



# Effects of Breathwork During a Posture-Based Yoga Session on Psychological Resources and Emotional Experience

Orianna Olson<sup>1</sup>; Beth Lewis, PhD<sup>1</sup>  
<sup>1</sup>University of Minnesota



## Background

- Yoga has been found to increase positive mental health outcomes such as mindfulness, positive affect and well-being (Domingues, 2018; Hendriks et al., 2017).
- Yoga is an umbrella term which can include a combination of practices such as breathwork, postures, and meditation (Schmalzl et al., 2015).
- Few studies have analyzed the three main components of yoga individually or synergistically, so little is known about the role each of these components plays on yoga intervention outcomes (Elwy et al., 2014; Field, 2016; Schmalzl et al., 2015).

## Purpose

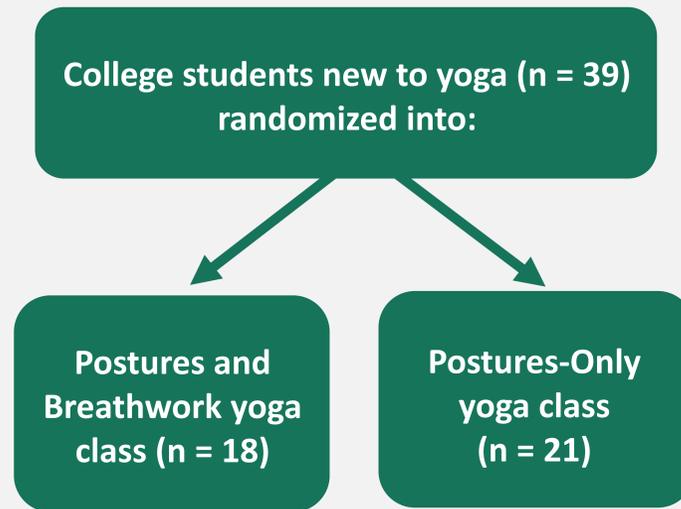
To examine the synergistic effect of breathwork and postures on emotional experience and psychological resources of yoga beginners following a single yoga class.

## Participants

- n = 39 college students new to yoga
- Inclusion criteria:
  - 18-24 years old
  - Participated in no more than 5 yoga classes
  - Able to participate in 60-minutes of light physical activity
- Recruited mostly from the School of Kinesiology; Highly active sample assessed by the Godin Leisure Time Exercise Questionnaire



Figure 1. Study Design



## Procedures

**Postures-Only Class:** 15 min. warm-up -> 30 min. postures -> 15 min. cool down/savasana

**Postures+Breathwork Class:** 15 min. guided breathwork warm-up (diaphragmatic 1:1 breathing). Rest of class was identical to postures-only class with the addition of cues related to the breathwork from the warm-up.

### Affect Measures:

- Feeling Scale (FS)
- Exercise-Induced Feelings Inventory (EIFI)
- State-Trait Anxiety Inventory (S-AI)

### Psychological Resource Measures:

- State Mindfulness Scale (SMS)
- Peace Subscale of the Functional Assessment of Chronic Illness Therapy-Spiritual Well-being Scale (FACIT-Sp)
- Connectedness portion of the Social Connectedness Scale (SCS)

All measures were delivered directly before and after the yoga session.

## Data Analysis

### Primary Analysis:

Between groups ANOVAs were conducted to examine differences in affect and psychological resources following the posture-based yoga sessions with or without breathwork. Pre-class scores were used as covariates in all analyses.

### Secondary Analysis:

Within groups ANOVAs were conducted for affect and psychological resources to examine the effect of the yoga class regardless of group assignment.

## Results

### Demographics:

- Majority female (65%) and Caucasian (69%); 8% identified as Hispanic
- Mean age = 19.7 years; Most were underclassmen (59%)

### Primary Aim:

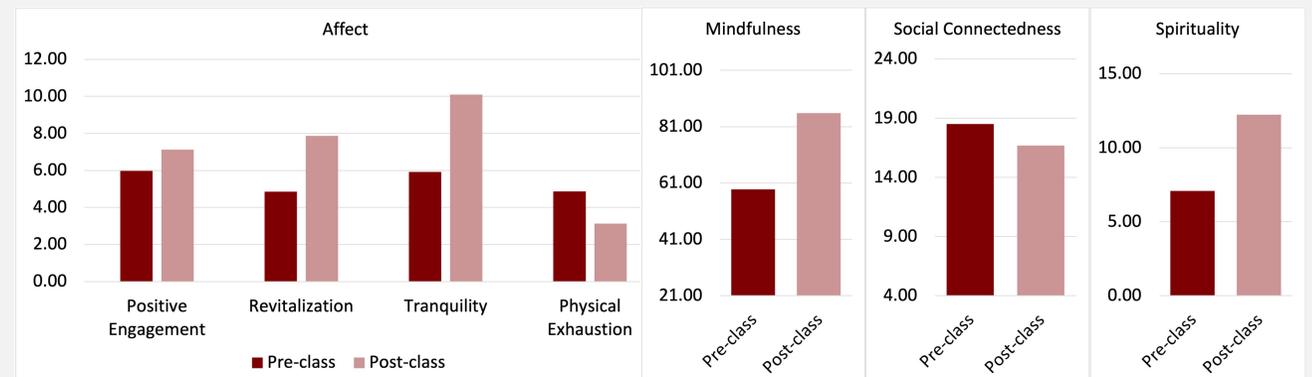
- **Affect:** No significant differences between conditions on general affect, anxiety, revitalization, tranquility, and physical exhaustion. Post-class positive engagement scores of the EIFI were significantly higher ( $p = 0.022$ ) in the postures-only group compared to the postures+breathwork group.
- **Psychological Resources:** No significant differences in psychological resources between conditions.

### Secondary Aim:

- **Positive Affect:** Significant increases in general affect ( $p < .001$ ) and all three positive subscales of the EIFI (positive engagement ( $p < .001$ ), revitalization ( $p < .001$ ), tranquility ( $p < .001$ )) pre- to post-class regardless of group assignment.
- **Negative Affect:** Significant decreases in physical exhaustion ( $p < .001$ ) and anxiety ( $p < .001$ ) pre- to post-class.
- **Psychological Resources:** Mindfulness ( $p < .001$ ) and spirituality ( $p < .001$ ) significantly increased from pre- to post-class. Social connectedness significantly decreased ( $p = 0.03$ ).

Figure 2. Full Sample Mean Scores by Variable

All pre- to post-class changes are statistically significant.



## Conclusions

- Psychological effects of the posture-based yoga class did not differ with the inclusion of guided breathwork.
- Both yoga classes improved emotional experience and psychological resources.
- Yoga can increase positive mental health outcomes for beginner students in as little as one class.
- More research is needed to understand how the many characteristics of yoga influence intervention outcomes.



## References

- Domingues, R. B. (2018). Modern postural yoga as a mental health promoting tool: A systematic review. *Complementary Therapies in Clinical Practice, 31*, 248–255. <https://doi.org/10.1016/j.ctcp.2018.03.002>
- Elwy, A. R., Groessl, E. J., Eisen, S. V., Riley, K., Maiya, M., Lee, J. P., Sarkin, A., & Park, C. L. (2014). A systematic scoping review of yoga intervention components and study quality. *American Journal of Preventive Medicine, 47*(2), 220–232. <https://doi.org/10.1016/j.amepre.2014.03.012>
- Field, T. (2016). Yoga research review. *Complementary Therapies in Clinical Practice, 24*, 145–161. <https://doi.org/10.1016/j.ctcp.2016.06.005>
- Hendriks, T., Jong, J. de, & Cramer, H. (2017). The effects of yoga on positive mental health among healthy adults: A systematic review and meta-analysis. *The Journal of Alternative and Complementary Medicine, 23*(7), 505–517. <https://doi.org/10.1089/acm.2016.0334>
- Schmalzl, L., Powers, C., & Blom, E. H. (2015). Neurophysiological and neurocognitive mechanisms underlying the effects of yoga-based practices: towards a comprehensive theoretical framework. *Frontiers in Human Neuroscience, 9*(235), 1–19. <https://doi.org/10.3389/fnhum.2015.00235>