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**New! Cites p1**

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**Interventions**

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

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Fissler, M., Winnebeck, E., Schroeter, T.,...,Barnhofer, T. (2016). *An investigation of the effects of brief mindfulness training on self-reported interoceptive awareness, the ability to decenter, and their role in the reduction of depressive symptoms*. Mindfulness. [link]


Journal of Traditional and Complementary Medicine. [link]


ASSOCIATIONS
Articles examining the correlates and mechanisms of mindfulness


**METHODS**

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


**REVIEWS**

Articles reviewing content areas of mindfulness or conducting meta-analyses of published research


**TRIALS**

Research Studies newly funded by the National Institutes of Health (JUN 2016)

California Pacific Medical Center Research Institute (A. R. Pressman). Mindfulness and migraine: A randomized controlled trial. NIH/NCCIH project #1R01AT009081-01. [link]

Georgia State University (C. A. Spears). Using mobile technology to understand and encourage mindfulness for smoking cessation. NIH/NCCIH project #1R15AT009348-01. [link]

Idaho State University (E. Rasmussen, PI). Food insecurity, obesity, and impulsive food choice. NIH/NCCIH project #1R15AT009348-01. [link]

Wake Forest University (A. Adler, PI). The effects of mindfulness meditation on pain and heart rate variability. NIH/NCCIH project #1F30AT009165-01. [link]
Highlights

A summary of select studies from the issue, providing a snapshot of some of the latest research

Up to one-in-five breast cancer survivors experience persistent moderate-to-severe pain five years after treatment. Pain may result from surgery, radiation, or chemotherapy-induced tissue and nerve damage. Since pain can be both exacerbated and modulated by psychological factors, breast cancer survivors with persistent pain may potentially benefit from psychosocial interventions to lessen pain and improve quality of life. Johannsen et al. [Journal of Clinical Oncology] conducted a randomized, controlled trial to test the efficacy of Mindfulness-Based Cognitive Therapy (MBCT) on reducing pain and improving quality of life in breast cancer survivors who reported persistent pain.

One hundred and twenty-nine Danish breast cancer survivors (average age = 57) who were at least 3 months post-surgery and had continuing pain ratings ≥ 3 on a 0-10 numerical rating scale were randomly assigned to either MBCT or a wait-list control. Self-report measures of pain, quality of life, and psychological distress were completed at baseline, after intervention, and at 3- and 6-month follow-up. The MBCT protocol was the standard 8-week protocol used in treating recurrent depression, but modified to meet the needs of breast cancer survivors: session lengths were cut to 2 hours each, meditations were shortened to ≤ 30 minutes each, the yoga was “gentler,” and the all-day session was omitted.

MBCT participants showed significantly greater reductions than controls in pain intensity (Cohen’s d = .61) on a 0-10 numerical rating scale. Average pain intensity ratings decreased from 5.5 at baseline to 4.0 post-intervention, then dropped further to 3.6 at 3-month follow-up. In contrast, wait-list control pain intensity remained essentially unchanged (5.3 at baseline, 5.3 at post-intervention, 5.0 at 3-month follow-up). MBCT participants improved significantly more on quality of life (d = .42), with MBCT participants showing a 10% improvement and controls a 3% improvement. MBCT participants also significantly decreased their use of nonprescription pain medication (d = .40) by 20% at post-intervention, while controls showed no change.

The magnitude of improvements in pain intensity and quality of life was associated with the participants’ degree of MBCT program participation. Participants who attended more sessions had less pain intensity (d = .44) and a better quality of life (d = .38). In addition, the more time participants spent practicing meditation at home, the better their quality of life (d = .49).

The study findings show that MBCT participation results in clinically meaningful decreases in pain intensity, increases in quality of life, and decreases in non-prescription pain medication use for breast cancer survivors with persistent post-treatment pain. These improvements continue up to 6-months after program completion. The more breast cancer survivors participate in the program and engage in meditation practice at home, the better their outcomes. As the control group was a wait-list control, it is not possible to say whether the observed improvements were due to mindfulness practice or to other factors such as group support, cognitive therapy, or expectancy effects.
Many forms of meditation include an aspect of increased attention to and focus on the breath. This raises the question of whether breath-focused meditations change the way people breathe over time. This question is of interest because rapid, irregular breathing is associated with stress and anxiety, while slow, deep breathing is often prescribed to overcome negative emotional states. It’s possible that slowed respiration rates may account for some of the emotional well-being associated with long-term meditation practice.

Weilgosz et al. [Scientific Reports] measured the respiration rates of long-term meditators (LTMs) and meditation-naive controls on three separate occasions over the course of a little over one year. The authors examined whether greater amounts of long-term practice were associated with greater decreases in respiration rate, and whether an intensive day of meditation practice acutely changed respiration rate.

The study recruited 31 long-term meditators (average age = 51; 55% female) with 3 or more years of mindfulness meditation experience, a daily meditation practice lasting at least 30 minutes, and a history of 3 or more intensive meditation retreats. The LTMs were recruited from meditation centers across the United States and had an average of 4,658 hours of intensive retreat experience (range = 258 to 29,710 hours). The LTMs were contrasted with a group of meditation-naive controls of roughly similar age and gender (average age = 48; 68% female) recruited from the local Madison, Wisconsin area.

Participants had their respiration rates measured in a laboratory on three separate occasions spaced approximately 4.5 months apart. Their breathing was assessed while they were at rest, but there were no instructions to meditate during these assessment sessions. Prior to two of the laboratory sessions, LTMs completed 8 hours of either intensive open monitoring or lovingkindness meditation. The controls spent an equivalent amount of time engaged in leisure activities (reading, computer games, watching documentaries) prior to one of their laboratory assessments. The researchers also correlated LTM's lifetime hours of retreat practice and daily home practice with their laboratory-measured respiration rates.

Respiration rates showed a good reliability across laboratory sessions for both LTMs and controls. LTM respiration rates were, on average, 1.6 breaths per minute slower than control rates; this group difference was significant. Engaging in leisure activities, open monitoring meditation, or lovingkindness meditation prior to assessment had no acute effect on laboratory session respiration rates. The extent of meditator's daily home meditation practice was also unrelated to their respiration rates. On the other hand, there was a significant inverse relationship between retreat experience and respiration rate: the greater the number of hours meditators had spent on retreat, the slower their respiration rates. The slope of the relationship was such that a doubling of retreat hours was associated with a decrease of 0.7 breaths per minute.

These findings support the hypothesis that long-term mindfulness practice slows respiration rate in a reliable way, and that this slowing is not associated with either immediate recent practice or daily home practice, but rather with cumulative hours of intensive retreat practice. The results suggest a possible special role for intensive retreat practice in developing certain physiological correlates of mindfulness meditation practice. Additional research is needed to determine whether these decreased respiration rates are correlated with increased physical and mental well-being. One study limitation is that meditators may have spontaneously mediated during their laboratory measurement sessions, even though they hadn’t been instructed to do so, thus altering their breathing rates.