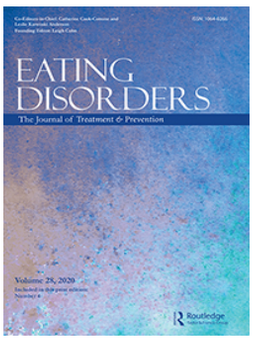

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Future directions for research on yoga and positive embodiment

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ABSTRACT

This article provides the concluding thoughts on the special issue, *Yoga for Positive Embodiment in Eating Disorder Prevention and Treatment*, which illustrate the progress being made on the relationship between yoga practice and the different indicators of positive embodiment that is relevant for the prevention and treatment of eating disorders. Based on the current body or work, we offer recommendations for the next steps for researchers for population-based, qualitative, and prevention and intervention research.

KEYWORDS

Yoga; eating disorder; prevention; treatment; embodiment

The articles in this special issue, *Yoga for Positive Embodiment in Eating Disorder Prevention and Treatment*, illustrate the progress being made on the relationship between yoga practice and the different indicators of positive embodiment that is relevant for the prevention and treatment of eating disorders. There is a growing understanding of positive embodiment and associated constructs, as well as an increasingly sophisticated conceptualization of the potential mechanisms at work in the enhancement of embodied experience that appears to be associated with yoga practice (Borden & Cook-Cottone, 2020; Cox & Tylka, 2020; Cook-Cottone, 2020; Perry & Cook-Cottone, 2020; Piran & Neumark-Sztainer, 2020). There is also a body of empirical evidence including cross-sectional, longitudinal, intervention-based, and experimental studies offering preliminary support for the positive relationship between yoga practice and outcomes such as body appreciation and reduced eating disorder risk and symptomatology (Borden & Cook-Cottone, 2020).

The articles in this special issue have offered multiple theoretical frameworks that can be applied to examine and test this relationship (Cox & Tylka, 2020; Perry & Cook-Cottone, 2020; Piran & Neumark-Sztainer, 2020). Yet, in

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some ways, it feels like we are just getting started. The diversity of yoga practices and approaches, as well as the complex interactions among the components that make up a yoga practice, open the door for much more nuanced and rigorous research to take place as we move into the next decade of this work. Here we offer some suggestions on how to move this work forward in a systematic manner that will play a meaningful role in eating disorder treatment and prevention.

First, have we done enough population-based research to understand how yoga may be associated with body image, disordered eating, and embodiment among individuals representing diverse social identities (e.g., ethnicity, race, gender identity, sexual orientation, age, body size, socioeconomic status, and their interactions), as well as higher risk groups? Is the body of qualitative work sufficient enough to detail the connections between yoga and embodiment, particularly mechanisms of action (e.g., mediators and moderators) and ways to improve outcomes? It is clear that we need more research in these areas (Cox & Tylka, 2020; Neumark-Sztainer et al., 2018; Webb et al., 2020). Moreover, do we have enough well-designed, sufficiently powered research conducted in both eating disorder prevention and treatment contexts to conclude that yoga effectively contributes to a positive embodiment, prevents disordered eating, and supports treatment? At this point, the most recent comprehensive review and meta-analysis (Borden & Cook-Cottone, 2020) identified 43 articles, only 13 of those are randomized controlled trials representing a broad spectrum in terms of quality of evidence. Going forward, we need to increase the employment of rigorous experimental designs in population-based research. Empirical studies need to include appropriate comparison groups (i.e., other types of body image interventions, other movement modalities), use random assignment, control for key confounding variables (e.g., age, body image, gender), and describe the content of the yoga practice or intervention in detail. Studies with control groups that consist of participants that are adequately matched to those who are in the yoga intervention groups (e.g., those with the same level and type of risk or disordered eating) are needed. When these design elements are missing, we are precluded from drawing more confident conclusions about the effects of yoga on positive embodiment and disordered eating variables.

Second, we need to pay more careful attention to individual factors that potentially moderate the impact of yoga on positive embodiment. Future research needs to better account for characteristics such as participants' age, race, gender, gender identity, exercise behavior, disordered eating history, and extent of pathology, traumatic experiences, body size, and protective characteristics like body appreciation and self-compassion. Designing studies that incorporate larger sample sizes will allow us to test for any number of individual factors that potentially moderate the effect of yoga. Further, how can research address social justice, inclusivity, and access issues (Webb et al.,

2020). These findings will then inform the way that we customize recommendations for yoga practices for specific segments of the population.

Third, we need to take a much closer look at the mechanisms that are responsible for the relationship between yoga practice and positive embodiment and ground our investigations in strong theoretical or conceptual frameworks. How can we better isolate and test the potential mechanisms responsible such as the climate of the class, the characteristics of the instructor/other participants, the intensity of the practice, the content and tone of the instruction, the types of asanas practiced, and the state experiences of the participants throughout the class (Cook-Cottone & Douglass, 2017; Cox & Tylka, 2020)? For example, the Cox et al. (2020) RCT found that mindfulness-based yoga instruction showed better outcomes than appearance-based instruction. What is the role of yoga philosophy? What are the most potent ingredients in a yoga practice for cultivating positive embodiment (e.g., sensation focus, mindfulness, breathwork, postures; Cook-Cottone & Douglass, 2017)? Is there a prescriptive approach in which certain types of classes are recommended for particular levels of risk, symptomatic presentation, or stage of recovery? What are the contraindications across level of risk, symptom presentation, and stage of recovery? Research is needed to better understand how yoga affects embodiment, risk, and treatment outcomes associated with the various eating disorder diagnostic categories throughout the etiological and treatment trajectories of each disorder.

Fourth, is there a unique approach to teaching yoga for those at-risk for and manifesting disordered eating that can more specifically and intentionally increase embodiment for this population? For example, is it important for yoga instructors to teach to experiences such as acceptance of the body, sensations, and emotions; distress tolerance; riding the wave of emotion; self-worth, self-determination and agency, and coping during yoga classes (Cook-Cottone & Douglass, 2017). For example, a critical aspect to risk reduction and recovery associated with embodiment is getting comfortable with the uncomfortable whether it be body sensations, emotions, life experiences, or anxieties about the future (Cook-Cottone, 2017). Can yoga teachers be positive coaches teaching yoga students how to approach discomfort through yoga practices such as breathing through a posture, being with the sensations in a posture, engaging in and deepening a posture, and attending to interoceptive cues and easing out of a posture when that is best? How can this type of prescriptive, targeted approach to yoga instruction be studied? Even more nuanced, can we train yoga teachers to offer instruction in ways that support embodiment and decrease risk, later assessing their effectiveness compared to yoga teachers who do not have this training?

Fifth, where should these studies be conducted? To date, many of the studies have been conducted in settings that are not ideal for rigorous, controlled research such as for-profit treatment centers, yoga studios, and

community centers. What are the setting-based factors that contribute to or detract from the influences of yoga on positive embodiment and risk and maintenance of eating disordered behaviors (e.g., the impact of mirrors; see Frayeh & Lewis, 2018). Cook-Cottone and Douglass (2017) propose a host of factors related to the yoga setting that may matter and should be considered for investigation (e.g., content of marketing materials, images on walls, negative or positive body talk, diet talk, fasting and restrictive eating practices, the range of sizes in products sold at studios, and the embodiment of instructors as well as the range of sizes, shapes, and other aspects of diversity embodied by instructors).

Sixth, to date, the concept of dosage has not been adequately addressed (Cook-Cottone, 2013). Is there an optimal dosage of yoga per week that provides a benchmark for achieving therapeutic results including days per week and length of sessions (e.g., 2 to 3 days a week for 60 to 75 minutes per session; Cook-Cottone, 2013)? How long does an individual need to practice yoga before there is sufficient experience to protect or create change (6 months, a year, several years)? Do those who institute a home practice fair better than those who do not (Ross et al., 2012)? Is there a dosage that is too low to make a difference (e.g., <2 times a week) or so high that risk is increased, or pathology is enhanced (e.g., every day for more than 90 minutes a day)?

Seventh, what is the role of contemporary neuroscience? Sullivan et al. (2018) propose a compelling model for the convergence of traditional yoga wisdom and contemporary neuroscience for self-regulation and resilience through yoga practice. They assert that yoga practice integrates bottom-up neurophysiological and top-down neurocognitive mechanisms leading to increased well-being. Further, using the polyvagal theory, they posit that yoga practice can optimally activate the polyvagal system in the promotion of mental health. A recent review of studies examining the effects of yoga practice on brain structures, function, and cerebral blood flow found that collectively these studies demonstrate a positive effect of yoga practice on the structure and/or function of the hippocampus, amygdala, prefrontal cortex, cingulate cortex, and brain networks including the default mode network (Gothe et al., 2019). Disturbances in these areas and processes of the brain are all implicated in the risk and manifestation of eating disorders (Blume et al., 2019; Donnelly et al., 2018; Kot et al., 2020). Accordingly, future research should capitalize on neuroscientific models and techniques to assess the effects of yoga practice among those at risk for and struggling with disordered eating.

Eighth, as clear in the introduction of this special series (Neumark-Sztainer et al., 2020), like us, many researchers studying yoga have a personal practice and have life experience that has led them to study yoga as a prevention and treatment intervention for disordered eating. Intentionally, we began this series explicating our reasons for doing this work taking the first step in minimizing bias – acknowledging it. Now we ask: How can our lines of inquiry, designs, and

standards for research provide a stringent and reliable check on our own biases as we explore these questions? Going forward, researchers should strive to reduce bias and increase the opportunity for replication at each step of study development and implementation using registered, RCT designs, blinding participants and instructors to study hypotheses when possible, having naïve research assistants deliver assessments, utilizing sufficient sample sizes, disclosing all measures used, manualizing and sharing the yoga intervention, reporting all outcomes including those that show null or negative effects, providing data for re-analysis, and exploring significant and clinically meaningful outcomes (Ioannidis et al., 2014; Klein & Cook-Cottone, 2013). As editors, we should select critical reviewers and those steeped in knowledge about yoga study designs and shortcomings as well as publish studies with null or negative outcomes.

Moving forward systematically will require challenging, incremental work. It must also balance the rigorous approaches and leave space for innovations and novelty meaning that the need for RCTs must be balanced with space for more pilot studies and creative research. In yoga this is called *sthira and suka*, balancing structure and ease. Much of this research will necessitate measurement development (e.g., broader measures of embodiment), more creative research designs, and using strong theory to inform the research questions we pose. These systematic lines of research will then allow us to continue to refine and build new theories providing better frameworks for the development of yoga interventions to treat and prevent eating disorders. We look forward to the future decades of this work and offer this special issue as a platform for the commencement of the next generation of yoga, embodiment, and eating disorder research.

References

Blume, M., Schmidt, R., & Hilbert, A. (2019). Abnormalities in the EEG power spectrum in bulimia nervosa, binge-eating disorder, and obesity: A systematic review. *European Eating Disorders Review*, *27*(2), 124–136. https://doi.org/10.1002/erv.2654

Borden, A., & Cook-Cottone, C. P. (2020). Yoga and eating disorder prevention and treatment: A comprehensive review and meta-analysis. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 400–437.

Cook-Cottone, C. P. (2013). Dosage as a critical variable in yoga therapy research. *International Journal of Yoga Therapy*, *23*, 11–12.

Cook-Cottone, C. P. (2017). Yoga for the re-embodied self: The therapeutic journey home. *Yoga Therapy Today, Winter*, *2016*, 40–42.

Cook-Cottone, C. P. (2020). *Embodiment and the treatment of eating disorders: The body as a resource in recovery*. Norton Books.

Cook-Cottone, C. P., & Douglass, L. L. (2017). Yoga communities and eating disorders: Creating safe space for positive embodiment. *International Journal of Yoga Therapy*, *27*(1), 87–93. https://doi.org/10.17761/1531-2054-27.1.87

Cox, A. E., & Tylka, T. L. (2020). A conceptual model describing mechanisms for how yoga practice may support positive embodiment. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 376–399.

Cox, A. E., Ullrich-French, S., Cook-Cottone, C., Tylka, T. L., & Neumark-Sztainer, D. (2020). Examining the effects of mindfulness-based yoga instruction on positive embodiment and affective reposes. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 458–475.

Donnelly, B., Touyz, S., Hay, P., Burton, A., Russell, J., & Caterson, I. (2018). Neuroimaging in bulimia nervosa and binge eating disorder: A systematic review. *Journal of Eating Disorders*, *6*(1), 3. https://doi.org/10.1186/s40337-018-0187-1

Frayeh, A., & Lewis, B. (2018). The effect of mirrors on women's state body image response to yoga. *Psychology of Sport and Exercise*, *35*, 47–54. https://doi.org/10.1016/j.psychsport.2017.11.002

Gothe, N. P., Khan, I., Hayes, J., Erlenbach, E., & Damoiseaux, J. S. (2019). Yoga effects on brain health: A systematic review of the current literature. *Brain Plasticity*, *5*(1), 105–122. https://doi.org/https://dx.doi.10.3233%2FBPL-190084

Ioannidis, J. P., Munafo, M. R., Fusar-Poli, P., Nosek, B. A., & David, S. P. (2014). Publication and other reporting biases in cognitive sciences: Detection, prevalence, and prevention. *Trends in Cognitive Sciences*, *18*(5), 235–241. https://doi.org/10.1016/j.tics.2014.02.010

Klein, J., & Cook-Cottone, C. (2013). The effects of yoga on eating disorder symptoms and correlates: A review. *International Journal of Yoga Therapy*, *23*(2), 41–50.

Kot, E., Kucharska, K., Monteleone, A. M., & Monteleone, P. (2020). Structural and functional brain correlates of altered taste processing in anorexia nervosa: A systematic review. *European Eating Disorders Review*, *28*(2), 122–140. https://doi.org/10.1002/erv.2713

Neumark-Sztainer, D., Watts, A. W., & Rydell, S. (2018). Yoga and body image: How do young adults practicing yoga describe its impact on their body image. *Body Image*, *27*, 156–168. https://doi.org/https://dx.doi.10.1016%2Fj.bodyim.2018.09.001

Perry, I., & Cook-Cottone, C. P. (2020). Eating disorders, embodiment, and yoga: A conceptual overview. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 315–329.

Piran, N., & Neumark-Sztainer, D. (2020). Yoga and the experience of embodiment: A discussion and possible links. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 330–348.

Ross, A., Friedman, E., Bevans, M., & Thomas, S. (2012). Frequency of yoga practice predicts health: Results from a national survey of yoga practice. *Evidence-based Complementary and Alternative Medicine*, 10, 1–10. https://doi.org/10.1155/2012/983258

Sullivan, M. B., Erb, M., Schmalzl, L., Moonaz, S., Noggle Taylor, J., & Porges, S. W. (2018). Yoga therapy and polyvagal theory: The convergence of traditional wisdom and contemporary neuroscience for self-regulation and resilience. *Frontiers in Human Neuroscience*, *12*, 67. https://doi.org/10.3389/fnhum.2018.00067

Webb, J. B., Rogers, C. B., & Thomas, E. V. (2020). Realizing yoga's all-access pass: A social justice critique of Westernized yoga and inclusive embodiment. *Eating Disorders: The Journal of Treatment and Prevention*, *28*(4), 349–375.