explore the impact of a structured yoga intervention on BMI levels in college girls identified as being at risk of overweight. The goal is to contribute to the development of inclusive, preventive wellness strategies tailored to the needs of young women in higher education settings.

## 2. Hypothesis

1. Null Hypothesis ( $H_0$ ): Participation in a structured yoga program will not result in any statistically significant reduction in body weight or BMI among college-aged girls identified as being at risk of overweight.
2. Alternative Hypothesis ( $H_1$ ): Participation in a structured yoga program will lead to a statistically significant reduction in body weight and BMI among college-aged girls identified as being at risk of overweight, indicating the effectiveness of yoga as an intervention for weight management.

## 3. METHODOLOGY

### 3.1. Participants

A total of 40 college-aged female students (ages 18–22), identified as being at risk of overweight based on their BMI, were randomly selected and assigned into two groups: an experimental group ( $n = 20$ ) and a control group ( $n = 20$ ). Participants provided informed consent

and met inclusion criteria of not being engaged in any other structured weight-loss program. Care was taken to ensure diversity in socioeconomic and educational backgrounds.

### 3.2. Design & Procedure

The study followed a pre-test/post-test control group design. The experimental group participated in a 12-week yoga intervention consisting of four 60-minute sessions per week. Each session included a warm-up, a series of yoga postures tailored for weight management, breathing techniques, and guided relaxation. The sessions were supervised by certified yoga instructors and adjusted weekly for progressive intensity. The control group received no Yogic intervention.

### 3.3. Yogic Practices

The following Asanas were incorporated into the intervention, each selected for its proven benefits in enhancing metabolism, stimulating digestion, and promoting fat reduction, especially in the abdominal region:

**Padahasthasana (Hand-to-Foot Pose):** This forward-bending posture compresses the abdominal region, improving digestion and aiding in the reduction of belly fat. It also enhances flexibility in the spine and legs while stimulating blood circulation.

**Ardha Chakrasana (Half Wheel Pose):** This mild backbend stretches the abdominal muscles and helps tone the waistline. It also strengthens the lower back and stimulates the thyroid gland, aiding in metabolic balance.

**Paschimottanasana (Seated Forward Bend):** A deep forward bend that massages the abdominal organs and supports fat reduction. It calms the nervous system and promotes hormonal balance, contributing to holistic weight management.

**Ustrasana (Camel Pose):** This deep backbend stimulates the abdominal organs and improves posture. It is known to strengthen the back and thighs while increasing energy and digestive efficiency.

**Naukasana (Boat Pose):** Highly effective in toning the abdominal muscles, this core-strengthening pose promotes fat loss around the belly and enhances overall stamina. It engages the hips, spine, and shoulders for a full-body effect.

**Bhujangasana (Cobra Pose):** This prone backbend stretches the torso and helps strengthen the spine while toning the buttocks. It stimulates digestive organs and is commonly recommended for weight loss routines.

**Shalabhasana (Locust Pose):** Strengthens the lower back, thighs, and hips, and improves flexibility. It also promotes the burning of excess fat in the abdomen and enhances digestion.

### 3.4. Measurements

BMI was the onrecorded before and after the intervention. BMI was calculated using standardized methods, and participants were measured under consistent conditions, wearing light clothing and without shoes. BMI served as the sole indicator for assessing the effectiveness of the yoga program. This narrow focus allowed for a precise evaluation of weight changes attributable to yoga alone.

### 3.5. Data Analysis

Descriptive statistics including mean, standard deviation, skewness, and kurtosis were calculated for each group at both time points. Paired sample t-tests were conducted to evaluate within-group changes, and independent sample t-tests were used to compare between-group differences. Statistical significance was set at  $p < 0.05$ .

## 4. RESULTS & DISCUSSION

**TABLE 1**  
**DESCRIPTIVE STATISTICS – PRE-TEST**

Group	N	Mean	Median	SD	Skewness	Kurtosis
Control	20	24.74	24.75	0.373321	-0.43727	1.021874
Experimental	20	22.9765	22.96	0.103277	0.228584	-1.07074

Table 1 presents the baseline BMI statistics for both the control and experimental groups prior to the 12-week yoga intervention. The similarity in mean BMI values—24.81 for the control group and 24.695 for the experimental group—confirms that the groups were statistically comparable at the start, ensuring a valid basis for subsequent comparisons. The standard deviations are relatively low, suggesting that BMI scores were not widely spread within each group. The slight positive skewness in both groups indicates that a small number of participants had BMIs somewhat higher than the median, but this does not deviate far from a normal distribution. Similarly, kurtosis values close to zero further validate the normality of the data, making parametric tests such as the paired and independent t-tests appropriate for analysis. These initial statistics support the methodological soundness of the research design by showing balance between the groups at the outset.

**TABLE 2**  
**DESCRIPTIVE STATISTICS – POST-TEST**

Group	N	Mean	Median	SD	Skewness	Kurtosis
Control	20	24.81	24.8	0.357305	0.500922	0.007772
Experimental	20	24.695	24.7	0.258488	0.182996	0.447727

Table 2 shows the post-test BMI values after the intervention. While the control group exhibited a minimal decline in BMI from 24.81 to 24.74, the experimental group recorded a substantial decrease from 24.695 to 22.9765. This reduction of more than 1.7 BMI points is both statistically and clinically significant. Furthermore, the experimental group's standard deviation reduced sharply from 0.258 to 0.103, indicating a high degree of consistency in outcomes across participants—most experienced similar levels of improvement. The small skewness and moderately negative kurtosis reflect a light-tailed, symmetrical distribution, meaning participants' outcomes clustered tightly around the mean. In contrast, the control group displayed a slightly broader spread, evidenced by an increase in kurtosis and a small negative skew. These metrics suggest that the intervention had a leveling effect on BMI, benefiting all individuals in the experimental group similarly, regardless of initial variation.

**Table 3**  
**Mean Differences (Pre vs Post)**

Group	Mean (Pre)	Mean (Post)	t-value	p-value	Significance
Control	24.815	24.74	1.40846	0.175149	Not Significant
Experimental	24.755	22.9765	25.00447	< 0.0001	Significant

Table 3 compares pre- and post-test mean values within each group using paired sample t-tests. The control group's minimal change was not statistically significant ( $t = 1.40846$ ,  $p = 0.175149$ ), indicating that natural activity levels and existing routines were insufficient for reducing BMI over the study period. Meanwhile, the experimental group's sharp decrease in BMI was found to be highly significant ( $t = 25.00447$ ,  $p < 0.0001$ ). A t-value this high reflects a large effect size, suggesting that the yoga intervention had a robust impact on body weight. Given the low p-value, the null hypothesis (that yoga would have no effect) is rejected, providing strong statistical evidence in favor of the alternative hypothesis: that yoga significantly aids in reducing

BMI among young women at risk of being overweight. The strength of the statistical significance also supports the replicability of these results in similar populations.

**TABLE 4**  
**POST-TEST COMPARISON BETWEEN GROUPS**

Group	Mean BMI	SD	t-value	p-value	Significance
Control	24.74	0.373321	20.3608	< 0.0001	Significant
Experimental	22.9765	0.103277			

Table 4 displays the independent sample t-test comparing post-test BMI between the two groups. The significant difference in means (24.74 vs. 22.9765) and the large t-value of 20.3608 emphasize the profound effectiveness of the yoga regimen. The smaller standard deviation in the experimental group (0.103277) compared to the control group (0.373321) demonstrates the consistency of weight reduction outcomes, reducing variability and reinforcing the reliability of the intervention. The p-value of less than 0.0001 further confirms that the difference is not due to chance and is strongly attributed to the treatment effect. These findings not only validate the statistical hypothesis but also support practical applications in preventive health and fitness programming among college-aged women. Yoga, as a structured and low-barrier intervention, appears capable of delivering significant reductions in BMI in a relatively short timeframe.

## 5. CONCLUSION

The findings of this study provide compelling evidence that yoga is a beneficial and effective intervention for healthy weight management in young women. A statistically significant decrease in BMI among participants in the experimental group confirms the utility of yoga as a tool for reducing weight in college-aged girls who are at risk of becoming overweight. In contrast, no such benefits were observed in the control group, highlighting the absence of spontaneous weight loss without targeted intervention.

Yoga's holistic nature addresses not only physical health through postures but also mental well-being through mindfulness and breath regulation. These elements work synergistically to promote healthier lifestyle behaviors. The high degree of consistency among participants in the experimental group, reflected in low variability in BMI reduction, points to the reliability of yoga as a structured and accessible practice.

Educational institutions should be encouraged to incorporate yoga into student wellness programs. Such programs have the potential to reduce obesity rates, enhance students' psychological resilience, and contribute to long-term health improvements. Further research is recommended to evaluate long-term outcomes, identify the most effective yoga protocols, and explore impacts on other health indicators such as fat percentage, hormonal balance, and mental health parameters. Yoga may thus serve not only as a corrective but also as a preventive measure, promoting sustained well-being among college students.

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