



## ORIGINAL RESEARCH PAPER

## Medicine

## A PILOT STUDY ON THE METABOLIC EFFECTS OF SHORT-TERM SHIVYOG SHAMBHAVI MEDITATION PRACTICE

**KEY WORDS:** meditation, metabolic parameters, ShivYog

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## ABSTRACT

**Objective:** To study the short-term effects of ShivYog Shambhavi intervention program on various metabolic and biochemical parameters.

**Methods and Materials:** Two seven-day ShivYog Shambhavi seminars were conducted in which participants were randomly recruited for this study. ShivYog Shambhavi program includes guided deep meditation and specific breathing exercises, conducted by Dr. Avdhoot Shivanand. All participants underwent assessment of their metabolic and biochemical parameters before and after Shambhavi seminar.

**Results:** A total of 52 participants underwent the study, including 31 males and 19 females, with mean age of 54.8 (45.2 – 64.3) years. Following ShivYog Shambhavi intervention over a follow-up of 1 week in one seminar & one month in the other, significant improvements were seen in unhealthy weight, blood glucose, and serum uric acid levels. There was a trend towards improvement in Hb, serum total cholesterol and LDL levels.

**Conclusions:** This study demonstrates beneficial physiological and metabolic effects of short term ShivYog Shambhavi meditative practice.

## INTRODUCTION

Integrative medicine practices incorporating meditation and Eastern healing modalities are popular but there is a paucity of literature on their effects on human physiology and metabolism. Previous studies have reported improved psychosocial outcomes in healthy subjects as well as improved psychological parameters in depressed patients (Conboy, 2009; Dubey, 2010). However, little evidence has been reported regarding the physiological and metabolic effects of such therapies. The present study attempts to explore the effect of *ShivYog Shambhavi*, a component of ShivYog Cosmic healing, on various metabolic parameters. Shambhavi– a powerful vedic healing modality- involves mainly deep meditation along with specific breathing techniques as well as simple physical exercises and helps purify physical and energy systems, improve health and inner wellbeing. ShivYog, led by Dr. Avdhoot Shivanand, has been offering life transformative programs for the past four decades.

This pilot study aims to assess the short-term effects of *ShivYog Shambhavi* intervention program on metabolic parameters like weight, body mass index and BP and biochemical parameters in the serum.

## MATERIALS &amp; METHODS:

## Study setting:

This study was conducted during the 2 *ShivYog Shambhavi* seminars held at 2 different Indian cities (Gwalior and Kolkata), each of which was a 5-day program lasting eight hours each day. Participants were provided a simple meal and breaks in between two-hour sessions. No dietary restrictions were advised during the session. Each session was led by Dr. Avdhoot Shivanand who guided participants through lectures, specific breathing & movement exercises (prana kriyas & sukshma kriyas) and *sadhana* (deep guided meditation).

**Study design:** In this prospective cohort study, participants who volunteered and provided informed consent were randomly recruited.

Baseline parameters collected included participants' age, sex, height, body weight, body mass index, as well as systolic and diastolic BP.

All participants were requested to give their blood samples prior to

and after the Shambhavi practice, for a variety of laboratory studies including serum hemoglobin, blood glucose, hemoglobin A1C, uric acid, total and LDL cholesterol. Samples were analysed by *SRL Ranbaxy-a laboratory* with quality accreditation by NABL.

## Statistical Analysis

Mean blood pressure (MAP) was calculated as  $[SBP + 2(DBP)]/3$ . Hypertension was defined according to the most recent JNC Joint Commission Guidelines (Chobanian, 2003). BMI was calculated based upon height and weight and then patients were grouped into categories (Underweight, Normal, Overweight, Obese, Morbid Obese) based upon the most recent *Center for Disease Control* (CDC) recommendations<sup>4</sup>

Continuous variables were presented as mean SD and were compared with *student's t-test*. Categorical variables are compared by the *Pearson chi-squared* or *Fisher exact test*. All statistical tests are two sided and a  $p < .05$  was considered significant. All statistical analysis was performed using STATA version 15.1 (*StataCorp, LLC College Station, TX*).

## Results

There were 10 participants in the Gwalior seminar and 42 in the Kolkata seminar. End of the study parameters were collected at one week and one month following the *Shambhavi* intervention in the Gwalior and Kolkata seminars, respectively.

## Gwalior Shambhavi Seminar Analysis

Hbpre and Hbpost are the hemoglobin data. BSpre and BSpost are the blood sugar data. UApre and UApost are the uric acid data and CHOLpre and CHOLpost are the total cholesterol numbers measured before and after the intervention.

The mean age of participants was 54.8 years (45.2 – 64.3; 95% CI). The mean Hb value increased post intervention. The mean Hbpre value was 11.7mg/dl (10.7 – 12.8, 95% CI) and mean Hb post value was 12.17mg/dl (11.1 – 13.3, 95% CI), though p value was only 0.07 (*Table 1*) demonstrating a trend towards statistical significance. Random blood sugar values decreased significantly from a mean BSpre of 146mg/dl (90 – 203, 95 CI) to 105 mg/dl (83 – 129, 95% CI,  $p = .03$ ) (*Figure 1*). Serum uric acid also decreased significantly from a mean of 5.0 mg/dl (4.2 – 5.9, 95% CI) to 4.4mg/dl (3.8– 5.1, 95% CI,  $p = .002$ ) (*Figure 2*). Total Cholesterol levels decreased from a mean of 183mg/dl (145 – 222, 95% CI) to

164mg/dl (144 – 185, 95% CI) revealing a trend towards statistical significance ( $p = .07$ ) (Figure 3). Although changes in blood glucose and serum uric acid have been statistically significant, with  $p$  value  $<0.05$ , the CI overlap is due to small number of participants( $n=10$ ).

**Table:1. Measurements before and after Shambhavi Seminar Intervention in Gwalior**

	Start(Pre) Mean Value	Post Mean Value	P value
Hb	11.7(10.7 - 12.8, 95% CI)	12.17(11.1 - 13.3, 95%CI)	P=0.07
Uric Acid	5.0(4.2 - 5.9, 95%CI)	4.4 (3.8 - 5.1, 95%CI)	P=0.007
Random Blood Sugar	146(90 - 203, 95%CI)	105 (83 - 129, 95% CI)	P=0.03
Total Cholesterol	183 (145 - 122, 95% CI)	164 (144 - 185, 95% CI)	P<0.07

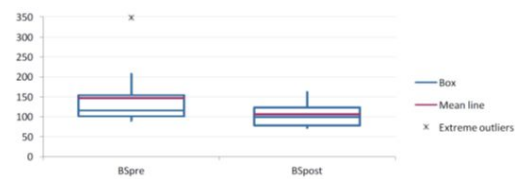


Figure 1 Boxplot Blood Sugar before and after

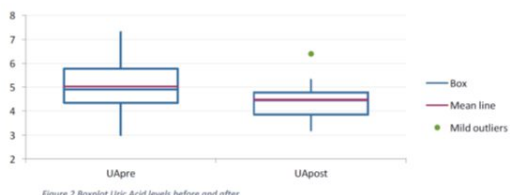


Figure 2 Boxplot Uric Acid levels before and after

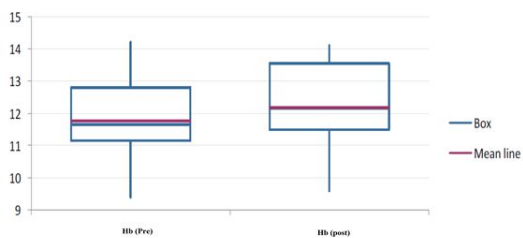


Figure 3 Boxplot Hemoglobin before and after

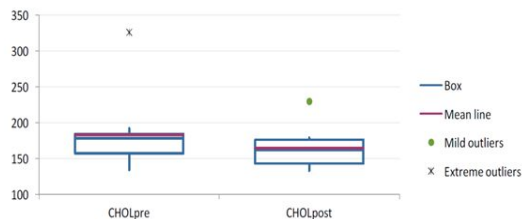


Figure: 4. Boxplot Cholesterol before and after

**Kolkata ShivYog Seminar**

Kolkata data included 42 patients, 15 males and 27 females with a mean age 53years (range 28 - 77 years). The following data was collected before and after the intervention 1 month apart: Systolic and diastolic BP, Height, Weight, Random Blood Sugar (RBS), HbA1C, and LDL cholesterol. BMI was calculated from the measured height and weight using standard nomogram. The patients were then grouped into the following categories

(Underweight, Normal, Overweight, Obese, Morbid Obese). When the weight classification group was compared before and after intervention, there was a significant improvement based upon the reclassification of patients (Table 2, Figure 5). There was an increase weight gain among the normal weight group. However, those in obese and morbidly obese showed statistically significant reduction in body weight.

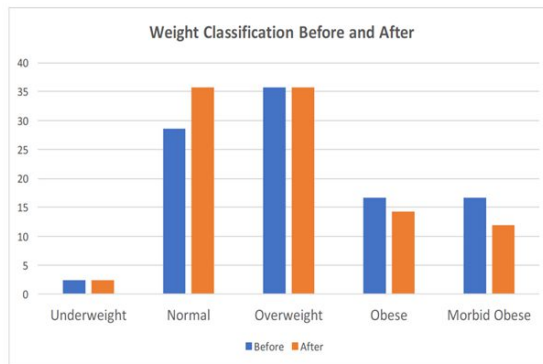


Figure:5. Obese classification before & after intervention

**Table 2: Obese Classification before and after Intervention**

	Frequency		Percent	
	Before	After	Before	After
Under	1	1	2.3	2.38
Normal	12	15	28.6	35.7
Overweight	15	15	35.7	35.7
Obese	7	6	16.7	14.3
Morbid	7	5	16.7	11.9

The reclassification of obese grouping variable was analyzed using the *Pearson Chi-squared test* and *Cramer'sV*. There was a statistically significant shift in the number of patients who decreased the group they were in ( $P < .001$ ) (i.e., went from morbidly obese to obese, obese to overweight, overweight to normal weight).

There was a trend toward a significant change with serum LDL levels and blood glucose (Table 3). The systolic BP showed a reduction of 5 mm Hg (142/86 at the start and 137/87 post), though not statistically significant, was encouraging. The diastolic and mean blood pressures did not change from baseline.

**Table 3: Measurements before and after ShivYog Seminar Intervention in Kolkata**

	Start (pre) Mean value	Post mean value	P value
Blood Pressure	142/86 mmHg	137/87 mmHg	NS
Mean BP	104 (100-109; 95%CI)	105(102-109; 95%CI)	NS
RBS	195(172-217;95% CI)	184 (164-202;95%CI)	P=0.27
HbA1C	7.6(7.2-8.1;95% CI)	7.8(7.2-8.2; 95%CI)	P=0.05
LDL	112(103.1-112.5;95%CI)	105 (96.4-113.3; 95%CI)	P= 0.07
Weight	74(68.8- 78.5;95%CI)	71.7 (68.1 -77.2;(95% CI)	P< 0.001

**DISCUSSION:**

*ShivYog Shambhavi* intervention, pioneered by Dr Avdhoot Shivanand, is known to produce remarkable effects in individuals with multiple health disorders. This short-term pilot study showed promising positive results in improving various metabolic parameters. The effect of *yogic breathing exercises (pranayama)*, cleansing practices and meditation on reducing the inflammation of patients with rheumatoid arthritis coupled with significant

reduction in serum uric acid levels and other inflammatory mediators have been previously reported (Singh, et al, 2011). Our study showed a statistically significant reduction in serum uric acid with one week of intervention. In a randomized study of stress reduction in 201 black men and women with angiographically documented coronary artery disease randomized to meditation or health education, 5.4-year follow-up found a 4.9 mm Hg lower systolic blood pressure, in those randomized to meditation (Schneider, 2012). A 2013 American Heart Association scientific statement on alternate approaches to lowering blood pressure concluded that meditation modestly lowers blood pressure and that its use may be considered (Ospina, M.B, 2007). In our study, there was a promising 5 mm Hg reduction in Systolic BP within a short term of one-month intervention. In a study of 103 patients with coronary artery disease randomized to meditation or active control (health education), meditation improved metabolic parameter of insulin resistance (Paul-Labrador, M, 2006). In our study, we found a significant reduction in blood glucose levels commensurate with improved insulin resistance and marked reduction in percentage of obese and morbidly obese subjects with just one month of intervention. Regular practice of ShivYog Shambhavi, by itself, resulted in significant reduction in BMI in a brief period of one month, without any additional dietary restrictions. Compared to Gwalior Seminar results of one-week practice, relatively longer (one month) practice after the Kolkata seminar possibly enabled the participants to achieve impressive changes in their internal milieu resulting in significant changes in the body weight and appreciable improvement in serum LDL cholesterol level and systolic BP, among others.

#### LIMITATIONS:

We have not explored the effects of this specific *ShivYog Shambhavi* meditative technique on psychological outcomes and it would be worthwhile to correlate the physical health benefits with improvements in levels of perceived stress and overall well-being. Though there was trend towards improvement, the less than significant changes in serum hemoglobin and serum total cholesterol in the Gwalior seminar & blood pressure, blood glucose, and serum LDL levels in the Kolkata seminar may be due to the small number of the study subjects, shorter duration of practice, and possibly the lack of a control group in both the interventions. Further large scale randomized studies with longer periods of intervention are highly warranted to explore the true potential of this practice.

#### CONCLUSION:

In this pilot study, with *ShivYog Shambhavi* meditative procedure, there was a significant improvement in blood glucose and serum uric acid levels after one week & in unhealthy body weight at the end of one month. There was a trend towards significant improvements in hemoglobin, weight sub-classification, serum total and LDL cholesterol.

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