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**Editor-in-Chief**  
David S. Black, PhD, MPH

*Highlights* by Seth Segall, PhD

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


Tomasino, B., Fabbro, F. (2016). Increases in the right dorsolateral prefrontal cortex and decreases the rostral prefrontal cortex activation after-8 weeks of focused attention based mindfulness meditation. Brain and Cognition. [link]


**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 (DEC 2015)*


University of California, San Francisco. (O. Tymofiyeva. PI). *A network approach to study brain plasticity in children with cognitive training.* NIH/NCCIH project #1R21AT009173-01. [link]

University of Texas MD Anderson (K. Milbury, PI). *Couple-based meditation program for patients with metastatic lung cancer and their partners.* NIH/NCI project #1R21CA191711-01A1. [link]
Infertility is a heartbreaking condition affecting approximately 6% of American married women. In vitro fertilization (IVF) is a voluntary fertility treatment that involves combining a sperm and egg outside of a woman’s body and implanting the resulting embryo in her uterus. IVF success rates vary widely depending on multiple factors including a woman’s age, general health status, and the specific IVF method used.

IVF can be emotionally and physically taxing due to the demands of the procedure and the uncertainty of success. There is currently a need to improve the quality of life of women undergoing this procedure. Li et al. [Behaviour Research and Therapy] investigated whether a mindfulness-based intervention can improve both the quality of life and pregnancy rates of women undergoing first-time IVF treatment.

The researchers assigned 108 women (average age = 30 years) seeking IVF at a Chinese medical center to either IVF plus a mindfulness-based intervention or IVF alone. Assignment was not random, but based on patient convenience in terms of time constraints and travel distance to the medical center. The six-week mindfulness program was a group-based intervention that was specifically tailored to IVF and infertility concerns and contained elements of MBES, MBCT, Mindfulness-Based Childbirth and Parenting, and Acceptance and Commitment Therapy.

Participants completed self-report measures of mindfulness (the Five Facet Mindfulness Questionnaire), self-compassion, fertility quality of life, difficulties in emotional regulation, and infertility coping styles both at baseline and post-intervention.

Mindfulness and control participants did not differ in any of these self-report measures at baseline. Pregnancy status was assessed at six-months post-intervention.

Mindfulness participants showed significantly greater increases in self-reported levels of mindfulness (partial η2=.10), self-compassion (partial η2=.08), and quality of life (partial η2=.07), and significantly greater decreases in emotional regulation difficulties (partial η2=.06) compared to the control group. All of these between-group changes represented medium-sized treatment effects.

Mindfulness participants also significantly increased their reliance on meaning-based coping strategies (e.g., growing as a person) and decreased their reliance on avoidance-based coping strategies (e.g., avoiding pregnant women) to deal with thoughts and emotions related to IVF and infertility. Finally, at six months post-intervention, mindfulness participants were significantly more likely to have become pregnant (45%) than were controls (26%).

The study supports the use of a mindfulness-based intervention to improve indicators of quality of life, coping, and pregnancy rates in this sample of Chinese women undergoing first-time in vitro fertilization. However, the study is limited by its lack of randomization and its reliance on a treatment-as-usual control. The lack of an active placebo makes it hard to tell how much of the improvement is specifically due to mindfulness instruction and how much is due to general factors such as group social support and altered expectancies.
Alzheimer’s Disease is a progressive neurodegenerative illness characterized by short-term memory loss, disorientation, and impairments in socialization, self-care and behavioral regulation. It is primarily a disease of old age and affects over 5,000,000 Americans. Medications are often prescribed to manage its symptoms, but no medication has been shown to halt or delay the progression of the disease.

Given the enormous personal, social, and economic consequences of this illness, researchers are actively seeking novel ways to slow and forestall its devastating effects. In a randomized clinical trial, Quintana-Hernández et al. [Journal of Alzheimer’s Disease] compared the effectiveness of a Mindfulness-Based Alzheimer’s Stimulation (MBAS) program in maintaining cognitive functioning in Alzheimer’s patients to that of two current non-pharmacological interventions for Alzheimer’s disease; namely, Progressive Muscle Relaxation (PMR) and Cognitive Stimulation Therapy (CST).

The researchers randomly assigned 168 Spanish-speaking men and women with Alzheimer’s Disease who were Canary Islands residents to one of four treatment groups: 1) Medication Alone, 2) MBAS+Medication, 3) PMR+Medication, or 4) CST+Medication. The medication was donepezil, a cholinesterase inhibitor that has a small beneficial effect on cognition in Alzheimer’s patients but does not slow or halt the progression of the disease. All of the non-pharmacological treatments were delivered three times weekly in 90-minute group sessions that continued over a two-year period.

MBAS was based on MBSR, Mindfulness-Based Elder Care, Kirtan Kriya technique, chair yoga, and multi-sensory stimulation. The MBAS patients’ caretakers also assisted the patients in brief moments of mindfulness during home practice.

The CST group employed visual imagery, errorless learning, spaced retrieval, encoding specificity, and external memory aids. The PMR group employed a standard 16 muscle group tensing and releasing sequence. Patient cognition was longitudinally assessed using the Mini-Mental State Examination (MMSE) and the Cambridge Cognitive Examination (CAMCOG) at baseline and at 6, 12, 18 and 24 months into the study.

MBAS and CST patients significantly preserved their cognitive functioning on the MMSE and CAMCOG better than those receiving medication alone, but MBAS and CST patients did not differ significantly from each other. MBAS patients also preserved their cognitive functioning on the MMSE significantly better than PMR patients. MBAS effect sizes were small for patients with moderate-to-severe disease (Cohen’s d < 0.20) but large for those with mild-to-moderate disease (Cohen’s d > 0.90).

This study supports the equivalence of MBAS and CST and their superiority to medication alone and to medication plus PMR in limiting the rate of cognitive decline in patients with mild-to-moderately severe Alzheimer’s disease.
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Events & Conferences

Mindfulness & Health Conference
The first-ever State University of New York-funded mindfulness conference will be held on March 4th, 2016 at the University at Buffalo. This full-day event is designed to foster collaboration and initiate future research and education in the field of mindfulness statewide, and foster systems-level awareness. All faculty, staff, students, and practitioners, across the state and beyond, are welcome to join us for this groundbreaking event.

INFO:
http://www.wnycollegeconnection.com/wny-contemplative-faculty-staff-group-conference

Register https://universityatbuffalo-wgtck.formstack.com/forms/mindful

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Books & Media

Don't Try to Be Mindful
TEDx talk compares mindfulness practice to physical fitness to adjust expectations. Many who try mindfulness give up convinced they’re doing it wrong. It’s easy to confuse the practice with the potential outcomes and miss an opportunity to change the way we relate to discomfort.

INFO:
http://www.athomeinyourlife.com/blog/dont-try-to-be-mindful

New Book! Mindfulness for Teachers
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.

INFO: http://amzn.com/0393708071

Employment & Volunteer

Meditators Needed
If you are a meditator, US resident (18 and over), and work full time as a manager, director, or executive, please consider taking this 10-12 minute anonymous survey. The research purpose explores the relationship of meditation and health/motivational outcomes.

INFO: Complete the survey here: https://qaz1.az1.qualtrics.com/SE/?SID=SV_eaf3hBfcLrgLQ6F
Additional information can be provided by Jim Troyer, (251) 509-6626, cjamestroyer@capella.edu
Capella University doctoral candidate

Research & Education

No posts
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American Mindfulness Research Association

Mindfulness Research Monthly
Providing monthly research updates on mindfulness

Vol. 7 - No. 2
FEB 2016

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


Baker, V., Young, K., Wolfe, S. (2015). Incorporating and adapting shared experience of mindfulness into a service for men who have committed serious offences and who have significant personality difficulties. Probation Journal. [link]


**METHODS**

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


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**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 (JAN 2016)

University of Texas MD Anderson Cancer Center (C. Vinci, PI). Applying mHealth to tobacco-related health disparities: Enhancing aspects of resiliency to aid cessation efforts. NIH/NIMHHD project #1K99MD010468-01. [link]

VA Northern California Health Care Services (J. Baldo, PI). Evaluation of wellness programs for brain injured individuals. Veterans Affairs project #1I21RX001893-01A1. [link]
The researchers recruited 88 heterosexual couples (predominantly Caucasian, average age = 21) who were in a relationship for at least 2 months, and had them engage in a 1-hour 45 minute long discussion of an unresolved relationship conflict. The researchers wanted a sample of the couples’ behaviors so that the hormonal and attitudinal correlates of those behaviors could be studied. The discussions were taped and coded for control, coerciveness, anger, negativity/conflict, verbal aggression, and emotional withdrawal.

After the discussion, partners completed the Toronto Mindfulness Scale, a measure of state mindfulness comprised of Curiosity (an attitude of openness towards experience) and Decentering (dis-identifying with experience). The researchers also drew five salivary cortisol samples at fixed time intervals before and after the relationship conflict discussions. Cortisol data was analyzed in terms of overall reactivity (a measure of stress intensity) and slope of recovery (a measure of how long it takes to return to normal after stress).

**Highlights**

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

**All** romantic relationships have conflicts, and resolving them requires couples to remain calm and open as they explore their differences. This is easier said than done when couples are stressed and not always on their best behavior. Can mindfulness protect us from the stress resulting from negative behaviors during disagreements? **Laurent, et al [Hormones and Behavior]** investigated the relationship between state mindfulness, the stress hormone cortisol, and negative conflict behavior in couples who were discussing their differences.

When women were confronted with partner attempts at control, coercion, and negativity/conflict, their cortisol levels took significantly longer to return to normal if they reported low levels of Curiosity. The less they adopted a stance of friendly curiosity towards their experience, the longer their bodies continued to register signs of stress. When men were confronted with partner emotional withdrawal, their cortisol levels took significantly longer to return to normal if they reported low levels of Decentering. Their bodies took longer to recover from stress when they failed to gain distance from their thoughts and feelings.

Mindfulness had no effect on cortisol recovery from verbal aggression, the most severe negative behavior measured for either men or women. Findings suggest that while mindfulness may help cope with mild negative behaviors, it is less protective against more severe forms of relationship conflict. Mindfulness didn’t moderate the overall intensity of stress response to these milder negative behaviors, but it did speed up the rate of recovery from them.

The study supports a role for heightened state mindfulness in helping couples recover from stress hormone reactivity during romantic conflict. The results may be of use in teaching couples mindfulness skills to better cope with mild-to-moderate relationship conflict in a manner that could have biological significance. Caution should be taken in generalizing these results to more severe relationship problems as this was a normal healthy cohort. In addition, a very large number of significance tests were performed in the course of this analysis, raising the possibility of spurious findings and the need for replication.
As we mature into old age, our ability to remain focused and quickly choose the correct response from a set of competing responses tends to diminish. Can mindfulness training help us retain our attention, executive control and emotional regulation as we age? Malinowski, et al. [Mindfulness] randomly assigned mature adults to either mindfulness training or an active comparison group, and assessed the changes in their ability to perform a task that demanded focused attention, executive control, and emotional regulation while their brain activity was measured.

The researchers assigned a predominantly female cohort of 56 British older adults (average age = 64) to either mindfulness training or a “brain training” comparison condition. Mindfulness training entailed four 90-minute group-training sessions in breath-focused concentration meditation with instructions for maintaining a non-judgmental, non-elaborative attitude. Mindfulness trainees practiced meditation at home at least 10 minutes a day, five days a week, over 8 weeks.

The comparison condition met as a group for an equivalent amount of time. Both groups entailed psychoeducation, group discussion, and skills practice, but the “brain training” group practiced mental arithmetic instead of meditation, both in the groups and at home.

All participants completed the Five Facet Mindfulness Questionnaire (FFMQ) and a Stroop task, before and after training. The Stroop task required participants to count the number of words they saw that were presented on a computer screen. Sometimes the words’ meanings interfered with their counting (e.g., when the word “two” appeared three times) or had emotional connotations that could slow their processing speed. Participants needed to ignore the meanings and stay focused on the task.

Electroencephalography (EEG) concurrently measured the participants’ evoked response potentials (ERPs), which are brain waveforms generated specifically in response to the task.

Mindfulness trainees showed significant improvement on both their FFMQ Observing scores and their Stroop reaction times as compared to brain training trainees. Better Stroop reaction times were significantly correlated with larger fronto-central N2 ERP amplitudes (an electrical wave occurring approximately 200 milliseconds after words were presented), and mindfulness trainees showed significantly greater increases in N2 amplitudes than controls. These N2 ERPs originated in brain regions associated with attentional regulation, but not in regions associated with executive control or emotional processing.

While mindfulness improved reaction times generally, it didn’t specifically do so for incongruent or emotional word presentations. In other words, mindfulness training strengthened generic attention rather than specific executive functions involved in conflict resolution and emotional regulation.

This study shows significant improvements in attention and associated brain regions resulting from breath-focused mindfulness practice as compared to brain training in an older age group. These findings support mindfulness training as a means of improving attention in older adults; the study’s brevity of training and reliance on only a single training modality of breath concentration may account for the lack of any executive functioning/emotional regulation effects.
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Our center's professional staff is dedicated to the insights and meditative practices that dramatically reduce anxiety. We focus on three groups who are in transition stages of life: young adults; people in recovery; aging adults. We provide personal guidance to individuals and organizations and train and certify health professionals in our methods.

**INFO:** Go to: [http://www.huntingtonmeditation.com](http://www.huntingtonmeditation.com) or contact Dr. Richard Schaub at drrichardschaub@gmail.com

### Research & Education

**Seeking Mindfulness Practitioners for Survey**

We are seeking mindfulness practitioners to complete online survey for mindfulness research. Please consider participating if you are currently taking or have ever completed a mindfulness meditation course, such as Mindfulness-Based Stress Reduction. The purpose of this study is to help develop a new survey for mindfulness research. If you decide to take part in this study, you will be asked to complete survey questions online now and again in two weeks. If you are interested in participating, please copy or click on the link provided below:

**INFO:**

Survey link: [https://redcap.vanderbilt.edu/surveys/?s=YM87WL844Y](https://redcap.vanderbilt.edu/surveys/?s=YM87WL844Y)

### Books & Media

**NEW! The Science of Happiness**

Drawing on the latest scientific research on happiness, resilience, willpower, compassion, and mindfulness, Stanford researcher Emma Seppala demonstrates that being happy is the most productive thing we can do for our personal and professional success, and shares practical strategies for increasing happiness in our daily lives. Her new book, THE HAPPINESS TRACK, is out now.


**New Edited Mindfulness Volume**

*Mindfulness and Buddhist-Derived Approaches in Mental Health and Addiction:* Edited by Edo Shonin, William Van Gordon and Mark D Griffiths, the volume provides a timely synthesis and discussion of recent developments in mindfulness research and practice within mental health and addiction domains.


### Employment & Volunteer

No posts
INTERVENTIONS

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


Mason, A. E., Epel, E. S., Aschbacher, K.,...Bacchetti, P. (2016). Reduced reward-driven eating accounts for the impact of a mindfulness-based diet and exercise intervention on weight loss: Data from the SHINE randomized controlled trial. Appetite. [link]


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**ASSOCIATIONS**

*Articles examining the correlates and mechanisms of mindfulness*


Boughner, E., Thornley, E., Kharlas, D., Frewen, P. (2016). *Mindfulness-related traits partially mediate the association between lifetime and childhood trauma exposure and PTSD and dissociative symptoms in a community sample assessed online.* *Mindfulness.* [link]


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MINDFULNESS RESEARCH MONTHLY
Vol. 7 - No. 3


METHODS

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


Huijbers, M. J., Spinhoven, P., van Schaik, D. J.,...Speckens, A. E. (2016). Patients with...
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Preference for medication do equally well in mindfulness-based cognitive therapy for recurrent depression as those preferring mindfulness. Journal of Affective Disorders. [link]


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 (FEB 2015)

Sepulveda Research Corporation (S. Taylor, PI). The cost effectiveness of complementary and alternative treatments to reduce pain. Veterans Affairs project #1R01HX001704-01. [link]
Highlights

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

Adults who lose weight in diet-and-exercise lifestyle change programs usually regain weight after the program. This is often blamed on the ready availability of good tasting high calorie food along with stress and individual tendencies toward reward-driven eating. Reward-driven eating is eating that meets emotional rather than nutritional needs; it’s often accompanied by food cravings and preoccupations, poor control of eating despite motivation to lose weight, and insensitivity to sensations of fullness.

Mason et al. [Appetite] investigated the degree to which reward-driven eating and stress impacted weight loss in 158 obese participants (82% female, 59% White, average age = 47, average BMI = 35) who were randomly assigned to one of two diet and exercise interventions — one of which included mindfulness training and the other of which included progressive muscle relaxation and cognitive-behavioral skill training.

Both interventions met in groups for 17 sessions spaced over the course of 6 months. Both interventions used the same diet-and-exercise regimen: participants reduced their daily intake by 500 calories, engaged in structured aerobic and anaerobic exercise, and increased their daily general activity.

The mindfulness intervention taught sitting, walking, and loving-kindness meditation and mindful yoga, and promoted awareness of hunger, fullness, taste, food cravings, and eating triggers. The comparison intervention taught progressive muscle relaxation and cognitive-behavioral skills as well as provided additional didactic instruction on nutrition and exercise.

Participants were weighed and assessed on self-reported reward-driven eating and perceived stress at baseline and 6, 12, and 18 months after baseline.

The mindfulness group lost approximately 4.4 pounds more than the comparison group, but that difference didn’t reach statistical significance. The mindfulness group experienced a significantly greater decrease in reward-driven eating than the comparison group, a decrease that was significantly associated with weight loss at 12 months but not at 18 months. This loss of association between changes in reward-driven eating and weight loss at 18 months wasn’t due to either weight regain or increases in reward-driven eating, suggesting that some new, unidentified variables became more important in maintaining weight loss between 12 and 18 months.

Changes in perceived stress didn’t impact weight loss, perhaps because the beginning stress level of this sample was already below the national average.

Findings from this study show that a mindfulness-based diet-and-exercise intervention reduced reward-driven eating more than a diet-and-exercise intervention with progressive muscle relaxation and cognitive-behavioral skills. Mindfulness may add value to weight loss programs by helping clients cope with food cravings, regulate emotions, and attend to bodily sensations that indicate genuine hunger and satiety.
Heart disease is the largest cause of death among men and women in the United States. Lifestyle changes in smoking, diet, and exercise can help lower heart disease risk. Further, mindfulness has proposed stress-reducing effects and thus may have its own role to play in heart health. In two separate studies, May et al. [Stress] examined the association between trait mindfulness and markers of cardiovascular health and state mindfulness and fluctuations in heart rhythm and blood pressure, which are modulated by the sympathetic nervous system. The sympathetic nervous system is the part of the nervous system responsible for the “fight-or-flight” stress response.

The studies employed two samples of predominantly female, Caucasian undergraduate students. All participants were assessed for self-reported trait mindfulness using the Mindful Attention Awareness Scale. In the first study, 185 participants had their cardiovascular functioning assessed by a computer-assisted method of estimating central blood pressure from peripheral arterial activity. The researchers used an estimate of central blood pressure because it is a better indicator of cardiovascular risk than the usual peripheral blood pressure measures obtained using a blood pressure cuff. This method also provided estimates of how hard the heart was working, how much oxygen it consumed, and how much blood it received through the cardiac arteries.

The first study found that while trait mindfulness wasn’t associated with blood pressure and heart rate, it was significantly associated with improved hemodynamic functioning in terms of decreased cardiac oxygen consumption and left ventricular workload. Simply put, the heart didn’t have to work as hard for those with higher levels of trait mindfulness.

In the second study, 124 participants were randomly assigned to either a mindfulness or a control intervention. In the mindfulness intervention, participants followed a 15-minute audiotaped guided mindfulness meditation focusing on the breath and bodily sensations in an effort to induce a state of mindfulness. Control participants were told to be silent and still for 15 minutes and relax. Blood pressure variability and heart rate variability (fluctuations in the interval between heartbeats) were measured before and after the interventions. These are measures that are affected by sympathetic nervous system activity.

The second study found that the guided mindfulness meditation significantly lowered diastolic blood pressure (Cohen’s $d = .39$). It also decreased low-frequency oscillations in systolic ($d = .47$) and diastolic ($d = .50$) blood pressure, and low-frequency fluctuations in heart rate ($d = 1.95$). The term “low-frequency” refers to fluctuations of 0.04 to 0.15 oscillations per second. These results support the hypothesis that mindfulness decreases the effects of sympathetic nervous system activity on the heart: mindfulness decreased vagal tone, vasomotor tone, vascular resistance, and ventricular workload, resulting in an overall improvement in cardiovascular efficiency.

Taken together, these studies suggest that trait and state mindfulness both have roles to play in improving heart health by increasing the efficiency and reducing the workload of the cardiovascular system. Mindfulness-based interventions may be of potential benefit to patients with congestive heart failure and chronic hypertension, diseases with symptoms that are aggravated by sympathetic nervous system activity. This potential benefit is only speculative, as all of the participants in this study were young and healthy. The studies are limited by the restricted sex, ethnicity, age, and health range of its participants, the brevity of its mindfulness training, and the fact that cardiovascular activity was observed over only a short period of time.
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Events & Conferences

Anxiety Study Group
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INFO: Survey link:
https://redcap.vanderbilt.edu/surveys/?s=YM87WL844Y

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Employment & Volunteer

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**INTERVENTIONS**

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American Mindfulness Research Association

APR 2016


METHODS

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

Carciofo, R., Yang, J., Song, N.,...Zhang, K. (2016). Psychometric evaluation of Chinese-
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**Reviews**

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


Chasin, M., Interian, A., Kline, A.,... Stanley, B. (2016). **Reviewing mindfulness-based interventions for suicidal behavior.** *Archives of Suicide Research.* [link]

Lewis, B. (2016). **Mindfulness, mysticism, and narrative medicine.** *Journal of Medical Humanities.* [link]

Masterpasqua, F. (2016). **Mindfulness mentalizing humanism: A transtheoretical convergence.** *Journal of Psychotherapy Integration.* [link]


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**Trials**

*Research studies newly funded by the National Institutes of Health (MAR 2015)*

University of Colorado (K. Hutchison, PI). **Dismantling MBRP: Identifying critical neuroimmune mechanisms of action.** NIH/NIAAA project #1R01AA024632-01. [link]
Can being mindfully aware heighten the pleasure of eating? Arch et al. (Behavior Research and Therapy) addressed this question in a series of studies while also exploring whether mindfulness promotes more healthful food choices.

In the first study, 81 male and female undergraduates were randomly assigned to either a mindful eating or a distracted eating condition. Participants in the mindful eating condition were instructed to eat a series of five chocolate chips while focusing on their sensory experience. Participants in the distraction condition ate their chocolate chips while searching for hidden words in a find-a-word puzzle. Mindful participants rated their chocolate chips as significantly more enjoyable (Cohen’s $d = 0.51$) and had a marginally significantly greater desire to eat another chocolate chip ($d = 0.38$) than distracted eaters.

In the second experiment with 136 male and female undergraduates, the researchers repeated the first study using raisins instead of chocolate chips. Mindful eaters showed a marginally significant tendency to enjoy the raisins more ($d = 0.27$) and a significantly higher desire to eat another raisin ($d = 0.39$) than distracted eaters.

The researchers wanted to know if people who ate mindfully ended up consuming more calories because they enjoyed eating more, or fewer calories because their improved attention led to greater behavioral control. The mindful eaters again rated the raisins as significantly more enjoyable and were significantly more likely to desire another raisin than either of the control groups.

Following eating the raisins, participants were led into a room with healthful (almonds, carrot sticks) and “unhealthful” (candy, pretzels, potato chips) snacks and told to avail themselves of the food choices. Following five minutes during which participants could eat as they liked (free-eating), they were then asked to sample as much as they wanted of each of the snacks and rate them on taste while under the same mindful or distraction conditions they were under while eating the raisins. The researchers measured their caloric intake under both the free-eating and taste-rating conditions.

There were no group differences in caloric intake during free-eating. During taste-rating, mindful eaters consumed significantly fewer “junk food” and total overall calories than controls—54 fewer calories than the distracted eaters. Eaters in the distraction condition consumed 48% more calories during taste-rating than during free-eating, presumably because being distracted on the find-a-word puzzle while taste-rating interfered with regulating food intake.

Together, these studies suggest that an undistracted sensory focus can increase eating pleasure and even help people regulate the type and amount of food consumed. The study is limited by its assumption that the instruction to “focus on sensation” induces a state of “mindfulness” similar to that obtained by meditative practice.
Jobs can be a major source of stress. Mindfulness-based interventions (MBIs) can reduce stress, but employers may be reluctant to offer them due to time and cost concerns. Web-based MBIs may help to address such concerns, but research suggests participant engagement in online programs tends to be low. Allexandre, et al. [Journal of Occupational & Environmental Medicine] randomly assigned employees to a web-based MBI with and without group and clinical expert support in an effort to discover how to best improve web-based MBI engagement and outcomes for workers.

The researchers recruited 161 predominantly Caucasian (77%), female (83%) (average age = 40) debt collectors, customer service representatives, and fraud representatives from a pool of 900 employees working at a corporate call center in Ohio. These employees reported greater levels of stress and exhaustion than average American workers. The employees were randomly assigned to one of four experimental conditions: 1) a web-based MBI, 2) a web-based MBI with group support, 3) a web-based MBI with both group and clinician support, and 4) a wait-list control. All three intervention conditions ran for 8 weeks and participants had access to both weekly online and weekly CD/MP3-delivered mindfulness lectures and guided meditations including a body scan, sitting, and lovingkindness meditation. Group support consisted of small-to-medium sized practice-and-discussion groups which met weekly for one hour. All groups were employee-led, but the groups with clinician support met on three occasions with a licensed social worker or counselor who did not serve as a “mindfulness teacher” but discussed topics such as letting go, acceptance, non-judging, and compassion from a cognitive-behavioral perspective.

Participants were assessed on self-report measures of emotional wellbeing, vitality, stress, burnout, exhaustion, professional efficiency, and mindfulness (the Mindful Attention Awareness Scale) at baseline, 8 and 16 weeks, and one-year follow-up. Company performance ratings were also analyzed. Sixty-three percent of participants completed their self-report measures at 8 weeks, and 50% at 16 weeks, with no difference in completion rates between groups. At one-year follow-up, 19% of those without support groups completed the measures, while over 40% of those with group support did. Participants preferred using the CDs and MP3s to using the web-based modules: about half of the participants never logged on to the online resource. Participants with group support were twice as likely to log on and three times as likely to engage in home practice. At 16 weeks, 64% of the participants with group support still meditated, compared to only 25% of those without group support.

Participants in all the intervention groups improved significantly by eight weeks on all measures of wellbeing. Changes in measures of professional efficiency and productivity were not shown. Participants with group support improved more (average Cohen’s d = 0.8) than those without (d = 0.4). Participants with group support expressed significantly higher program satisfaction and saw their stress and exhaustion levels decline to that of the average U.S. worker.

Most improvements were maintained at 16 weeks, and improvements in stress, vitality, emotional wellbeing and role functioning remained significant at one year, mostly for the participants with group support. The wait-list controls improved on only one variable—stress—and their stress improvement was significantly less than that of the treatment groups. Clinician support did not further improve outcomes and the groups without a clinician actually tended towards better outcomes.

The study supports the efficacy of a web-based MBI offered in the workplace to improve several domains of employee wellbeing. These benefits did not extend to employee productivity and efficiency. Adding practice-and-support groups improved engagement with mindfulness practice and wellbeing outcomes, but adding limited, part-time support from a clinician did not extend extra benefit.
Events & Conferences

Anxiety Study Group

Our center's professional staff is dedicated to the insights and meditative practices that dramatically reduce anxiety. We focus on three groups who are in transition stages of life: young adults; people in recovery; aging adults. We provide personal guidance to individuals and organizations and train and certify health professionals in our methods.

INFO: Go to: http://www.huntingtonmeditation.com or contact Dr. Richard Schaub at drrichardschaub@gmail.com

Research & Education

Seeking Mindfulness Practitioners for Survey

We are seeking mindfulness practitioners to complete online survey for mindfulness research. Please consider participating if you are currently taking or have ever completed a mindfulness meditation course, such as Mindfulness-Based Stress Reduction. The purpose of this study is to help develop a new survey for mindfulness research. If you decide to take part in this study, you will be asked to complete survey questions online now and again in two weeks. If you are interested in participating, please copy or click on the link provided below:

INFO:
Survey link: https://redcap.vanderbilt.edu/surveys/?s=YM87WL844Y
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*Articles testing the applied science and implementation of mindfulness-based interventions*


Doll, A., Hözel, B. K., Bratec, S. M.,...Sorg, C. (2016). Mindful attention to breath regulates emotions
via increased amygdala-prefrontal cortex connectivity. NeuroImage. [link]


Medeiros, C., Gouveia, M. J., Canavarro, M. C., Moreira, H. (2016). The indirect effect of the mindful parenting of mothers and fathers on the child’s perceived well-being through the child’s attachment to parents. Mindfulness. [link]


Remmers, C., Topolinski, S., Koole, S. L. (2016). Why being mindful may have more benefits than you realize: Mindfulness improves both explicit and implicit mood regulation. Mindfulness. [link]


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in a sample of men in treatment for substance use disorders. *Mindfulness.* [link]


Verdorfer, A. P. (2016). *Examining mindfulness and its relations to humility, motivation to lead, and actual servant leadership behaviors. Mindfulness.* [link]


**Methods**

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


Noone, C., Hogan, M. J. (2016). *A protocol for a randomised active-controlled trial to evaluate the effects of an online mindfulness intervention on executive control, critical thinking and key thinking dispositions in a university student sample. BMC Psycholog.* [link]


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American Mindfulness Research Association

Mindfulness Research Monthly

Providing monthly research updates on mindfulness

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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 (APR 2016)

Johns Hopkins University (E. Sibinga, PI). Improving treatment adherence in HIV-positive youth through mindfulness training. NIH/NCCIH project #4R01AT007888-04. [link]

University of Pittsburg (K. Mctigue, PI). Minding goals: An internet-assisted mind-body behavior program for blood pressure control. NIH/NHLBI project #5R34HL123500-02. [link]
Older adults who complain of subjective cognitive decline (SCD) often appear normal in day-to-day functioning and on clinical assessment, but 60% of them eventually develop either mild cognitive impairment or Alzheimer’s Disease. This makes older adults with SCD a prime target for interventions aimed at preventing or slowing cognitive decline.

Smart et al. [Journal of Alzheimer’s Disease] conducted a randomized controlled pilot study to test the effects of mindfulness training versus a psycho-educational control on measures of attention, brain structure and function, and self-reported cognitive complaints, mood, and mindfulness in adults with SCD.

A sample of 23 healthy older adults and 15 older adults with SCD (predominantly Caucasian men and women, average age = 70) were randomly assigned to either an 8-week mindfulness training based on MBSR that was tailored for older adults, or a 5-week program that provided education on memory and aging, situational factors that affect memory, and strategies to compensate for memory difficulties.

Participants completed self-report measures of memory complaints, depression, and mindfulness (the Five Facet Mindfulness Questionnaire, or FFMQ).

They also completed an attentional capacity task that required them to be vigilant and respond or withhold responding to letters presented on a computer screen. An electroencephalogram (EEG) recorded the magnitude of their brain’s P3 evoked response potentials (ERPs) while performing this task. Higher P3 ERPs reflect increased attentional capacity and are known to decrease in amplitude with SCD. All these measures were obtained both before and after intervention.

Structural magnetic resonance imaging (MRI) was also included to detect changes in total brain volume from pre- to post-intervention.

Adults with SCD reported a greater number of subjective memory complaints and had a lower total mindfulness score on the FFMQ than did healthy adults (partial η²=.44). SCD adults’ subjective memory complaints and memory self-efficacy improved equally in both the mindfulness and the control groups. Neither of the interventions significantly improved FFMQ scores.

The P3 amplitudes of the SCD adults in the mindfulness group improved significantly, while the amplitudes of the SCD adults in the control group did not (partial η²=.15). SCD patients increased their P3 amplitudes by an average of 28%, whereas the healthy adults showed no overall change. For SCD adults in the mindfulness group, P3 amplitudes were impaired prior to intervention, but were indistinguishable from those of the healthy adults after intervention. Mindfulness participants significantly reduced their response time variability on the computerized vigilance task, reflecting improved moment-to-moment attention, whereas control group participants showed increased variability (partial η²=.14).

Mindfulness participants’ total brain volume significantly increased, whereas control group brain volume did not (Cohen’s d=.18). Unfortunately, not all of the participants’ MRIs were of sufficiently good quality to be included in this analysis. As a result, the researchers were unable to statistically test whether this tendency for mindfulness to increase brain volumes was more pronounced for either the SCD or the healthy adults.

This pilot study shows that mindfulness training can improve moment-to-moment regulation of attention and corresponding brain function in older adults with subjective cognitive decline. Improved attentional regulation may serve as a resource to...
help mitigate functional impairments resulting from early memory decline. The study also demonstrates an effect of mindfulness training on brain volume in older adults. More research is needed to determine whether mindfulness training reduces or slows the progression to mild cognitive impairment or Alzheimer's Disease, or reduces the disability associated with early phases of those disorders.

Personal computing devices have introduced us to the phenomenon of “media multitasking,” in which we constantly switch attention between e-mailing, texting, web-browsing, and listening to music, all while ostensibly working. Research has shown that people who engage in large amounts of media multitasking perform significantly more poorly on measures of attentional ability than those who engage in it less. Gorman et al. [Scientific Reports] explored whether a brief breath-counting meditation might temporarily ameliorate the attentional deficits associated with media multitasking.

The researchers conducted an online survey of media multitasking in 1,683 college undergraduates. They then selected a research sample of 22 heavy media multitaskers who scored at least a standard deviation above the mean, and a sample of 20 light media multitaskers who scored at least a standard deviation below the mean in frequency of media multitasking.

The students participated in two separate assessment sessions scheduled less than 48 hours apart. They completed the same assessment battery measuring attentional control, working memory, and cognitive flexibility in each of the sessions. The attentional control measures included computer-administered tasks requiring the ability to ignore distractions, detect sameness and difference in the orientation of geometrical shapes, resist impulsive responding, and attend to visual cues requiring different responses. The working memory task involved recording strings of numbers in the reverse order in which they were presented. The cognitive flexibility measure required quickly naming as many possible alternative uses of common everyday objects as one could.

The conditions under which the assessment batteries were administered differed in each of the sessions. In one of the sessions, the assessment battery was broken into tasks that were interspersed with three ten-minute breath-counting meditations. In the other session, the assessment tasks were interspersed with three ten-minute web-browsing periods.

In the breath-counting meditation, participants counted their breaths while pressing a keyboard down arrow during each exhalation. Participants pressed the right arrow key on each ninth breath, then started counting over again. They did this while viewing slow-moving animated natural stimuli. There were no instructions regarding the concept of mindfulness. In the web-browsing intervention, participants browsed various websites such as Wikipedia at will.

Heavy media multitaskers performed significantly more poorly on the attentional tasks than light media multitaskers (partial η²=.23). Both heavy and light media multitaskers did better on attentional tasks after breath-counting than after web-browsing (partial η²=.20). Lastly, heavy media multitaskers benefited more on attentional tasks from breath-counting than did light media multitaskers (partial η²=.10). These effects applied only to the attentional measures; there were no main or interaction effects for either working memory or cognitive flexibility.

The study shows that heavy media multitaskers have an impaired attentional focus that can be either transiently remedied by periods of focused breath-counting, or transiently exacerbated by periods of web-browsing. The study is limited by its assumption that the positive effect of a brief breath-counting practice was due to “mindfulness,” which was neither taught nor measured, as opposed to other possible factors such as slowed breathing or relaxation.
### Interventions

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

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**Seth Segall Highlights**


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*Articles examining the correlates and mechanisms of mindfulness*


Harrison, N. R., Clark, D. P. (2016). *The observing facet of trait mindfulness predicts frequency of aesthetic experiences evoked by the arts. Mindfulness.* [link]


Wang, Y., Xu, W., Luo, F. (2016). Emotional resilience mediates the relationship between mindfulness and emotion. Psychological Reports. [link]


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


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*Research studies newly funded by the National Institutes of Health (MAY 2016)*

California Pacific Medical Center (A. Pressman, PI). **Mindfulness and migraine: A RCT.** NIH/NCCIH project #1R01AT009081-01. [link]

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

Massachusetts General Hospital (G. Desbordes, PI). **MBCT effects on brain mechanisms of interoceptive awareness and rumination in MDD.** NIH/NCCIH project #5K01AT008225-03. [link]

University of Rochester (J. Moynihan, PI). **MBSR for family caregivers of dementia patients.** NIH/NIA project #1R01AG052495-01. [link]
One advantage of being mindful is that it allows one to respond to situations with equanimity rather than reacting emotionally in a “knee-jerk” fashion. How does mindfulness help us to do this? According to one theory, mindfulness helps to extinguish our negative emotional reactions. It does this by increasing our exposure to the stimuli that provoke these reactions while helping us to maintain an open, nonjudgmental stance.

Uusberg et al. [Biological Psychology] tested this theory using an electroencephalogram (EEG) to measure the effects of repeatedly viewing negative and neutral images under both mindful and control conditions. They hypothesized that repeated viewing of emotionally-charged images while maintaining mindful awareness would cause a greater reduction in emotional reactions to the images than viewing them without mindfulness.

The researchers recruited 37 meditation-naive volunteers (84% female, average age=27). The participants were shown a series of 30 neutral and 30 negative images while an EEG recorded their late positive potentials (LPPs) in response to those images. LPPs are electrical brain waves that occur 260-1500 milliseconds after viewing a stimulus. They reflect ongoing emotional processing, with larger LPPs reflecting greater degrees of emotional processing. The mean difference in LPP amplitude between negative and neutral images served as a measure of emotional reactivity.

The negative stimuli featured images such as car accidents and brutal attacks, while the neutral stimuli were images of everyday scenes and objects such as hairdryers. Participants viewed subsets of these neutral and negative images under three different conditions: an “attentiveness” condition in which they focused on the visual details of the images; an open-monitoring “mindfulness” condition in which they viewed the images while also attending nonjudgmentally to thoughts, feelings, and bodily sensations; and a “distraction” condition in which they viewed the images while mentally counting backwards. There was a brief period of instruction prior to each of these viewing conditions. Each image in a subset was presented three times during a viewing condition. Afterward, participants were re-exposed to all of the previously seen images and rated them for valence and arousal. Participants also completed measures of trait (the Mindful Attention Awareness Scale) and state (the Toronto Mindfulness Scale) mindfulness immediately after the experiment.

In general, negative images produced significantly larger LPPs than neutral images ($\eta^2_p=.75$). Viewing while “distracted” yielded significantly smaller LPPs than viewing while “attentive” or “mindful” ($\eta^2_p=.14$), and LPP magnitude significantly decreased with repeated presentations ($\eta^2_p=.17$). During the “mindfulness” condition, LPPs were significantly larger for negative than for neutral images for the first two presentations, but this difference disappeared by the third presentation. This finding is in line with the hypothesis that mindfulness successfully decreases emotional reactivity to the negative images over time. There was no similar pattern of decrease in the difference between negative and neutral LPPs under either the “attentive” or “distracted” viewing conditions.

While state mindfulness wasn’t associated with decreased negative image LPPs under the “mindful” viewing condition, one of its components—“decentering”—was significantly associated with increased neutral image LPPs under same condition. This finding is unexpected and open to a variety of interpretations. Trait mindfulness, on the other hand, was significantly associated with both decreased negative image LPPs and increased neutral image LPPs during the final re-exposure trial. This suggests that trait mindfulness helps maintain reduced emotional reactivity under later non-mindful viewing conditions.
These results support the theory that mindful viewing enhances the emotional processing of novel stimuli while decreasing emotional reactivity to later repetitions of those stimuli. This decreased reactivity persisted on final re-exposure, especially for participants reporting higher levels of trait mindfulness. “Mindful” viewing also attenuated LLP components beginning less than 500 milliseconds after stimulus onset, whereas “attentive” and “distracted” viewing did not. These “early” LLP components reflect automatic emotional reactivity rather than deliberate cognitive strategies. In other words, mindfulness has a unique impact on emotional processes that are not under conscious control. The interpretation of study results is limited by the brief nature of its “mindfulness” induction.

Every year nearly 250,000 American women are diagnosed with breast cancer. Diagnosis and treatment can be frightening and arduous, and the interval following active treatment is often fraught with anxiety and uncertainty. Prior studies show that breast cancer survivors can benefit from psychological interventions, but little is known about which interventions yield the best outcomes.

Carlson et al. [Psycho-Oncology] conducted a randomized, controlled trial comparing two interventions—Mindfulness-Based Cancer Recovery (MBCR) and supportive expressive group therapy (SET)—in reducing stress and improving the quality of life of distressed breast cancer survivors. The researchers randomly assigned 271 distressed Canadian breast cancer survivors (average age = 55) to either MBCR or SET. MBCR is an 8-week group mindfulness-based intervention modeled after Mindfulness Based Stress Reduction. SET is a 12-week group treatment developed at Stanford University that aims to mobilize social support, facilitate emotional openness and expressiveness, and strengthen coping skills.

All participating survivors had been diagnosed with Stage I-III breast cancer, completed surgical, chemotherapy, and/or radiation treatment, and scored ≥ 4 on a 10-point distress scale. Participants completed self-report measures of mood, stress, quality-of-life, perceived social support, spiritual well-being and post-traumatic growth before treatment, immediately after treatment, and at 6 month and 12 month follow-up. Dropout rates during treatment were relatively high (MBCR=32%, SET=28%), with additional attrition (MBCR=28%, SET=23%) prior to post-treatment and follow-up assessments. The results included data from all the participants who enrolled in the trial.

Both groups improved on all of the mood subscales, but the improvement was significantly greater for MBCR participants, especially on measures of fatigue, anxiety, and confusion (average Cohen’s d = 0.37). Both groups also significantly improved on most of the stress subscales, but the MBCR group improved more (average d = 0.29). MBCR participants also showed greater improvements in quality-of-life subscales (average d = 0.21), social support subscales (average d = 0.20), spiritual well-being subscales (average d = .23) and post-traumatic growth subscales (average d = 0.19).

These improvements and the overall patterns of MBCR superiority were largely maintained on follow-up with some exceptions: there were slight increases in depression and decreases in affective tone for both groups, a lessening in the size of group differences in some somatic complaints, and a loss of significance for some quality-of-life subscales. The difference between groups for posttraumatic growth continued to widen on follow-up, with MBCR participants continuing to improve at a greater rate.

Among breast cancer survivors, MBCR performed better than SET on a broad variety of psychosocial measures, both initially and at one-year follow-up. The study is limited by its high attrition rates and the large number of multiple comparison tests performed.
MYmind advanced teacher training
Mindfulness training for Youth with ADHD, Youth with ASD and parallel Mindful Parenting.

MYmind training is a mindfulness-based 9 session parent and child training program that improves focus and concentration, and decreases impulsivity, hyperactivity, and aggression in youth (9-18 years) with Attention Deficit Hyperactivity Disorder (ADHD). MYmind has recently been extended to address stress, anxiety and depression and appears to have a positive effect on social communication in children and youth with Autism Spectrum Disorders (ASD). The parallel mindful parenting training helps parents to deal with the problems of their children in a mindful, non-reactive way. In addition, parents learn how they can support and reward their child’s mindfulness training.

This 5½-day MYmind advanced teacher training is meant for mental health professionals with a background in mindfulness training and meditation, who want to use MYmind with their clients. The training will be given in English. Participants will receive training in both the child and the parent program. MYmind is provided by two therapists, one for the child group and one for the parallel parent group. As such, it is advisable to participate in the current training with a colleague, although not required. By means of meditation practices, in which participants place themselves in the role of youth and of parents, the typical MYmind exercises are experienced, and subsequently practiced in the role of the instructor. Video-examples will be shown.

Although this is primarily a clinical training, some research elements will be included as well. The effects of MYmind for children with ADHD and ASD and their parents will be discussed.

Date:
september 6th – september 10th 2016, 09.30 – 16.30 (Thursday, silence day, up to 8 pm).

Location
UvA minds You
Plantage Muidergracht 14, 1018 TV Amsterdam

Trainers
Prof. Dr. Susan Bögels is a professor in Developmental Psychopathology at the University of Amsterdam, as well as a licensed clinical psychologist and cognitive behavior and child and family therapist. Her research focuses on the intergenerational transmission of psychopathology, through parent-child and family interactions, with a specific focus on the father, on the role of attentional processes in psychopathology, and on child and family interventions, including mindfulness. She is also the director of the academic center for the treatment of parents and children, UvA minds, in which evidence-based cognitive-behavioral and mindfulness interventions are offered to families. She is a practicing mindfulness trainer, specialized in mindfulness for children and their parents in a mental health context. She is the author of the book Mindful Parenting: A Guide for Mental Health Practitioners (2013) together with Kathleen Restifo, and has published many articles in the field of mindfulness and youth psychopathology. She is a member of the workgroup on Anxiety, Obsessive–Compulsive Spectrum, Post Traumatic, and Dissociative Disorders of the DSM-5.

Joke Hellemans is a licensed clinical psychologist/psychotherapist and mindfulness teacher, trained at the Center for Mindfulness of the University of Massachusetts Medical School (USA) founded by Jon Kabat-Zinn. She will lead the silence half-day.

Costs
Early registration (two months prior to the training) €1200,00
Normal registration €1500,00

www.uvamindsyou.nl
### Interventions

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


**Journal of Traditional and Complementary Medicine.** [link]


Walsh, E., Eisenlohr-Moul, T., Baer, R. (2016). *Brief mindfulness training reduces salivary IL-6 and TNF-α in young women with depressive symptomatology.* Journal of Consulting and Clinical Psychology. [link]

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*Articles examining the correlates and mechanisms of mindfulness*


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**REVIEWS**

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


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**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 #7K23AT008442-03. [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.
**Interventions**

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


Ivtzan, I., Young, T., Martman, J.,...Eiroa-Orosa, F. J. (2016). Integrating mindfulness into positive psychology: A randomised controlled trial of an online positive mindfulness program. *Mindfulness.* [link]


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randomized controlled trial. JMI...[link]


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ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness


Qu, W., Zhang, H., Zhao, W., Ge, Y. (2016). The effect of cognitive errors, mindfulness and personality traits on pedestrian behavior in a Chinese sample. *Transportation Research.* [link]


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


Gu, J., Strauss, C., Crane, C., Kuyken, W. (2016). Examining the factor structure of the 39-item and 15-item versions of the five facet mindfulness questionnaire before and after
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mindfulness-based cognitive therapy for people with recurrent depressive disorder. 
*Psychological Assessment.* [link]


**Reviews**

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


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Editor-in-Chief
David S. Black, PhD, MPH

Highlights by
Seth Segall, PhD

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TRIALS

Research studies newly funded by the National Institutes of Health (AUG 2016)

University of California at Los Angeles (P. Ganz, PI). A phase III randomized trial targeting behavioral symptoms in younger breast cancer survivors. NIH/NCI project #1R01CA200977-01A1. [link]

University of Illinois (J. Davis, PI). Impact of mindfulness based relapse prevention and mechanisms of change on emerging adult substance use treatment outcomes. NIH/NIDA project #1R36DA041538-01. [link]

University of Massachusetts (J. Brewer, PI). Augmenting mindfulness training through experience-driven neurofeedback devices. NIH/NCCIH project #5R01AT007922-05. [link]

University of New Mexico (K. Wikiewitz, PI). Mindfulness based intervention and transcranial direct current brain stimulation to reduce heavy drinking: Efficacy and mechanisms of change. NIH/NIAAA project #1R21AA024926-01. [link]
Highlights
A summary of select studies from the issue, providing a snapshot of some of the latest research

Cooperating with others sometimes requires that we set irrelevant negative emotions aside in order to stay focused on achieving common goals. Can mindfulness meditation improve cooperation with others by strengthening our resistance to being distracted by negative emotions? If so, how is the brain involved in this process? Kirk et al. [Neuroimage] studied the effects of mindfulness meditation vs. relaxation training on the decision making and brain functioning of volunteers playing a cooperative economic decision making game.

The researchers randomly assigned 51 healthy adult participants (82% Caucasian, 53% female, average age = 32) who volunteered to participate in a stress reduction program to either an 8-week mindfulness training based on Mindfulness-Based Stress Reduction (MBSR), or an 8-week stress reduction program utilizing progressive muscle relaxation, exercise, stretching, and group discussion of stress-reduction topics. The participants played the computer-based Ultimatum Game before and after training while their brain function was monitored using functional magnetic resonance imaging (fMRI). They also completed the Five Facet Mindfulness Questionnaire (FFMQ) before and after training.

The Ultimatum Game asks participants to consider offers to split $20 between themselves and another player. For example, the computer screen informs participants that someone named “Tom” is offering to split $20 with them 50/50, so that they each would receive $10. Participants then either accept or reject the offer. In reality, the offers weren’t from real people but were computer generated. The offers ranged from equal (50/50) splits to vastly unequal (19/1) splits. While it makes economic sense to accept all offers since rejecting any offer means getting nothing, participants tend to reject offers that are inequitable and seem unfair. Past research shows that the tendency to reject unfair offers is accompanied by increased neural activity in the area of the brain known as the insula, a region that plays a role in bodily and emotional awareness and values-based decision making.

Prior to any mindfulness or relaxation training, fMRI scans showed that the more “unfair” the Ultimatum Game offer, the greater the left anterior insula activation, a finding in accordance with previous research. After training, greater insula activation was associated with rejecting unfair offers for all trainees, but there was a significant difference between the slopes of the correlations for the mindfulness (r=-.42) and relaxation trainees (r=-.52). The difference in slopes suggests that mindfulness trainees were better at regulating their insula activity. This helped them to minimize the impact of feelings of unfairness on their decision making, permitting them to accept offers that were in their overall best economic interest despite their apparent inequity. As a consequence, mindfulness trainees significantly increased their game monetary earnings after training, while control trainees did not.

Further fMRI analyses showed that the trainees who showed the largest increases in accepting “unfair” offers also showed the greatest increases in left septal region activation (r=-.61). Previous research shows that the septal region facilitates cooperative social behavior. The mindfulness trainees’ insula and septal regions worked in tandem while they considered “unfair” offers. There was no similar insula-septal region coordination in the relaxation trainees.

While FFMQ total mindfulness scores rose significantly after training in both the mindfulness and relaxation conditions, mindfulness training raised FFMQ scores significantly more than relaxation training. The more mindfulness...
meditation that trainees practiced at home, the higher their FFMQ scores (r=.45). After training, mindfulness trainees were significantly more likely to accept "unfair" offers than were relaxation trainees. The higher the mindfulness trainees' post-training FFMQ scores, the greater the increase in their willingness to accept "unfair" offers (r=.50). There was no similar relationship between the FFMQ and acceptance rates for relaxation trainees.

Findings from this study reveal increases in mindfulness, changes in insula and septal activation and connectivity, and changes in economic decision making as a consequence of mindfulness training. The researchers infer that mindfulness increases social cooperation by improving the regulation of negative emotions. The strength of that inference is weakened by the fact that the "social" nature of the Ultimatum Game involved virtual rather than actual human interaction.

Studies show that older lesbian and bisexual women are more likely to be overweight than their heterosexual peers, but there is a dearth of reported interventions specific to this population. Ingraham et al. [Women’s Health Issues] investigated whether mindful eating programs specifically designed for older lesbian and bisexual women can improve their physical and emotional health. The researchers also compared the outcomes of these programs with traditional diet-and-exercise programs that were also tailored for this population.

The U.S. Department of Health and Human Services funded five different interventions at five separate locations to gain information about the how to best reduce overweight status. Two of the sites adopted slightly different mindful eating approaches, while three sites opted for variations on traditional diet-and-exercise approaches. Each site designed its own program curriculum based on the concerns and beliefs of the organizations hosting the programs at each site. All five sites recruited lesbian and bisexual participants 40 years of age or older with a BMI ≥ 25 kg/m². Assignment to groups was based on proximity to sites and was not randomized.

The two different mindful eating interventions were both 12-week group programs employing aspects of Mindfulness-Based Stress Reduction along with the Health At Every Size program’s emphasis on acceptance of body size and shape, and the Intuitive Eating program’s emphasis on attending to hunger and satiety cues. The three traditional diet-and-exercise programs met 12-16 times in weekly support groups and employed techniques such as food logs, recipe handouts, gym memberships, pedometers and personal trainers. There were a total of 160 participants in the mindful eating groups, and 106 in the diet-and-exercise groups.

All participants completed assessments immediately before and after intervention. Self-report measures included a Mindful Eating Questionnaire that measured eating beyond fullness, sensory awareness while eating, and emotionally-triggered eating and a quality of life questionnaire that measured perceptions of physical and mental health. They also completed measures of nutritional intake, physical activity, height, weight, and waist circumference. At baseline, the mindful eating trainees were significantly more likely to be women of color, be more overweight, be older, be less physically active, be disabled, unemployed or retired, and have poorer quality of life than the traditional diet-and-exercise group members.

Mindful eating trainees showed significant, albeit small (6-7%) improvements in mindful eating scores. The women who improved mindful eating scores the most had the largest improvements in physical and mental health quality of life. Women in the upper third of improvement in mindful eating improved their mental health quality of life by 35%, while those in the lower third improved by only 4%. Mindful eating trainees who improved most in mindful eating also showed the largest

Highlights by Seth Segall, PhD
increases in physical activity and largest decreases in sweetened beverage consumption.

The women showed significant weight losses (1-5 pounds) and reduced waist-to-hip ratios at all five sites, without significant between-group differences. Only mindful eating trainees significantly improved their mental health quality or increased their fruit and vegetable intake, eating an additional 12 servings a month. Diet-and-exercise trainees reported significantly greater increases in weekly physical activity (117 minutes versus 60 minutes) and physical quality of life compared to mindful eating trainees.

Findings from this study show that mindful eating programs tailored to the needs of older, overweight lesbian and bisexual women can lead to improvements in mindful eating and perceived mental health, as well as increased fruit and vegetable consumption. Traditional diet-and-exercise programs fared better at improving physical activity and perceived physical health. Mindful eating programs provide an alternative for women who are ideologically averse to traditional diet-and-exercise programs. The lack of random assignment limits any inferences about between group differences in outcomes.
Research Presentations:

Two chaired research symposia will be offered during the conference, and submissions under this heading will be considered part of those symposia. Individual presentations will be approximately 25 minutes including time for questions-and-answers, and will be followed by a 10-15 minute wrap-up by the discussant. Submission abstracts must include the following six components: (1) aims and objectives of the study; (2) a brief description of the participants, including age, gender, and (if applicable) targeted clinical population; (3) study design and methodology; (4) mindfulness component of interest or mindfulness intervention used; (5) main findings; and (6) a brief discussion. You are encouraged to include quantitative or mixed methods results and statistical analyses. Maximum 500 words. Submitters whose presentations are not accepted may be invited to submit their research as a poster.

Research Posters:

A poster session will be held on Friday, February 10th and posters will also be displayed all day on February 11th (presenter attendance is not required on the 11th). Submission abstracts must include the following six components: (1) aims and objectives of the study; (2) a brief description of the participants, including age, gender, and (if applicable) targeted clinical population; (3) study design and methodology; (4) mindfulness component of interest or mindfulness intervention used; (5) main findings; and (6) a brief discussion. You are encouraged to include quantitative or mixed methods results and statistical analyses. Maximum 500 words.

Breakout Sessions:

These are 1.5 hour or 3-hour sessions on topics of relevance to the theme of the conference—CREATIVITY, INNOVATIONS, AND CHALLENGES. We would like most sessions to include significant experiential components and interaction among participants, and these are requirements for 3-hour sessions. Our intention is to share the wisdom in the room and foster relationships among participants that will enhance the field. We encourage creativity and innovation in presentation styles and formats. Abstract submission should describe the content and format of the presentation in concise detail, names of presenters and any other relevant information. (Presentations intended largely to describe a single program or curriculum are discouraged unless the content is highly compelling for other reasons.)

SUBMIT NOW. DEADLINE AUGUST 31, 2016.

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MINDFULNESS RESEARCH MONTHLY

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SEP 2016

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


Kim, J. (2016). Effects of Buddhist ontology focused (BOF) meditation: Pilot study with mothers of children with developmental disabilities on their EEG and psychological well-beings. Asia Pacific Journal of Counselling and Psychotherapy. [link]


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**ASSOCIATIONS**

Articles examining the correlates and mechanisms of mindfulness


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**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 (AUG 2016)

Medical University of South Carolina (T. Killeen, PI). Mindfulness meditation for the treatment of women with PTSD and SUD. NIH/NIDA project #5R01DA040968-02. [link]


VA Puget Sounds Healthcare System (D. Kearney, PI). A trial of loving kindness meditation and cognitive processing therapy for PTSD. Veterans Affairs project #5101CX000857-03. [link]
Physician compassion is a key element in good doctor-patient relationships. Nevertheless, nearly 50% of doctors and patients feel that medical care is often insufficiently compassionate. Between 20-70% of physicians suffer from compassion fatigue, a state of emotional exhaustion and diminished empathy brought on by the unceasing demands of patient care. As a consequence, medical educators are interested in finding ways to enhance compassion in medical students who are in training to become future physicians. Fernando et al. [Mindfulness] tested whether a set of audio-guided mindfulness exercises could increase medical students’ compassionate behaviors, and whether the exercises had differential effects depending on the students’ self-compassion levels.

The researchers recruited 83 medical students (54% female, average age=21) for what they were told was a study of “emotional and clinical decision making." The students completed a self-report measure of self-compassion, a personality disposition that involves self-kindness, recognition of one’s common humanity, and mindful awareness. The students were then randomly assigned to listen to 10-minute audio recordings of either experiential mindfulness exercises or a speech on civic service. The mindfulness recording included an explanation of mindfulness and exercises involving mindfulness of the breath and of emotions. The students completed the Toronto Mindfulness Scale (TMS) after hearing the recordings.

Participants were then presented with a series of hypothetical clinical scenarios involving interactions with “difficult” patients. Participants rated how much they liked, wanted to help, and felt caring towards the patients, and their degree of subjective closeness to them. They also decided how much consultation time to allot to each of the patients. After being told the study was finished, the research assistant requested participants to help with an unrelated administrative task. The participants’ willingness to help with the task served as an objective measure of compassionate behavior.

Listening to the mindfulness recording resulted in higher TMS Decentering scores (a measure of one’s ability to disidentify from thoughts and feelings) than did listening to the civic service speech (partial $\eta^2=0.13$). Self-compassion scores were positively associated with liking the hypothetical patients (partial $\eta^2=0.05$), but listening to the mindfulness recording was not. However, students who listened to the civic service speech and were higher in self-compassion liked the patients more than those who listened to the speech and were low in self-compassion; there was no similar difference based on self-compassion for the students who listened to the mindfulness recording (partial $\eta^2=0.05$). The mindfulness recording increased their caring when students were low in self-compassion, and reduced their caring when they were high in self-compassion (partial $\eta^2=0.08$). Feelings of emotional closeness were associated with higher self-compassion for those who heard the civic service speech, but the mindfulness recording increased feelings of closeness for students who were lower in self-compassion (partial $\eta^2=0.09$). The mindfulness recording increased the likelihood of helping the research assistant when students were high in self-compassion, but not when they were less self-compassionate (partial $\eta^2=0.09$).

The study shows that brief mindfulness exercises can enhance decentering in medical students. The effects of the brief mindfulness recording on compassion to others seem to be moderated by pre-existing levels of self-compassion. While the
exercises facilitated caring for and liking the hypothetical patients when the students were low in self-compassion, it decreased aspects of compassion towards the patients when the students were high in self-compassion. The mindfulness exercises increased the likelihood of the students helping the research assistant, but only when the students were high in self-compassion. The study is limited by the very brief nature of its mindfulness recording.

Healthcare costs in the United States rose to over 17% of the Gross Domestic Product in 2015. Employers are increasingly turning to workplace-based lifestyle interventions to control employee healthcare costs. Mindfulness-based interventions (MBIs) are sometimes offered in workplaces to enhance employee self-care and decrease illness-causing stress. How well do workplace-based MBIs succeed in lowering employee healthcare utilization costs? Using a quasi-experimental design, Klatt et al. [Complementary Therapies in Medicine] retrospectively analyzed 5-year healthcare utilization and the associated costs for participants in a workplace-based MBI and a workplace-based didactic diet-and-exercise program. The researchers then compared these utilization rates and costs with those of matched controls drawn from a health care database.

A sample of 170 faculty and staff members from a large Midwestern university was recruited and randomly assigned to either a MBI or the diet-and-exercise (DE) intervention. The participants were selected, in part, on the basis of their high C-reactive protein levels (3.0-10.0 mg/ml), which are a known risk factor in cardiovascular disease. The MBI was an 8-week program modeled after MBSR, but truncated to fit a lunch hour schedule. The weekly workplace-based group meetings lasted 1 hour, recommended home practice was 20 minutes per day, yoga consisted of standing and chair yoga, and a 2-hour retreat replaced the usual “all day” session. The DE intervention consisted of a series of 8, 1-hour-long, group didactic sessions focusing on nutrition, diet, and exercise along with associated home readings. After the experiment was concluded, an additional cohort of 258 “controls” was selected from the university health plan database by matching the study participants as closely as possible on age, gender, relative health risk, and prior healthcare utilization. For statistical reasons, the researchers compared the MBI and DE interventions to the matched controls and not to each other.

The researchers analyzed university health plan records for participants and controls for the 5-year period after the interventions were completed. At the end of 5 years, both intervention groups had significantly fewer primary care visits than controls and trended towards fewer hospital visits and lower overall healthcare costs. Total MBI healthcare costs averaged $17,591, compared to $21,487 for DE participants and $25,788 for controls. On the other hand, MBI and DE participants used significantly more pharmacy prescriptions with significantly higher pharmacy costs. MBI participants spent an average of $7,286 on an average of 100 prescriptions per person compared to $10,398 for 94 prescriptions for DE participants and $4,729 for 3 prescriptions for controls.

The study shows a non-significant trend toward the workplace interventions lowering overall healthcare costs, with MBI participants averaging $8,197 less over 5 years than matched controls. MBI and DE participants were significantly less likely to visit their primary care doctors and trended towards being less likely to be hospitalized, but filled significantly more prescriptions. The study is limited by the possibility that the control cohort was not completely equivalent to the intervention groups, despite propensity matching. After all, the participants had volunteered for the intervention and made the commitment to attend, while the controls were passively selected from a database.
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Articles testing the applied science and implementation of mindfulness-based interventions


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**health workers. International Journal of Educational Research.** [link]


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**ASSOCIATIONS**

*Articles examining the correlates and mechanisms of mindfulness*


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OCT 2016

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in poker-machine gamblers. Journal of Gambling Studies. [link]


Methods

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


Duan, W., Li, J. (2016). Distinguishing dispositional and cultivated forms of mindfulness: Item-level factor analysis of five-facet mindfulness questionnaire and construction of short inventory of mindfulness capability. Frontiers in Psychology. [link]


Kline, A., Chesin, M., Latorre, M.,...Interian, A. (2016). Rationale and study design of a trial of mindfulness-based cognitive therapy for preventing suicidal behavior (MBCT-S) in military veterans. Contemporary Clinical Trials. [link]


Reviews

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


MINDFULNESS RESEARCH MONTHLY


TRIALS

Research studies newly funded by the National Institutes of Health (SEP 2016)

BODIMOJO, Inc. (A. Donovan and J. Tsao, PIs). Mobile coach for parents of children and adolescents with chronic pain. NIH/NICHD project #1R43HD090774-01. [link]

Johns Hopkins University (M. Rosen, PI). Simulation for building leadership capacity for patient safety. Agency for Healthcare Research and Quality project #5R18HS023159-03. [link]

University of California, San Francisco (M. Chesney, PI). A new translational tool for studying the role of breathing in meditation. NIH/NCCIH project # 3R01AT005820-06S1. [link]

University of Colorado, Denver (M. Moss and M. Mealer, PIs). MBCT resiliency program for critical care nurses. NIH/NCCIH project #1R34AT009181-01. [link]

University of Massachusetts Medical School (J. Brewer, PI). Mechanisms of mindfulness for smoking cessation: Optimizing quantity and quality. NIH/NCCIH project #1R61AT009337-01. [link]

University of Utah (E. Garland, PI). Targeting hedonic dysregulation to address chronic pain and opioid misuse in primary care. NIH/NIDA project #1R01DA042033-01A1. [link]

University of Washington (M. Jensen and R. Williams, PIs). Hypnosis and meditation for pain management in veterans: Efficacy and mechanisms. NIH/NCCIH project #3R01AT008336-03S1. [link]
Our everyday hassles — traffic jams, minor arguments with coworkers — can add up to significantly affect our overall sense of well-being. It’s possible that mindfulness may increase our resilience to the impact of these daily stressors. It may be that the more one is mindful during negative events, the greater one’s odds of responding wisely to them rather than merely reacting out of habit and emotion. Donald et al. [Journal of Research in Personality] tested whether increased levels of present-moment awareness—one component of mindfulness—increased the likelihood of acting in accordance with one’s values and one’s sense of efficacy during stressful events. They measured these variables through self-ratings in the participants’ daily diaries.

The authors hypothesized that being more present-moment aware during stressful events would increase behaving in accordance with one’s values and one’s confidence in being able to handle the stressor. They also theorized that greater present-moment awareness would decrease the need to distract oneself to take one’s mind off the stressor. They predicted that these relationships would hold true both on the day the stressful event occurred and on the next day as well. They based this on the presumption that present-moment awareness helps conserve scarce coping resources by reducing worry and rumination, and that these conserved resources “spill over” to help one cope with stress on the following day.

In comparing differences between participants, the higher a participant’s self-rated average present-moment awareness during a stressful event, the significantly greater the likelihood of his or her responding in accordance with values ($\beta=.16$) and feeling confident of being able to handle the stressor ($\beta=.09$). Similarly, in comparing variations in present moment awareness within individuals across different days, the higher their present-moment awareness during any stressful event, the significantly greater their responding in accordance with values ($\beta=.16$) and feeling confident about their ability to cope ($\beta=.09$).

There was a similar effect for one’s present moment-awareness on one day, and one’s values-consistent responding ($\beta=.06$) and self-confidence about coping ($\beta=.08$) on the next day. Present-moment awareness did not significantly impact reliance on distraction. The positive effects of present-moment awareness were evident regardless of one’s mood during the day or the degree of threat posed by an event.
Using a daily diary approach with twenty measurement points, the study’s results suggest that present-moment awareness of one’s actions, thoughts, and feelings during stressful events promotes feelings of self-efficacy and acting in accordance with one’s values, and that these beneficial effects extend into the next day. These results support the value of trying to maintain mindful attention during moments when we experience challenge and stress. The study is limited by its reliance on single questions to quantify variables, although the decision to do so was a reasonable one in terms of limiting the time burden on participants. It is also limited by its reliance on memory recall to estimate present-moment awareness.

Who doesn’t love chocolate? It’s one of the world’s most craved after foods due to its combined taste, pleasant physiologic effects, and past association with pleasant social events and youthful memories. It’s also alleged to have a positive effect on mood. Meier et al. [Appetite] explored chocolate’s ability to induce a pleasant mood and the degree to which mindfulness while eating influences its possible mood effect.

The researchers recruited 258 college students (65% female, 82% Caucasian, average age = 19) and randomly assigned them to one of four experimental conditions: a mindful chocolate condition, a mindful cracker condition, a non-mindful chocolate condition, and a non-mindful cracker condition. Participants were given either five pieces of chocolate candy or five plain water table crackers. Before eating, participants listened to either an audio recording of mindfulness instructions similar to those used in the MBSR raisin eating meditation, or to brief control instructions telling them to eat one cracker at a time.

The participants completed several self-report mood questionnaires both immediately before and after eating the chocolate or crackers. They also completed a food liking scale immediately after eating and rated mindfulness while eating using the Toronto Mindfulness Scale (TMS).

Participants in the mindfulness conditions scored significantly higher on the TMS, showing that the experimental manipulation effectively induced a mindful state (partial $\eta^2=0.03$). Participants in the mindfulness conditions enjoyed their food significantly more (partial $\eta^2=0.02$) than those in the non-mindful conditions, and those who ate the chocolate enjoyed their food significantly more than those who ate the crackers (partial $\eta^2=0.08$). Participants in the mindfulness conditions also had significantly larger increases in positive mood after eating than did those in the non-mindful conditions (partial $\eta^2=0.03$), and those who ate chocolate had larger increases in positive mood than those who ate crackers (partial $\eta^2=0.04$).

There was also a significant interaction effect between mindfulness and food type (partial $\eta^2=0.03$): mindful chocolate eaters had a significantly larger increase in positive mood states than participants in the other three conditions. Mindfulness also significantly lowered levels of negative mood states (partial $\eta^2=0.02$). A mediation analysis showed that mindfulness increased food liking, which in turn improved mood.

The study shows that eating chocolate improves one’s mood, and that mindfully consuming chocolate does so even more. It suggests that learning to mindfully savor positive experiences may be an important route to improving one’s enjoyment of life and one’s emotional well-being.
INTERVENTIONS

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


Nyklíček, I., van Son, J., Pop, V. J., Pouwer, F. (2016). Does MBCT benefit all people with

Oddi, M., Bennett, R. (2016). **Mixed staff and client mindfulness groups in a long stay inpatient setting: An evaluation.** *Journal of Psychosocial Rehabilitation and Mental Health.* [link]


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### ASSOCIATIONS

*Articles examining the correlates and mechanisms of mindfulness*

Anastasiades, M. H., Kapoor, S., Wootten, J., Lamis, D. A. (2016). **Perceived stress, depressive symptoms, and suicidal ideation in undergraduate women with varying levels of mindfulness.** *Archives of Women's Mental Health.* [link]

Calvete, E., Orue, I., Sampedro, A. (2016). **Does the acting with awareness trait of mindfulness buffer the predictive association between stressors and psychological symptoms in adolescents?** *Personality and Individual Differences.* [link]


Fulton, C. L. (2016). **Mindfulness, self-compassion, and counselor characteristics and session variables.** *Journal of Mental Health Counseling.* [link]


Håkansson, K., Ledreux, A., Daffner, K.,...Mohammed, A. K. (2016). **BDNF responses in healthy older persons to 35 minutes of physical
exercise, cognitive training, and mindfulness: Associations with working memory function. *Journal of Alzheimer's Disease.* [link]


Perona-Garcélán, S., Rodríguez-Testal, J. F., Senín-Calderón, C.,...Hayward, M. (2016). *Mindfulness as a mediator between the relational style with voices and negative affect.* *Mindfulness.* [link]


Tsai, M. H., Chou, W. L. (2016). *Attentional orienting and executive control are affected by different types of meditation practice.* *Consciousness and Cognition.* [link]


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**METHODS**

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

Badran, B. W., Austelle, C. W., Smith, N. R.,...Short, B. (2016). *A double-blind study exploring the use of transcranial direct current stimulation (tDCS) to potentially enhance mindfulness meditation (e-meditation).* *Brain Stimulation.* [link]

intervention on mood state and on visual and auditory attention and memory task performance. *Current Psychology.* [link]


Crane, R. S. (2016). *Implementing mindfulness in the mainstream: Making the path by walking it.* *Mindfulness.* [link]

Egan, H., Mantzios, M., Jackson, C. (2016). *Health practitioners and the directive towards compassionate healthcare in the UK: Exploring the need to educate health practitioners on how to be self-compassionate and mindful alongside mandating compassion towards patients.* *Health Professions Education.* [link]


Hutton, J. (2016). *How can mindfulness help patients with skin conditions.* *Dermatological Nursing.* [link]


Veterans Affairs Medical Center San Francisco (T. Novakovic-Agopian, PI). *Rehabilitation of executive functioning in veterans with PTSD and mild TBI.* Veterans Affairs project #5I01RX001111-04. [link]
**Highlights**

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

While anecdotal evidence suggests that an increasing number of medical students and physicians are gaining exposure to mindfulness-related concepts and practices, there have been no formal surveys of the extent and scope of mindfulness-related activities in U.S. medical schools. If mindfulness is to be more than a passing fad, MBI-related concepts and practices need to be integrated into medical education, and institutions must be created that will sustain medical MBI education, practice, and research into the future. To what extent is that happening across the nation?

Barnes et al. [Mindfulness] performed a systematic search of all of the 140 accredited U.S. medical school websites for information concerning MBI education, practice programs, and research activity. Whenever the schools were found to have affiliated academic mindfulness centers, the directors of those centers were surveyed about program content and sustainability.

The researchers evaluated over 5,000 web links that were harvested in an Internet search of links that included a medical school name and a reference to mindfulness. Mindfulness activities in those links were categorized as clinical activity, medical school curricular activity, student/staff wellness activity, or research activity. The search also identified potential academic mindfulness centers associated with the medical schools (AMCAMS). To be identified as an AMCAMS, centers had to be a distinct administrative entity, be affiliated with the medical school, and offer at least one MBI course. Center directors were asked to complete an online survey requesting detailed information about their programs, participants, staffing, revenue sources, and whether the center had an exclusive mindfulness focus or a broader integrative medicine focus.

Results showed that in 2014, 79% (111/140) of U.S. medical schools provided online information about mindfulness-related activities. In terms of types of mindfulness activities, 62% of the schools offered staff/student wellness-related activities, 49% offered research-related activities, 34% offered MBIs to patients, and 31% offered mindfulness-related material in their medical education curriculum.

Nearly a quarter (33/140; 24%) of the medical schools had an AMCAMS. Most of the AMCAMS directors (87%) responded to the survey. Of those AMCAMS, 42% were focused primarily on MBIs, while 55% had a broader integrative medicine focus that included mindfulness. The most commonly offered MBIs were MBSR (67%), MBCT (39%) and Mindful Movement (39%). AMCAMS supported themselves through a combination of MBI class fees (64%), private donations (52%), fee-for-service billing (48%), research funding (42%), and insurance billing (23%). The majority (61%) reported formal involvement of medical and psychology students, trainees, interns, and residents in their programming. The average AMCAMS had 12 full-time employees and offered an average of 15 MBI courses a year to 447 participants.

These findings are the first to document the breadth of integration of MBI-related concepts and practices into U.S. medical education on a national level. Mindfulness programs have established organizational and administrative footholds in nearly a quarter of U.S. medical schools. These data set the stage for future investigations into the status of mindfulness in American medical education. While the study surveyed the potential availability of mindfulness-related activities in U.S. medical schools, it does not evaluate the degree to which medical trainees actually participate in, receive training in, or conduct research in these activities.
Life expectancy of tobacco smokers is cut by 10 years, and smoking is responsible for nearly a half-million deaths in the United States each year. The vast majority of smokers want to quit, but unassisted attempts usually fail, and those that succeed often end in relapse. Studies show that acute stress increases both the likelihood of smoking and the risk of relapse. That is the reason why stress reduction techniques are often offered as a key component in smoking cessation programs.

Kober et al. [Neuroimage] investigated differences in the brain’s response to stress in cigarette smokers participating in one of two smoking cessation interventions: mindfulness training for smoking (MT) or the American Lung Association’s Freedom from Smoking (FFS) program.

The study reported on 23 adult smokers (average age = 48, 70% male, 58% Caucasian) who volunteered for a smoking cessation intervention. The participants were randomly assigned to either MT or FFS, and the relative success of these interventions was reported on in a separate publication (both interventions were effective, with MT participants demonstrating a greater improvement in smoking reduction). Both group interventions met twice a week over a four-week period. The MT program emphasized present-moment awareness and acceptance as strategies for coping with negative emotions and cravings and utilized mindfulness and loving-kindness meditations. The FFS program emphasized self-monitoring, identifying triggers, developing individualized quitting plans, maintaining a healthy lifestyle, and cognitive-behavioral coping strategies.

The participants underwent functional magnetic resonance brain imaging (fMRI) immediately after smoking cessation treatment. The participants listened to recordings of individualized stressful and neutral scenarios during their brain scans. The individualized scenarios were developed based on actual stressful life events the participants had reported during prior interviews in order to assure that the scenarios would actually trigger a stress-response. The researchers then compared participant brain activity while listening to the stressful versus neutral scenarios. They also monitored the number of cigarettes smoked per day during the intervention and three-month follow-up periods.

Listening to the stressful scenarios significantly increased participant’s reported level of stress (Cohen’s $d=.60$) and cigarette cravings ($d=.36$), whereas the neutral scenarios did neither. For the entire sample, brain stress response in a wide variety of limbic, insular, and midbrain structures was inversely correlated with post-treatment and three-month follow-up reductions in smoking ($d>1.0$). That is, the smokers who had the greatest success in decreasing their smoking also showed the smallest brain stress responses, whereas the least successful showed the highest brain stress reactivity.

Comparing treatment groups, FFS participants showed significantly larger brain stress responses than MT participants in 10 different brain regions. On the other hand, no brain region showed a significantly larger stress response for the MT participants. There were several stress-responsive brain regions (the amygdala, the insula, and the parahippocampal gyrus) that were specifically associated with successful smoking reduction and showed comparatively lower levels of stress-reactivity for MT participants ($d>1.0$).

Results support the hypothesis that mindfulness training for smoking successfully alters brain stress reactivity, and that this reduction in stress reactivity facilitates smoking reduction. The study also raises the possibility that mindfulness and acceptance strategies may be more successful at reducing smoker’s stress reactivity than cognitive behavioral strategies, at least as they are taught in FFS. The study is limited by its small sample size.
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Editor-in-Chief
David S. Black, PhD, MPH

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Effects on cognitive functioning and implications on healthcare. *Singapore Medical Journal.* [link]

Thomas, J. T. (2016). **Brief mindfulness training in the social work practice classroom.** *Social Work Education.* [link]


Whitesman, S., Mash, R. (2016). Examining the effects of a mindfulness-based distance learning professional training module on personal and professional functioning: A qualitative study. *BMC Medical Education.* [link]


Campbell, R., Vansteenkiste, M., Delesie, L.,...Mariman, A. (2016). The role of basic psychological need satisfaction, sleep, and mindfulness in the health-related quality of life of people living with HIV. *Journal of Health Psychology.* [link]


Drake, M. M., Morris, M., Davis, T. J. (2016). Neuroticism’s susceptibility to distress:
Moderated with mindfulness. *Personality and Individual Differences.* [link]


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**METHODS**

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


Renshaw, T. L. (2016). *Preliminary development and validation of the mindful student questionnaire. Assessment for Effective Intervention.* [link]
Rist, B., Pearce, A. J. (2016). **Strength training for the brain: Using technology to deliver mindfulness training to improve strength and conditioning performance.** Strength & Conditioning Journal. [link]


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**REVIEWS**

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


Lam, A. H., Chien, W. T. (2016). **The effectiveness of mindfulness-based intervention for people with schizophrenia: A systematic review.** *Neuropsychiatry.* [link]

Lang, A. J. (2016). **Mindfulness in PTSD treatment.** *Current Opinion in Psychology.* [link]

Lindsay, E. K., Creswell, J. D. (2016). **Mechanisms of mindfulness training: Monitor and acceptance theory (MAT).** *Clinical Psychology Review.* [link]

Rogers, J. M., Ferrari, M., Mosely, K.,...Brennan, L. (2016). **Mindfulness-based interventions for adults who are overweight or obese: A meta-analysis of physical and psychological health outcomes.** *Obesity Reviews.* [link]

Van Gordon, W., Shonin, E., Lomas, T., Griffiths, M. D. (2016). **Corporate use of mindfulness and authentic spiritual transmission: Competing or compatible ideals?** *Mindfulness & Compassion.* [link]

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**TRIALS**

*Research studies newly funded by the National Institutes of Health (NOV 2016)*

Northwestern University (D. Victorson, PI). Reducing the effects of active surveillance stress, uncertainty and rumination through engagement in mindfulness education. NIH/NCI project #SR01CA193331-02. [link]

Ralph Johnson VA Medical Center (K. Brady, PI). Mindfulness-based recovery in veterans with substance use disorders. Veterans Affairs project #510RX001292-03. [link]

University of Southern California (M. Pentz, PI). Cancer control research program. NIH/NCI project #5P30CA14089-42. [link]

University of Texas MD Anderson (K. Milbury, PI). Couple-based meditation program for patients with metastatic lung cancer and their partners. NIH/NCI project #5R21CA191711-02. [link]
Pregnancy profoundly affects women’s bodies. Women’s heart rate, blood pressure, and autonomic nervous system functioning undergo significant changes as pregnancy proceeds, and many women experience degrees of emotional distress. Some of these changes have the potential to deleteriously affect the mother’s long-term health as well as her infant’s social and emotional development.

Braeken et al. [Psychophysiology] conducted a longitudinal study of how differing levels of trait mindfulness are associated with differing levels of cardiovascular and autonomic functioning in pregnant mothers and with their newborn infant’s social and emotional development in the months following birth.

The researcher’s recruited 156 pregnant Dutch women who volunteered for inclusion in the study (average age = 33 years). Repeated measures of maternal cardiovascular function (blood pressure, heart rate, heart rate variability, and the length of the time interval between ventricular contraction and blood injection into the aorta known as the “pre-ejection period”) were taken during the first and third trimesters of pregnancy, along with a self-report measure of emotional distress. Trait mindfulness was measured during the second trimester using the Freiburg Mindfulness Inventory. Maternal emotional distress was again measured 2-4 months after delivery, and infant social-emotional development was assessed by maternal report the fourth month after delivery using the Ages and Stages Questionnaire-Social Emotional (ASQ-SE).

Maternal mindfulness was significantly associated with higher levels of general heart rate variability and high frequency heart rate variability. The more mindful the women were, the less their high frequency heart rate variability declined and the less their pre-ejection period shortened from the first to the third trimester. These results are interpreted as showing that more versus less mindful women have lower decreases in parasympathetic nervous system activity over the course of their pregnancy, given that these cardiac measures reflect changes in autonomic nervous system function. Higher levels of mindfulness were significantly associated with lower levels of emotional distress both during and after pregnancy. The ASQ-SE adaptive functioning sub-scale was significantly associated with maternal mindfulness, so that more mindful mothers had infants who showed higher levels of adaptive functioning. Adaptive functioning refers to the relative absence of difficulties in feeding, sleeping and elimination.

This study observes that mindful women have less of a decrease in parasympathetic activity over the course of their pregnancy, which could be an important finding in preventing problems like gestational hypertension and preeclampsia. It also finds that mindful women experience less emotional distress, which could be an important finding in preventing postpartum depression. Lastly, it finds that mindful mother’s infants have higher levels of adaptive functioning, which may reflect their calmer pregnancies, or perhaps a more mindful parenting style.

The study is limited by it being an associational rather than an interventional study, thus it cannot prove that mindfulness was the effective cause of these benefits, or that mindfulness training might produce the same sorts of benefits. Only future studies can test how robust these findings are and whether training pregnant women to be more mindful will show similar benefits on cardiovascular and emotional health outcomes.
Prostate cancer is the second most frequently diagnosed cancer in men, and one-fifth of those diagnosed go on to develop either metastatic or incurable progressive forms of the disease. Men with advanced prostate cancer have higher rates of depression, anxiety, PTSD, and suicide risk than the general population, and may be able to benefit from group treatments to reduce the psychological suffering associated with both the illness and the unintended effects of treatment.

Mindfulness-Based Cognitive Therapy (MBCT) has been shown to be an effective treatment for preventing relapse in recurrent depression, and Chambers et al. [Journal of Clinical Oncology] conducted a randomized, controlled study to see whether it could also be of benefit to advanced prostate cancer patients.

The researchers randomly assigned 189 Australian men (average age = 71 years) with advanced prostate cancer to either an 8-week MBCT group intervention delivered by teleconferencing, or a minimally enhanced treatment-as-usual condition. Teleconferencing allowed patients who lived in rural/remote areas or who were too ill to travel to participate. MBCT telephone sessions were held once a week, lasted for 1.25 hours, included short 15-minute meditation periods, and encouraged daily home practice. The enhanced treatment-as-usual condition provided patients with a consumer guide to advanced prostate cancer, a relaxation CD, coping-with-cancer booklets, and similar information. Outcome measures included self-report measures of general psychological distress, cancer-specific distress, anxiety concerning prostate-specific antigen (PSA) tests, quality of life, posttraumatic growth, and mindfulness (using the Five Facet Mindfulness Questionnaire or FFMQ). Measures were obtained at baseline and at 3, 6, and 9 month follow-ups.

There were no significant differences between the MBCT group and the control group on any of the self-reported outcome variables, including any of the FFMQ sub-scales. Of the 94 men assigned to the MBCT group, only 52% participated in 4 or more of the 8 group sessions. When statistical analyses were performed using the 49% of the MBCT participants who completed four or more sessions, there were again no significant improvement in outcomes, except for MBCT participants earning higher FFMQ Observing scores. Despite the lack of change in outcomes assessed, of the 61% of the MBCT sample who completed satisfaction questionnaires, 73% rated the intervention as “very helpful.”

MBCT was not effective in reducing distress in this sample of men with advanced prostate cancer. There are many possible reasons for this finding. First, a psychotherapeutic MBCT may not be for everybody. This was an older male population, and it’s possible that either mindfulness skills in the context of cognitive therapy weren’t consonant with their preferred masculine coping styles, or that their attentional styles weren’t sufficiently modifiable. Second, this was a largely non-distressed population (60% scored below the cut-off for significant distress) so there might not have been that much room for improvement.

The high non-attendance rate may be a clue that patients either didn’t think the treatment was necessary, or that this treatment wasn’t what they wanted. Third, the high non-attendance rate lowered this study’s statistical power, affecting its ability to detect an actual effect. Fourth, teleconferencing may not have been an effective medium for MBCT treatment delivery, especially considering most MBIs were developed for in-person group-based administration. Further studies are needed to clarify which populations and conditions MBCT may be best suited for, and which forms of delivery may be most effective for male patients with advanced cancer.
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