

### ABSTRACT

**Purpose:** This study aims to discover the potential benefits of acute yoga practice on perceived stress and blood pressure amongst college age individuals. This can provide a potential method for college students to manage their stress.

**Design/Method:** An analysis of 15 published articles was conducted as the basis for the methods of this experiment. Data collection began after informed consent was given. Participants were asked to perform yoga and meditation. Pre intervention height, weight, blood pressure, heart rate, and perceived stress were collected. Post intervention blood pressure, heart rate, and perceived stress were measured. The same yoga and meditation videos were distributed to all 44 participants.

**Results:** Results of this study showed significant differences in values before and after the yoga intervention in blood pressure, heart rate, and perceived stress ( $p<0.00$ ,  $N=44$ ).

**Conclusions:** There are many methods for college students to manage their stress levels, with yoga being one of those methods. More research is needed on the effects of long term yoga practice on blood pressure and stress in college students.

### INTRODUCTION

Stress is a major problem in today's society that people do not yet know how to manage efficiently. Prolonged stress can lead to hypertension, diabetes, and heart disease (Marshall, et al). Hypertension is elevated blood pressure levels that exceed 160/90 mmHg. There has been increased awareness through research of the pressure and stress faced by college students and a lack of resources to help them cope with this stress (Msengi). A possible method that can be used is the practice of yoga. Yoga is known to lower heart rate, improve mindfulness and stress in older adults (Lindhall, et al). Yoga can possibly be used by students to help manage their stress levels early on to control and manage their blood pressure before they become at risk for hypertension.

### PURPOSE

The purpose of this study is to determine the effects of an acute yoga practice on blood pressure, perceived stress, and heart rate in college students.

### HYPOTHESIS

Blood pressure, perceived stress, and heart rate will improve after one session of yoga.

### METHODS

#### Participants

- 44 California Lutheran University

#### Activities

- One session of yoga with 10 minutes of meditation following
- A Perceived stress scale was taken before and after

#### Data collection

- Participants gave consent
- Blood pressure, heart rate, and perceived stress was recorded before and after the yoga session
- The yoga session was 15 minutes followed by 10 minutes of meditation

#### Statistical Analysis

- Paired t-tests were computed using SPSS version 22.0, significance level  $P<0.05$

Figure 1. Yoga Video: Movement Medicine Calm - Adrienne



Movement Medicine - Calm is a calming, balancing sequence that gives us the opportunity to tend to the energetic body in a nurturing way. This video is

### RESULTS

Table 1. Descriptive Statistics and Wilcoxon Test of Perceived Stress

Descriptive Statistics				Hypothesis Test Summary			
	N	Mean	Std. Deviation	Null Hypothesis	Test	Sig. <sup>a,b</sup>	Decision
pre perceived Stress Scale	44	18.95	5.783	1 The median of differences between pre perceived Stress Scale and post perceived Stress Sca equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
post perceived Stress Sca	44	15.95	5.519				
Valid N (listwise)	44						

a. The significance level is .050.

b. Asymptotic significance is displayed.

Figure 1. The Differences of Perceived Stress Pre and Post Yoga

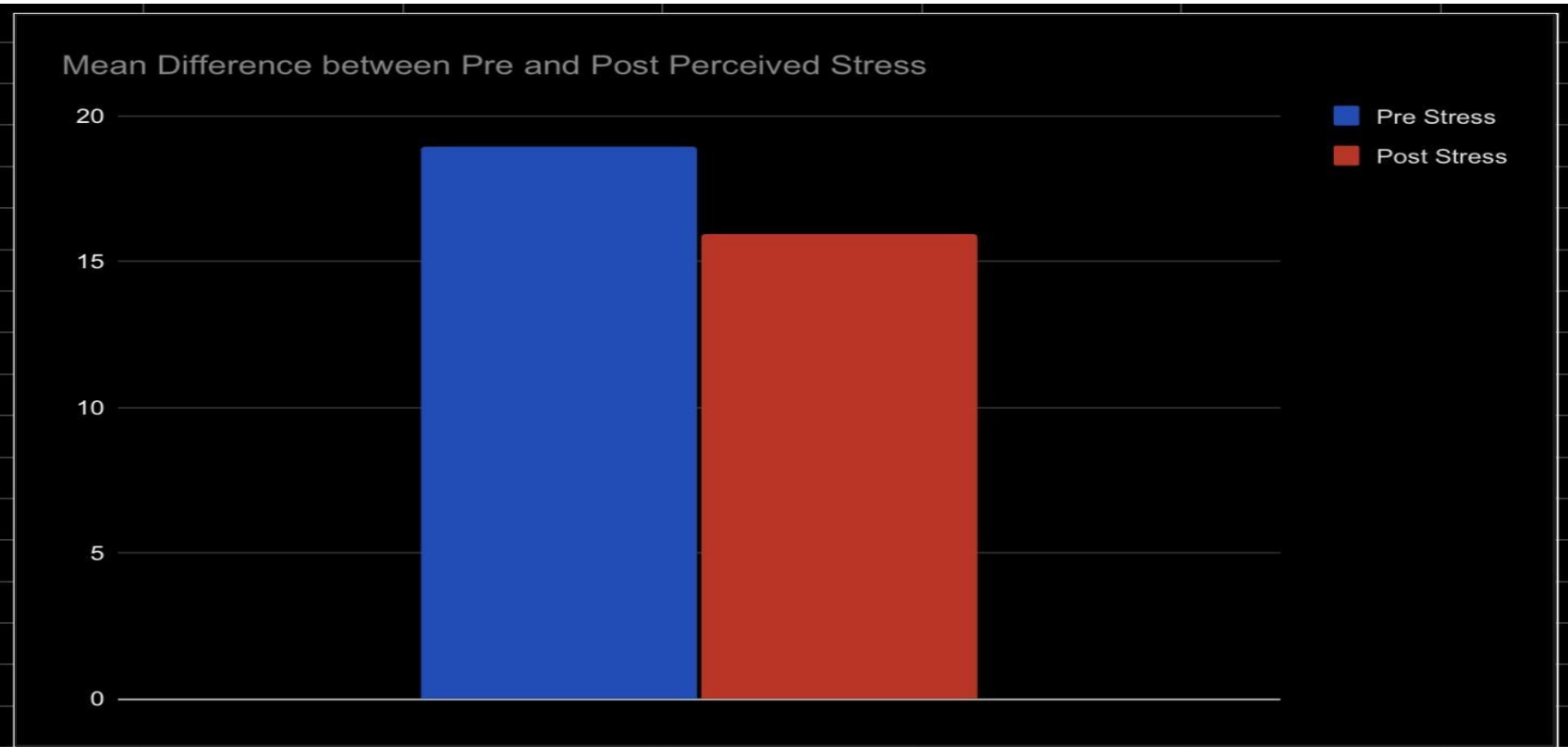


Table 2. Descriptive Statistics and Wilcoxon Test of Blood Pressure

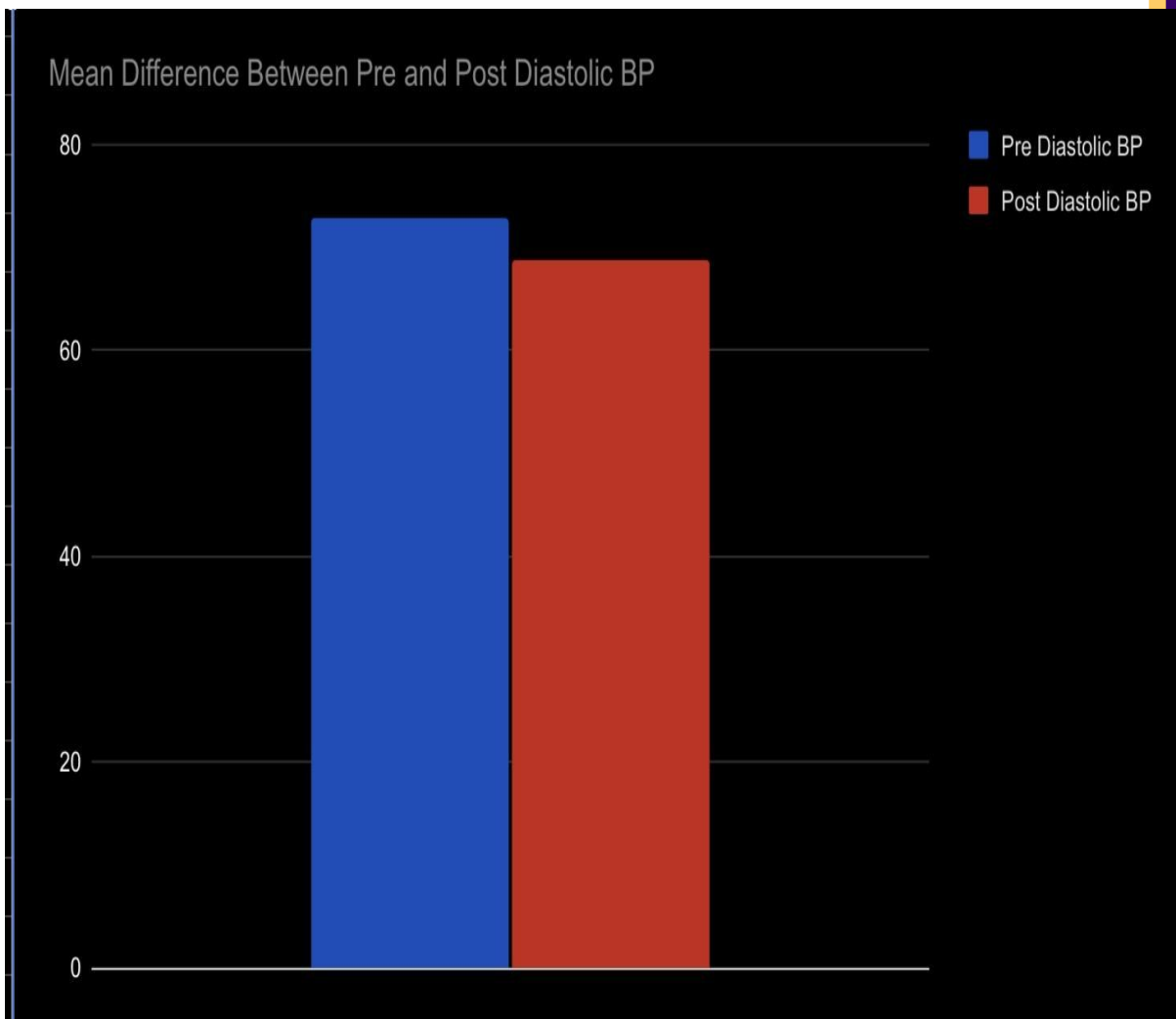
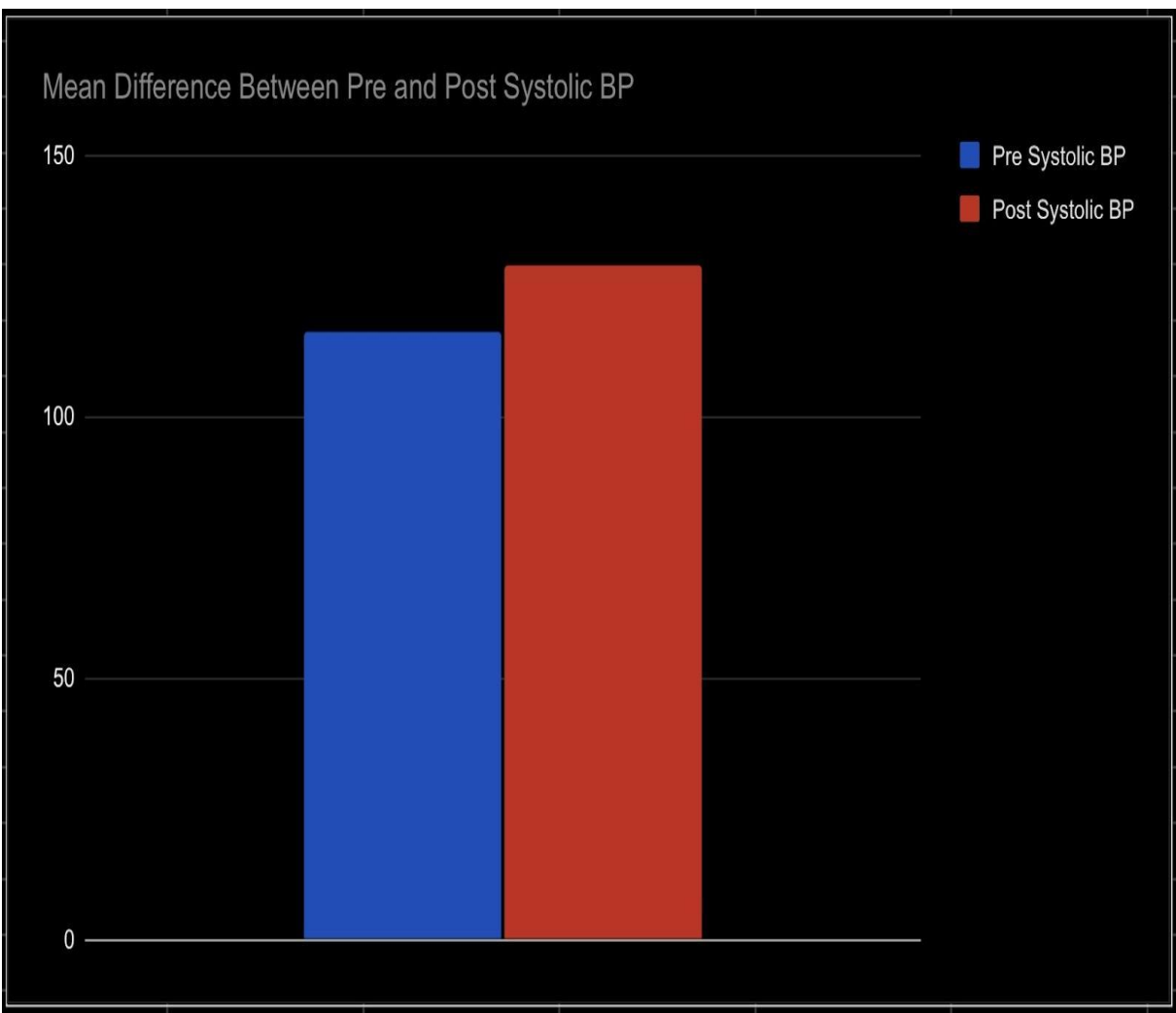
Descriptive Statistics				Hypothesis Test Summary			
	N	Mean	Std. Deviation	Null Hypothesis	Test	Sig. <sup>a,b</sup>	Decision
pre systolic bp	44	116.00	13.352	1 The median of differences between pre systolic bp and post systolic bp equals 0. a. The significance level is .050. b. Asymptotic significance is displayed.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
post systolic bp	43	129.05	132.782				
Pre diastolic Blood pressure	44	72.77	8.733				
post diastolic blood pressure	44	68.82	6.638				
Valid N (listwise)	43						

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig. <sup>a,b</sup>	Decision
1	The median of differences between pre systolic bp and post systolic bp equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.
	a. The significance level is .050. b. Asymptotic significance is displayed.			

a. The significance level is .050.

b. Asymptotic significance is displayed.

Graph 2 and 3. Mean Difference between Systolic and Diastolic Blood Pressure Pre and Post yoga



### DISCUSSION

There was a significant difference in the pre perceived stress compared to the post yoga perceived stress ( $p<0.000$ ). Students were able to calm their stressors and improve their blood pressure following one sessions of yoga, which reflects the data in previous studies. Yoga heavily influences blood pressure including diastolic and systolic, heart rate, and perceived stress shown in this study where acute yoga influenced these variables. Typically testing would be more effective if there were multiple yoga sessions, longer sessions, and more participants. Our results suggest that future studies and interventions on stress management should include an acute yoga session. Further research is clearly warranted.