**Interventions**

Articles testing the applied science and implementation of mindfulness-based interventions


mediating mothers of preschool children. Journal of Child and Family Studies. [link]


**METHODS**

Articles developing empirical procedures to advance the measurement and methodology of mindfulness


Mount Sinai School of Medicine (J. Weiss, PI). Effects of mindfulness training on chronic inflammation in HIV-infected adults. NIH/NCCIH project 1R21AT008540-01A1. [link]

Northwestern University (D. Victorson, PI). Reducing the effects of active surveillance stress, uncertainty and rumination through engagement in mindfulness education. NIH/NCI project 1R01CA193331-01A1. [link]
Highlights
A summary of select studies from the issue, providing a snapshot of some of the latest research findings

Pain is a common and often complex medical complaint. Previous studies demonstrate the possible pain-reducing effects of mindfulness-based interventions, but little is known about how these interventions actually work. Is mindful awareness of their “active ingredient,” or is it slowed breathing, or even just the expectancy of a benefit?

Zeidan et al. [Journal of Neuroscience] compared the changes in pain sensitivity resulting from a genuine mindfulness intervention with the changes resulting from a sham mindfulness intervention and two other control conditions. Participants rated their subjective pain in response to an unpleasant heat stimulus while undergoing functional Magnetic Resonance Imaging (fMRI). They also completed the Freiburg Mindfulness Inventory prior to initial training and at the end of their final fMRI session.

A racially diverse cohort of 75 healthy, meditation-naïve young adult men and women were randomly assigned to either mindfulness meditation, a sham mindfulness meditation, placebo conditioning, or listening to an audio book. Genuine mindfulness meditation training consisted of four 20-minute sessions involving a breath-focused sitting meditation along with didactic instruction in non-judgmental attention.

Sham meditation training involved four 20-minute sessions of alleged “mindfulness meditation” that consisted of merely sitting upright and taking a deep breath every few minutes without any didactic instruction. Placebo conditioning involved four 20-minute conditioning sessions in which an alleged “analgesic cream” (in actuality, only petrolatum jelly) was applied to the skin and participants were exposed to a series of heat stimuli that were covertly and progressively lowered in temperature over the course of the sessions. Control participants listen to four 20-minute audio recordings from a book.

In a separate final assessment session after training completion, all the participants underwent fMRI scanning while exposed to an unpleasant heat stimulus. This was done both before and after using the techniques (e.g., real or sham meditation or placebo) they had trained on. Participants rated their pain intensity and unpleasantness in response to the heat stimulus on a 10-point scale.

Mindfulness meditation produced significantly greater decreases in pain intensity (-27%) than sham meditation (-8%) or placebo (-11%), as well as significantly greater decreases in pain unpleasantness (-44%) than sham meditation (-27%) or placebo (-13%). The control group, in contrast, experienced increased pain intensity (+14%) and unpleasantness (+18%). Mindfulness meditators increased their mindfulness scores by 16%, a significantly greater increase than either the controls (2%), sham meditators (0.03%) or the placebo (3%).

Brain imaging results showed that mindfulness participants had significantly greater left dorsolateral prefrontal cortex, thalamus, and periaqueductal gray matter deactivation and significantly greater anterior cingulate cortex, bilateral anterior insula, and putamen activation than controls, sham meditators, and placebo users. These differences reflect a deactivation of low-level sensory and pain processing areas, and increased activation of areas related to the cognitive control of pain. Mindfulness meditation also significantly reduced global cerebral blood flow (-21%) compared to sham meditation (-
7%), placebo (-2%) or the control condition (-4%). Sham meditation pain reduction was significantly correlated with lowered respiration rate, whereas mindfulness pain relief was not, suggesting that sham meditation reduces pain via the relaxation response, whereas mindfulness meditation reduces pain via cognitive control.

This elegantly designed study demonstrates that mindfulness-based acute pain reduction is both greater than and distinct from placebo-based or relaxation-based acute pain reduction. Mindfulness meditation’s unique, distinctive pattern of brain activation strengthens the case that mindfulness itself is an active ingredient over and above any relaxation or expectancy components.

Working memory capacity is a measure of one’s ability to temporarily hold information in mind while completing a cognitive task. There seems to be some conceptual overlap between the focused attention required for working memory and the moment-to-moment attention that is an integral part of mindfulness. Working memory plays crucial roles in learning, cognitive development, reasoning, comprehension, and academic performance, and any intervention that can improve working memory is of great interest to specialists in child development. In a randomized, controlled study, Quach, et al. (Journal of Adolescent Health) investigated whether an MBI can improve working memory in adolescents.

The 186 participants, primarily Hispanic and Asian junior high students (62% female; average age = 13) from predominantly low-income households, were randomly assigned to either mindfulness meditation, hatha yoga, or a wait-list control. The active intervention participants learned and practiced either mindfulness meditation or hatha yoga during eight 45-minute twice-a-week training sessions, while control participants attended their regular physical education classes. Mindfulness meditation training was based on a truncated, modified Mindfulness Based Stress Reduction (MBSR) curriculum that excluded hatha yoga. Hatha yoga training included an emphasis on non-judgmental attention to body posture and movement. Both interventions encouraged 15-30 minutes of daily home practice.

Before and after the inventions, participants completed a computerized test of working memory requiring them to memorize series of visually presented letters while simultaneously solving arithmetic equations. Working memory capacity was measured by the total number of letters participants recalled in their correct order within each presentational set, yielding a working memory score that could range from 0 to 75. Participants also completed self-report measures of perceived stress and anxiety along with the Child Acceptance and Mindfulness Measure (CAMM), a self-report measure of nonjudgmental acceptance of internal experience.

Mindfulness meditation participants showed significant improvements in objectively assessed working memory scores (partial η² = .24), whereas hatha yoga (partial η² = .11) and control participants (partial η² = .01) did not show significant improvements. Mindfulness participants increased their average working memory capacity by 29%, whereas yoga participants increased theirs by only 11% and control group scores declined by 5%. Although all groups improved over time on measures of perceived stress and anxiety, there were no differences in improvement between groups. The CAMM results were discarded due to low internal consistency.

This study shows that mindfulness meditation significantly improved an objective measure of working memory in a sample of low-income, predominantly minority adolescents. Follow-up studies have the opportunity employ an alternative measure of mindfulness, explore whether the mindfulness-facilitated increase in working memory persists over time, and examine whether it impacts school performance.
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<td><strong>Mindful Mental Health Professionals</strong></td>
<td><strong>CEB Teacher Training in Spain</strong></td>
<td><strong>Post Doc Fellow Needed UofCalgary</strong></td>
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<td>If you are a Mental Health Professional (Masters’ level or higher) with an ongoing mindfulness practice for at least 2 months, please take 15-20 minutes to fill out the following anonymous survey. After survey completion, sign up to receive a useful electronic booklet on mindfulness.</td>
<td>Cultivating Emotional Balance Teacher Training (CEBTT) next fall from October 17th November 20th, 2016 at Fundación Sakya in Pedrequer (Alicante), Spain, led by Dr. Alan Wallace and Eve Ekman, Ph.D.</td>
<td>We are looking for a postdoctoral fellow in the area of Integrative Oncology, under Dr. Linda E. Carlson, Professor at University of Calgary and holder of the Enbridge Research Chair in Psychosocial Oncology as study coordinator for the research study Preference-Based Multi-Site Randomized Comparative Effectiveness Trial (CET) of Mindfulness-Based Cancer Recovery (MBCR) vs. Tai Chi/Qigong (TCQ) in Cancer Survivors.</td>
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<td><strong>INFO:</strong> Complete the survey here: <a href="https://mnsu.co1.qualtrics.com/SE/?SID=SV_3DeCdiP55wKEknj">https://mnsu.co1.qualtrics.com/SE/?SID=SV_3DeCdiP55wKEknj</a></td>
<td><strong>INFO:</strong> More info to apply, email <a href="mailto:ceb.info@cultivatingemotionalbalance.org">ceb.info@cultivatingemotionalbalance.org</a></td>
<td><strong>INFO:</strong> Contact Linda E. Carlson to apply or for more information: <a href="mailto:lcarlso@ucalgary.ca">lcarlso@ucalgary.ca</a></td>
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<td><strong>New Book! Mindfulness for Teachers</strong></td>
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<td>Based upon the author's extensive experience as a mindfulness practitioner, teacher, teacher educator and scientist, this book offers valuable research-based information about how mindfulness can help teachers manage the stressful demands of the classroom, cultivate an exceptional learning environment, and revitalize teaching and learning.</td>
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