

## A Pilot Study Measuring the Impact of Yoga on the Trait of Mindfulness

Danielle V. Shelov and Sonia Suchday

*Yeshiva University, New York, USA*

Jennifer P. Friedberg

*VA New York Harbor Healthcare System and NYU School of Medicine, USA*

**Background:** The current study examined whether yoga would increase levels of mindfulness in a healthy population. **Method:** Forty-six participants were randomly assigned to an 8-week yoga intervention group or a wait-list control group. Mindfulness was assessed pre and post yoga, using the Freiburg Mindfulness Inventory (FMI). **Results:** Results indicate that the yoga group experienced a significant increase in Overall mindfulness, and in three mindfulness subscales; Attention to the present moment, Accepting and open attitudes toward experience, and Insightful understanding ( $p < .01$ ). The control group experienced a significant increase in overall mindfulness ( $p < .02$ ) and insightful understanding ( $p < .01$ ). Findings suggest that a yoga intervention may be a viable method for increasing levels of trait mindfulness in a healthy population, potentially implicating yoga as a preventive method for the later development of negative emotional mood states (i.e. anxiety and depression). The control group also experienced moderate elevations of mindfulness at the second assessment.

*Keywords:* Yoga, mindfulness, meditation, behavioral intervention, prevention.

### Introduction

This research examined the impact of hatha yoga on the trait of mindfulness. Mindfulness based therapy was originally conceptualized as a vehicle for treating patients with chronic pain by Kabat Zinn (1982). Since that time, mindfulness has proved to be a trait that is highly linked with improved health. Since their inception, mindfulness based therapies have been effective in treating patients with varied physical and emotional illnesses, including eating disorders (Kristellar and Hallett, 1999), anxiety (Miller, Fletcher and Kabat-Zinn, 1995), and depression (Ma and Teasdale, 2004). Due to its efficacy as a treatment method, yoga is recognized by the National Center for Complementary and Alternative Medicine (NCCAM), a division of the National Institute of Health (NIH), as a valid mind-body intervention, and is therefore increasingly utilized among clinical populations as an alternative treatment for disease. Mindfulness is an important part of the yoga practice. Yoga is distinct from traditional

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Reprint requests to Danielle Shelov, Ferkauf Graduate School of Psychology, Albert Einstein College of Medicine, Yeshiva University, 1300 Morris Park Avenue, Bronx NY, 10461, USA. E-mail: dshelov@mindspring.com

western exercise because the physical part of the yoga practice (“asanas” or postures) is only a piece of the overall intention. Western medicine has conceptualized this in terms of “mind-body” exercise, a synergistic experience of emotions and physical experiences. Due to this mind-body emphasis of the yoga practice, it was hypothesized that an 8-week hatha yoga intervention would enhance levels of mindfulness in individuals that had no prior yoga experience.

### Method

Study participants were 46 men and women who were staff and students of the Ferkauf Graduate School of Psychology (FGS) and the Albert Einstein College of Medicine (AECOM) in Bronx, New York. Participants were recruited through fliers placed throughout AECOM and FGS campuses, email, and announcements in classes. Participants were 84% female, age 22–65 years (mean age = 34.4 +/- 11.2 years), 60% Caucasian, 20% Pacific Islander, 7.1% African American, and 8.7 % Latino. Participants filled out a series of questionnaires including a questionnaire assessing mindfulness (described below). Participants were then randomized to either a wait-list control group or an intervention/yoga group by using a randomization scheme stratified by gender. All individuals were assessed for the first time when they enrolled in the study, and for the second time immediately after their 8-week yoga session. The wait-list control group was assessed 10 weeks after their initial interview, and then began the yoga classes. The pre-post data we report here for the control group is from before they began yoga.

### Measures

The Freiburg Mindfulness Inventory (FMI) is a 30-item scale comprised of four sub-scales, each measuring separate constructs of mindfulness. The four constructs of mindfulness reflected in this scale were: Disidentifying attentional processes of mindfulness; Accepting and open attitudes toward experience; Process oriented understanding; and Paying attention without distraction. The Overall mindfulness measure is a summation of all of these four subscales (Buchheld and Walach, 2002).

### Yoga

The yoga intervention consisted of a weekly hatha yoga class for an 8-week period. The yoga class incorporated a standard series of poses that were repeated in each class. Each class was 60 minutes long and was comprised of: breathing exercises, yoga postures and shavasana relaxation.

### Data reduction and analyses

Mindfulness in both groups (intervention, control) was compared to assess preliminary differences at time one. There were no significant baseline differences. Change scores, which were calculated by subtracting the mean score for mindfulness at time two from the mean score of mindfulness at time one, were compared between the intervention and control group from time one to time two, to assess any difference in change. Paired sample *t*-tests were then used to compare time one scores to time two scores for all four mindfulness subscales and overall

**Table 1.** Intervention and waitlist control group: mindfulness scores

Characteristic	<i>df</i>	Mean change	<i>SD</i>	<i>SE</i>	<i>p</i>
Attentional processes/de-identification					
Intervention**	33	1.6	3.6	.63	.01**
Control	12	1.5	2.6	.73	.07
Accepting open attitude toward experience					
Intervention*	33	1.5	3.6	.63	.02*
Control	13	.36	2.5	.67	.60
Process oriented understanding					
Intervention**	32	1.3	2.4	.41	.01**
Control**	13	1.3	1.5	.41	.01**
Paying attention without distraction					
Intervention**	33	.00	1.6	.27	1.0
Control**	13	.57	1.3	.36	.13
Total mindfulness (FMI)					
Intervention**	32	4.7	8.0	1.4	.01**
Control*	12	3.5	4.5	1.3	.02*

\* $p < .05$ , \*\* $p < .01$ .

mindfulness. There were significant changes in three of the mindfulness subscales, as well as overall mindfulness from time one to time two for the intervention group. Disidentifying attentional processes of mindfulness, Accepting and open attitudes toward experience, Process oriented understanding and Overall mindfulness all significantly increased ( $p < .01$ ) (Table 1) from time one to time two. There was no significant change in the Paying attention to the present moment without distraction subscale from time one to time two (Table 1).

### Discussion

Data suggest that a brief yoga intervention had a significant impact on the trait of mindfulness. The subscale demonstrating the most significant change in the yoga group was the Attention to the disidentifying attentional processes of mindfulness scale, which measures the ability to pay attention to the present moment without distraction. This trait of disidentification with stimuli is believed to lead to a reduction in reactivity, and is perceived as the most central component of mindfulness (Buchheld, Grossman and Walach, 2001). Yoga has been utilized as a vehicle for maintaining a healthy lifestyle for 5000 years. The specific ways in which yoga keeps us healthy is becoming more important as we search for different avenues of promoting a prevention model of healthcare. Due to the existing relationship between mindfulness and better health, yoga may be a direct avenue for obtaining enhanced physical and emotional health, as well as affect regulation, mediated by mindfulness.

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