

4-1-2015

# An Investigation to Compare Blood Pressure and Pulse Before and After Concentrative Meditation

Candice Welden

*Montana Tech of the University of Montana*

Follow this and additional works at: [http://digitalcommons.mtech.edu/stdt\\_rscheday\\_2013](http://digitalcommons.mtech.edu/stdt_rscheday_2013)



Part of the [Psychology Commons](#)

---

## Recommended Citation

Welden, Candice, "An Investigation to Compare Blood Pressure and Pulse Before and After Concentrative Meditation" (2015). *Posters*.  
9.  
[http://digitalcommons.mtech.edu/stdt\\_rscheday\\_2013/9](http://digitalcommons.mtech.edu/stdt_rscheday_2013/9)

This Poster is brought to you for free and open access by the Highlands College at Digital Commons @ Montana Tech. It has been accepted for inclusion in Posters by an authorized administrator of Digital Commons @ Montana Tech. For more information, please contact [sjuskiewicz@mtech.edu](mailto:sjuskiewicz@mtech.edu).

# AN INVESTIGATION TO COMPARE BLOOD PRESSURE AND PULSE BEFORE AND AFTER CONCENTRATIVE MEDITATION

STUDENT RESEARCHER: CANDICE WALDEN || FACULTY SPONSOR: DR. ELYSE LOVELL

## ABSTRACT

The purpose of this study was to understand if meditation over a short period of time, thirty days, can result in a significant reduction in stress. Does meditation decrease blood pressure, heart rate, and stress levels concerning undergraduate college students? The participants of this research consisted of (N=5) undergraduate college students. Blood pressures were taken on the first day of the study before and after meditation, and on the final day of the study before and after meditation. Participants recorded their heart rate each day over the 30 day study. The Perceived Stress Scale (PSS14) was administered at the beginning of the study and at the close of the study to measure the participants' stress level over the time of the study. The results of this study showed that the participants' blood pressure and pulse rate were reduced after partaking in concentrative meditation before and after each day of the study and over the course of the study. Stress levels were also reduced over the thirty day period.

## BACKGROUND

Stress widely affects college students' self-esteem and their success academically. Stress is a huge obstacle for college students as they deal with an assortment of academic, personal, and social challenges. (Oman, Shapiro, Thoresen, Plante, and Flinders, 2008). A study done in 2004, concluded that stress is the most common obstacle to a students' performance academically. (Oman, et al., 2008). Some stress is necessary for college students to perform well academically and in their personal lives. However, too much stress can have negative effects on a person's physical and mental health (Oman, et al., 2008). The good news is that research has shown "meditative practices have been linked with a wide range of positive outcomes related to effective functioning, including academic performance, concentration, perceptual sensitivity, reaction time, memory, and self-esteem" (Oman, et al., 570). A study was done, on older adults that concluded people who participate in concentrative meditation have better attention than the participants that did not undergo meditation (Prakash, R., Rastogi, P., Dubey, I., Abhishek, P., Chaudhury, P., and Small, B., 2012). In another journal article researchers concluded that people who are involved in some type of meditation are less stressed and lead healthier lives and are less likely to face cardiorespiratory problems (Noble, D.J., Sawchuk, M., O'Neill, B., and Hochman, S., 2012). Individuals who practice good nutrition, exercise regularly, and often partake in meditation can transform stress into relaxation and have a good influence on that individuals' overall health (Wimalawansa, S., 2012).

## METHODS

The purpose of this comparative analysis was to conclude if concentrative meditation would allow for reduction in blood pressure, pulse rate, and the participants' overall stress reduction over a thirty day period. An IRB application was sent and approved by Montana Tech and the University of Montana's Institutional Review Board. A sample of (N=5) undergraduate college students consisting of (n=4) females and (n=1) male were administered a PSS-14 (Depression Assessment) before and after 30 days of in home concentrative meditation. During the pre-meditation study there were a total of (n=7), however during that study one student left the room during the session.

The second student did not attend the post meditation session and therefore did not complete the case study. The participants met in a pre-meditation session where they partook in the survey, blood pressure (before and after meditation), 30 minutes of concentrative meditation, and were taught how to take their pulse for their 30 day in home meditation sessions. After the 30 day in home concentrative meditation, the participants met again and participated in a post survey and 30 minute concentrative meditation session where their blood pressure was taken before and after the meditation session.

## RESULTS

Table 1- Depression Assessment survey results for pre concentrative meditation (2-26-15) and post concentrative meditation (3-27-15).

Perceived Stress Scale Results	(1 to 5 scale average)	Pre Meditation	Post Meditation
		2/26/2015	3/27/2015
1-upset/unexpected occurrence		4.0	2.6
2-unable to control important things in life		3.0	2.2
3-felt nervous and "stressed"		4.0	3.2
4-dealt w/ day to day problems successfully		2.2	2.6
5-effectively coping with important changes		2.2	2.6
6-confident w/ ability to handle personal problems		2.4	2.2
7-Felt things going your way		2.2	3.0
8-not cope w/ all the things you have to do		2.6	2.4
9-able to control irritations in your life		2.0	2.6
10-felt you were on top of things		2.2	2.2
11-how often became angered by things outside your control		3.8	2.4
12-frequently you think about things you have to accomplish		4.0	4.0
13-able to control the way you spend your time		1.8	2.6
14-frequency of feeling difficulties piling up go high you cannot overcome them		3.0	3.0

Showed a reduction in stress level  
Showed an increase in stress level (week of mid-terms).  
Showed no change in stress level

Table 2- Blood Pressure results for pre and post concentrative meditation sessions (2-26-15 and 3-27-15).

Participants	Pre 2/26/2015		Post 3/27/2015	
	Before	After	Before	After
2	133/68	129/71	119/73	111/62
3	116/81	108/76	108/73	104/41
4	117/74	122/77	125/77	119/67
5	153/82	141/81	149/83	139/88
7	135/80	120/65	130/80	130/70

Table 3- Average participants pulse rates during 30 day, in home, concentrative meditation.

Participants	Before Meditation	After Meditation
2	66	65
3	85	74
4	71	63
5	80	73
7	73	60

## CONCLUSION

Upon the conclusion of this study it may be recognized that concentrative meditation does reduce blood pressure, pulse rate, and the overall stress that undergraduate college students feel. According to the results, the majority of the participants experienced a reduction in blood pressure and pulse rate after completing 30 minutes of concentrative meditation.

Based on the survey results I have concluded that my fellow college students do sometimes feel stressed when dealing with day to day situations. It is normal for an individual to feel some levels of stress because it encourages them to do better, work harder, and deal with stress on some level. However it is when an individual becomes too stressed that their overall health is in jeopardy. Meditation in its various forms can help an individual take a "time out", de-stress, and move on with their lives.

## FUTURE STUDIES

It is acknowledged that the sample size was a limitation to this study. An additional study will be conducted in the fall of 2015 pending an IRB approval of revisions to this study. In the continuing research, the sample will be taken from undergraduate college students in Introduction to Psychology. During this case study, a control group will be used for comparison with one Introduction to Psychology class that participates in the study, and one that does not participate in class meditation. This will be an extra credit option for students. The same variables will be considered as in the first study, and retention rates will also be measured. Considering the results of this case study, this is a good start to furthering research in concentrative meditation and reducing an individual's stress level.

## REFERENCES

- Goswami, D.P., Tibarewala, D.N., and Bhattacharya, D.K. (2011). Analysis of heart rate Variability signal in meditation using second-order difference plot. *Journal of Applied Physics*, 109(11) 114703. doi:10.1063/1.3586270
- Margolin, I. (2014). Collage as a method of inquiry for university women practicing Mahavakyam meditation: Ameliorating the effects of stress, anxiety, and sadness. *Journal of Religion and Spirituality in Social Work*, 33(3/4)254-273. doi:10.1080/1542632.2014.930632
- Oman, D., Shapiro, S.L., Thoresen, C.E., Plante, T.G., and Flinders, T. (2008). Meditation lowers stress and supports forgiveness among college students: A randomized controlled trail. *Journal of American College Health*, 56(5), 569-578
- Prakash, R., Rastogi, P., Dubey, I., Abhishek, P., Chaudhury, P., and Small, B. (2012). Long-term concentrative meditation and cognitive performance among older adults: Aging, Neuropsychology, and Cognition: *A Journal on Normal and Dysfunctional Development*. 479-949 doi:10.1080/13825585.2011.630932
- Wimalawansa, S. (2012). Dietary, Lifestyle, Medical, and Stress-Relief Choices in Promoting Health: *The FASB Journal*. 26:377.2
- Noble, D.J., Sawchuk, M., O'Neill, B., and Hochman, S. (2012). Isolating a role for deep breathing in reducing activation of stress-related limbic circuits: *The FASB Journal*. 2012; 26:891.22