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Editor-in-Chief
David S. Black, Ph.D.

Highlights by
Seth Segall, Ph.D.

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INTERVENTIONS

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

Alamout, M. M., Rahmanian, M., Aghamohammadi, V.,...Nasiri, K. (2019). **Effectiveness of MBCT on weight loss, improvement of hypertension and attentional bias to eating cues in overweight people.** *International J Nursing Sciences.* [\[link\]](#)

Austin, M., Loprinzi, P. D. (2019). **Acute exercise and mindfulness meditation on learning and memory: Randomized controlled intervention.** *Health Promo Perspectives.* [\[link\]](#)

Beddig, T., Timm, C., Ubl-Rachota, B.,...Kuehner, C. (2019). **Mindfulness-based focused attention training versus progressive muscle relaxation in remitted depressed patients: Effects on salivary cortisol and associations with subjective improvements in daily life.** *Psychoneuroendocrinology.* [\[link\]](#)

Bloom-Foster, J., Mehl-Madrona, L. (2019). **An ultra-brief mindfulness-based intervention for patients in treatment for opioid addiction with buprenorphine: A primary care feasibility pilot study.** *JACM.* [\[link\]](#)

Carey, M. P., Dunne, E. M., Norris, A.,...Salmoirago-Blotcher, E. (2019). **Telephone-delivered mindfulness training to promote medication adherence and reduce sexual risk behavior among persons living with HIV: An exploratory clinical trial.** *AIDS and Behavior.* [\[link\]](#)

Carrico, A. W., Neilands, T. B., Dilworth, S. E.,...Coffin, L. (2019). **RCT of a positive affect intervention to reduce HIV viral load among sexual minority men who use methamphetamine.** *J Intern AIDS Societ.* [\[link\]](#)

Cerna, C., García, F. E., Téllez, A. (2019). **Brief mindfulness, mental health, and cognitive processes: A RCT.** *PsyCh Journal.* [\[link\]](#)

Doron, J., Rouault, Q., Jubeau, M., Bernier, M. (2019). **Integrated mindfulness-based intervention: Effects on mindfulness skills, cognitive interference and performance satisfaction of young elite badminton players.** *Psychology of Sport and Exercise.* [\[link\]](#)

Fam, J., Sun, Y., Qi, P.,...Mahendran, R. (2020). **Mindfulness practice alters brain connectivity in community-living elders with mild cognitive impairment.** *Psychiatry Clinical Neuro.* [\[link\]](#)

Guo, L., Zhang, J., Mu, L., Ye, Z. (2019). **Preventing postpartum depression with mindful self-compassion intervention: A randomized control study.** *J Nervous Mental Disease.* [\[link\]](#)

Hirshberg, M. J., Flook, L., Enright, R. D., Davidson, R. J. (2020). **Integrating mindfulness and connection practices into preservice teacher education improves classroom practices.** *Learning and Instruction.* [\[link\]](#)

Incagli, F., Tarantino, V., Crescentini, C., Vallesi, A. (2019). **The effects of 8-week MBSR program on cognitive control: An EEG study.** *Mindfulness.* [\[link\]](#)

Jha, A. P., Zanesco, A. P., Denkova, E.,...Rogers, S. L. (2019). **Bolstering cognitive resilience via train-the-trainer delivery of mindfulness training in applied high-demand settings.** *Mindfulness.* [\[link\]](#)

Nijjar, P. S., Connett, J. E., Lindquist, R.,...Yu, X. (2019). **Randomized trial of MBSR in cardiac patients eligible for cardiac rehabilitation.** *Scientific Reports.* [\[link\]](#)

Norouzi, E., Gerber, M., Masrouf, F. F.,...Brand, S. (2019). **Implementation of a MBSR program to reduce stress, anxiety, and depression and to improve psychological well-being among retired Iranian football players.** *Psychology of Sport and Exercise.* [\[link\]](#)

Otto, M. W., Rosenfield, D., Gorlin, E. I.,...Doan, S. N. (2019). **Targeting cognitive and emotional regulatory skills for smoking prevention in low-SES youth: A randomized trial of mindfulness and working memory interventions.** *Addictive Behaviors.* [\[link\]](#)

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Rupp, C., Gühne, D., Falke, C.,...Buhlmann, U. (2019). **Comparing effects of detached mindfulness and cognitive restructuring in obsessive-compulsive disorder using ecological momentary assessment.** *Clinical Psychology & Psychotherapy.* [\[link\]](#)

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Yela, J. R., Gómez-Martínez, M., Crego, A., Jiménez, L. (2020). **Effects of the mindful self-compassion programme on clinical and health psychology trainees' well-being: A pilot study.** *Clinical Psychologist.* [\[link\]](#)

ASSOCIATIONS

Articles examining the correlates and mechanisms of mindfulness

Azam, M. A., Latman, V. V., Katz, J. (2019). **Effects of a 12-minute smartphone-based mindful breathing task on heart rate variability for students with clinically relevant chronic pain, depression, and anxiety: Protocol for a RCT.** *JMIR Research Protocols.* [\[link\]](#)

Björkstrand, J., Schiller, D., Li, J., Davidson, P.,...Kirk, U. (2019). **The effect of mindfulness training on extinction retention.** *Scientific Reports.* [\[link\]](#)

Brotto, L. A., Bergeron, S., Zdaniuk, B., Basson, R. (2020). **Mindfulness and cognitive behavior therapy for provoked vestibulodynia: Mediators of treatment outcome and long-term effects.** *J Consult Clinical Psychology.* [\[link\]](#)

Brown, D. R., Jackson, T. C., Claus, E. D.,...Clark, V. P. (2019). **Decreases in the late positive potential to alcohol images among alcohol treatment seekers following MBRP.** *Alcohol and Alcoholism.* [\[link\]](#)

Daugherty, A. M., Sutton, B. P., Hillman, C. H.,...Barbey, A. K. (2019). **Individual differences**

in the neurobiology of fluid intelligence predict responsiveness to training: Evidence from a comprehensive cognitive, mindfulness meditation, and aerobic exercise intervention. *Trends in Neuroscience and Education.* [\[link\]](#)

Gillman, A. S., Bryan, A. D. (2019). **Mindfulness versus distraction to improve affective response and promote cardiovascular exercise behavior.** *Annals of Behavioral Medicine.* [\[link\]](#)

Hofert, S. M., Tackett, S., Gould, N., Sibinga, E. (2019). **Mindfulness instruction for community-hospital physicians for burnout and patient care: A pilot study.** *Journal of Patient Safety and Risk Management.* [\[link\]](#)

Lam, K., Seiden, D. (2019). **Effects of a brief mindfulness curriculum on self-reported executive functioning and emotion regulation in Hong Kong adolescents.** *Mindfulness.* [\[link\]](#)

Mantzios, M., Egan, H., Asif, T. (2019). **A randomised experiment evaluating the mindful raisin practice as a method of reducing chocolate consumption during and after a mindless activity.** *J Cognitive Enhancement.* [\[link\]](#)

Morley, R. H., Fulton, C. L. (2019). **The impact of mindfulness meditation on self-esteem and self-compassion among prisoners.** *Journal of Offender Rehabilitation.* [\[link\]](#)

Parra, D. C., Wetherell, J. L., Van Zandt, A.,...Lenze, E. J. (2019). **A qualitative study of older adults' perspectives on initiating exercise and mindfulness practice.** *BMC Geriatrics.* [\[link\]](#)

Pearson, M. (2019). **Counselling intern self-awareness and readiness for practice: Reports from a mindfulness challenge.** *Asia Pacific Journal of Counselling and Psychotherapy.* [\[link\]](#)

Pérez-Aranda, A., Angarita-Osorio, N., Feliu-Soler, A.,...Luciano, J. V. (2019). **Do humor styles predict clinical response to the MINDSET (mindfulness & education) program? A pilot study in patients with fibromyalgia.** *Reumatología Clínica.* [\[link\]](#)

Pollard, C., McKendrick-Calder, L. A., Shumka, C.,...Carlson, S. (2019). **Managing student workload in clinical simulation: A mindfulness-**

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based intervention. *BMJ Simulation Technology Enhanced Learning.* [[link](#)]

Ribeiro, L., Colgan, D. D., Hoke, C. K.,...Christopher, M. S. (2019). **Differential impact of mindfulness practices on aggression among law enforcement officers.** *Mindfulness.* [[link](#)]

Sevel, L. S., Finn, M. T., Smith, R. M.,...McKernan, L. C. (2019). **Self-compassion in MBSR: An examination of prediction and mediation of intervention effects.** *Stress and Health.* [[link](#)]

Sutamchai, K., Rowlands, K. E., Rees, C. J. (2019). **The use of mindfulness to promote ethical decision making and behavior: Empirical evidence from the public sector in Thailand.** *Public Administration and Development.* [[link](#)]

Tan, S. B., Ching, H. C., Chia, Y. L.,...Loh, E. C. (2019). **The effect of 20-minute mindful breathing on the perception of suffering and changes in bispectral index score (BIS) in palliative care informal caregivers: A randomized controlled study.** *American Journal of Hospice and Palliative Medicine.* [[link](#)]

Weitkamp, K., Laues, M., Schnell, T. (2019). **"Practical self-love"—A qualitative interview study on women participating in self: Cervix: An online sexual mindfulness and sensitivity course.** *Sexual and Relationship Therapy.* [[link](#)]

Yüksel, A., Yilmaz, E. B. (2020). **The effects of group MBCT in nursing students: A quasi-experimental study.** *Nurse Educ Today.* [[link](#)]

Zimmermann, F. F., Jordan, J., Burrell, B. (2019). **Coping with cancer mindfully: A feasibility study of a mindfulness intervention focused on acceptance and meaning in life for adults with advanced cancer.** *Euro J Oncol Nurs.* [[link](#)]

METHODS

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

Choe, E. Y., Jorgensen, A., Sheffield, D. (2019). **Simulated natural environments bolster the**

effectiveness of a mindfulness programme: A comparison with a relaxation-based intervention. *J Environmental Psychology.* [[link](#)]

Ehde, D. M., Alschuler, K. N., Day, M. A.,...Jensen, M. P. (2019). **MBCT and cognitive behavioral therapy for chronic pain in multiple sclerosis: A RCT protocol.** *Trials.* [[link](#)]

Hendricks, D. S., Lavery, M. R., Bouillon, L. E., Gotfried, R. S. (2019). **Evaluating the effectiveness of a mindfulness app among academic advisors.** *J Tech Beh Science.* [[link](#)]

Koopmann-Holm, B., Sze, J., Jinpa, T., Tsai, J. L. (2019). **Compassion meditation increases optimism towards a transgressor.** *Cognition and Emotion.* [[link](#)]

Lilja, J. L., Falkenström, F., Zelleröth, C.,...Weineland, S. (2019). **Psychometric properties and validation of the Swedish five facet mindfulness questionnaire in a clinical and non-clinical sample among meditators and non-meditators.** *Scandinavian J Psychology.* [[link](#)]

Lundh, L. G. (2019). **Experimental phenomenology in mindfulness research.** *Mindfulness.* [[link](#)]

Maltais, M., Bouchard, G., Saint-Aubin, J. (2020). **Predicting mindfulness facets: An examination of executive control, neuroticism, and impulsivity.** *Canadian J Behav Science.* [[link](#)]

Morgan, M. C., Cardaciotto, L., Moon, S., Marks, D. (2019). **Validation of the Philadelphia mindfulness scale on experienced meditators and nonmeditators.** *J Clinical Psychology.* [[link](#)]

Pan, C., Wang, H., Chen, M.,...Koniak-Griffin, D. (2019). **Mindfulness-based intervention for nurses in AIDS care in China: A pilot study.** *Neuropsychiatric Disease and Treatment.* [[link](#)]

Patsenko, E. G., Adluru, N., Birn, R. M.,...Davidson, R. J. (2019). **Mindfulness video game improves connectivity of the fronto-parietal attentional network in adolescents: A multi-modal imaging study.** *Scientific Reports.* [[link](#)]

Pbert, L., Druker, S., Crawford, S.,...Brewer, J. (2019). **Feasibility of a smartphone app with mindfulness training for adolescent smoking**

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Tran, U. S., Wasserbauer, J., Voracek, M. (2020). **Testing the incremental validity of dispositional mindfulness over and above the big five in accounting for mental health: A facet-level structural-equation modeling and predictor communalities and dominance approach.** *Personality Individ Differences.* [\[link\]](#)

Wolever, R. Q., Kahn, J. A., Davis, J.,...Schoenberg, P. L. (2019). **Introducing the emcc™: A validated taxonomy to advance targeted application of mindfulness skills.** *Mindfulness.* [\[link\]](#)

REVIEWS

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

Anderson-Ross, K. (2020). **We are what we think: Downregulating the chronic stress response with technology-assisted mindfulness meditation.** *J Restor Med.* [\[link\]](#)

Guest, J. D., Carlson, R. G. (2019). **Utilizing mindfulness strategies to manage negative countertransference and feelings of dislike while working with children exhibiting externalized behaviors.** *J Psych Integ.* [\[link\]](#)

Guo, J., Wang, H., Luo, J.,...Whittemore, R. (2019). **Factors influencing the effect of mindfulness-based interventions on diabetes distress: A meta-analysis.** *BMJ Open Diabetes Res Care.* [\[link\]](#)

Mongia, M., Gupta, A. K., Vijay, A., Sadhu, R. (2019). **Management of stuttering using cognitive behavior therapy and mindfulness meditation.** *Industrial Psychiatry Journal.* [\[link\]](#)

Murfield, J., Moyle, W., O'Donovan, A. (2019). **Mindfulness-and compassion-based interventions for family carers of older adults: A scoping review.** *Intern J Nursing Studies.* [\[link\]](#)

Per, M., Spinelli, C., Sadowski, I.,...Khoury, B. (2019). **Evaluating the effectiveness of mindfulness-based interventions in incarcerated populations: A meta-analysis.** *Criminal Justice and Behavior.* [\[link\]](#)

Rose, S., Zell, E., Strickhouser, J. E. (2019). **The effect of meditation on health: A metasynthesis of RCTs.** *Mindfulness.* [\[link\]](#)

Scheepers, R. A., Emke, H., Epstein, R. M., Lombarts, K. M. (2019). **The impact of mindfulness-based interventions on doctors' well-being and performance: A systematic review.** *Medical Education.* [\[link\]](#)

Van der Riet, P., Francis, L., Rees, A. (2019). **Exploring the impacts of mindfulness and yoga upon childbirth outcomes and maternal health: An integrative review.** *Scand J Caring Sci.* [\[link\]](#)

Xie, C., Dong, B., Wang, L.,...Tian, L. (2019). **MBSR can alleviate cancer-related fatigue: A meta-analysis.** *Journal of Psychosomatic Research.* [\[link\]](#)

Xunlin, N. G., Lau, Y., Klainin-Yobas, P. (2019). **The effectiveness of mindfulness-based interventions among cancer patients and survivors: A systematic review and meta-analysis.** *Supportive Care in Cancer.* [\[link\]](#)

Zimmer-Gembeck, M. J. (2019). **Introduction to the special section: Mindfulness in me and in you—measurement, development, and implications for adolescents' emotional and academic resilience.** *Inter J Beh Devel.* [\[link\]](#)

TRIALS

Research studies newly funded by the National Institutes of Health (DEC 2019)

VA Northern CA Healthcare System (J. Baldo, PI). **MBSR to improve neuropsychological functioning in acquired brain injury.** VA project #1101RX002951-01A2. [\[link\]](#)

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HIGHLIGHTS

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

Taken properly, anti-retroviral medications successfully reduce viral loads in people living with HIV infections, helping them to maintain health and reduce disease transmission. Persons with HIV who use methamphetamines often fail to get the full benefit of their anti-retroviral medications. Such stimulant users are more likely to skip medication doses, engage in high-risk sexual behavior, and show signs of hastened AIDS progression.

Carrico et al. [Journal of the International AIDS Society] studied whether an add-on intervention designed to boost positive affect can increase the efficacy of a contingency management program. Contingency management involved offering financial rewards for clean drug tests, and the add-on intervention included elements of mindfulness training.

The researchers randomly assigned 110 HIV+ men who engaged in anal sex with other men and tested positive for methamphetamine use (average age = 43 years; 43% Caucasian) to the add-on intervention called Affect Regulation Treatment to Enhance Methamphetamine Intervention Success (ARTEMIS), or an attention-control condition. Both groups also participated in a 3-month contingency management program offering financial rewards for maintaining stimulant-free urine samples. The period of active contingency management coincided with participation in the 3-month-ARTEMIS or attention-control group, and financial rewards were not continued after 3 months.

The ARTEMIS intervention consisted of 5 individual 1-hour training sessions delivered over a 3-month period. The program provided training in noticing and savoring positive events, mindfulness, gratitude, altruism, self-compassion, positive reappraisal, and reaching attainable goals. The training included breath-focused and loving-kindness meditations,

values clarification, and psychoeducation on stimulant withdrawal. The attention-control condition consisted of 5 individual 1-hour sessions in which participants were administered psychological tests and engaged in neutral writing exercises. Assessments occurred at baseline, and at 3, 6, 12, and 15 months. They included measures of HIV viral load and CD4+ T-cell (immune cell) counts, urine tests for substance use, and self-reports of stimulant cravings and use and positive affect.



The results showed ARTEMIS participants had significantly lower viral loads at 6 (Cohen's $d=0.89$), 12 ($d=0.43$), and 15 ($d=0.50$) months, and were significantly more likely to have all viral loads under 200 viral copies/mL (the level at which HIV infection is undetectable) than were controls. ARTEMIS participants reported more positive affect at the time of their last ARTEMIS training session ($d=0.56$) and at 6 ($d=0.53$) and 12 ($d=0.41$) months than controls. ARTEMIS participants reported significantly less stimulant use at 3 ($d=0.46$), 6 ($d=0.44$), and 12 ($d=0.39$) months, and fewer and less intense cravings at 3 ($d=0.50$), 6 ($d=0.55$), and 12 ($d=0.61$) months than controls. ARTEMIS participants were also significantly less likely to have any stimulant-positive urine tests over the course of 15 months, especially at 6 ($d=0.32$) and 12 ($d=0.38$) months than controls. There were no significant between-group differences in CD4+ T-cell counts at any time.

The study shows increased positive affect, decreased viral load, and decreased stimulant use in persons living with HIV who participated in contingency management with an add-on program to boost positive affect that included mindfulness skills. This is the first randomized, controlled study showing persistent (up to 12 months) viral load decreases after active contingency management has ended. ARTEMIS is designed to bolster multiple affect regulation skills, and it is not clear how much the mindfulness practices alone contributed to the observed benefits.

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A diagnosis of mild cognitive impairment (MCI) represents a degree of cognitive decline greater than what one might expect from normal aging but not severe enough to call for a diagnosis of dementia. While older adults with MCI show mild memory and word-finding difficulties, they remain capable of independent living. Nevertheless, they are at an increased risk for developing dementia, and clinicians are interested in developing ways to delay or prevent the onset or progression of dementia. MCI symptoms are often accompanied by decreased structural and functional brain connectivity, as diverse regions of the brain show greater difficulty in cross-communicating information and coordinating activity.

Prior research suggests that mindfulness practice enhances aspects of structural and functional brain connectivity in healthy adults. **Fam et al. [Psychiatry and Clinical Neurosciences]** examined whether mindfulness practice can also improve dynamic functional connectivity (changing patterns of functional connectivity over time) in older adults with MCI.

The researchers randomly assigned 47 meditation-naïve older adults (average age = 72 years; 72% female; 97% Chinese) diagnosed with MCI to a mindfulness awareness program or an active control. Mindfulness participants attended a series 12 weekly 40-minute group mindfulness training sessions and were encouraged to engage in daily home practice.

Control group participants attended a series of 12 weekly 40-minute talks on health-related topics including diet, sleep, exercise, and personal safety. Four mindfulness participants and 7 controls failed to complete the study, leaving a final analytic sample of 36 participants.

All participants underwent resting-state functional magnetic resonance imaging (fMRI) at baseline and three months later. Measures of the efficiency of brain information transmission were calculated. Higher efficiency is indicative of a shorter transmission time between disparate brain regions. Longer brain transmission times result from information taking a roundabout route to get from point A

to point B. The more intermediate steps information has to take to get from one brain region to the another, the greater the chance information gets distorted or lost. Participants were also assessed on neuropsychological measures of spatial analysis, auditory verbal learning, attention, short-term memory, processing speed, and semantic fluency.



The results showed that the mindfulness group significantly improved over time on auditory verbal learning recognition, while controls did not ($\eta^2=0.12$). Controls showed a significant decline in overall brain temporal efficiency, while mindfulness participants retained their level of overall brain temporal efficiency ($\eta^2=0.16$).

In addition, controls showed specific significant declines in temporal efficiency involving the insula, cingulate gyrus and superior temporal gyrus, whereas mindfulness participants maintained their regional temporal efficiency.

The study shows that mindfulness training can slow or prevent degradation of neural functional connectivity over a three-month window, as well as improve auditory verbal recognition memory in older adults with mild cognitive impairment. Findings support the use of mindfulness as a potential means to slow or halt cognitive decline in adults with mild cognitive impairment, possibly preventing the onset or progression of dementia.