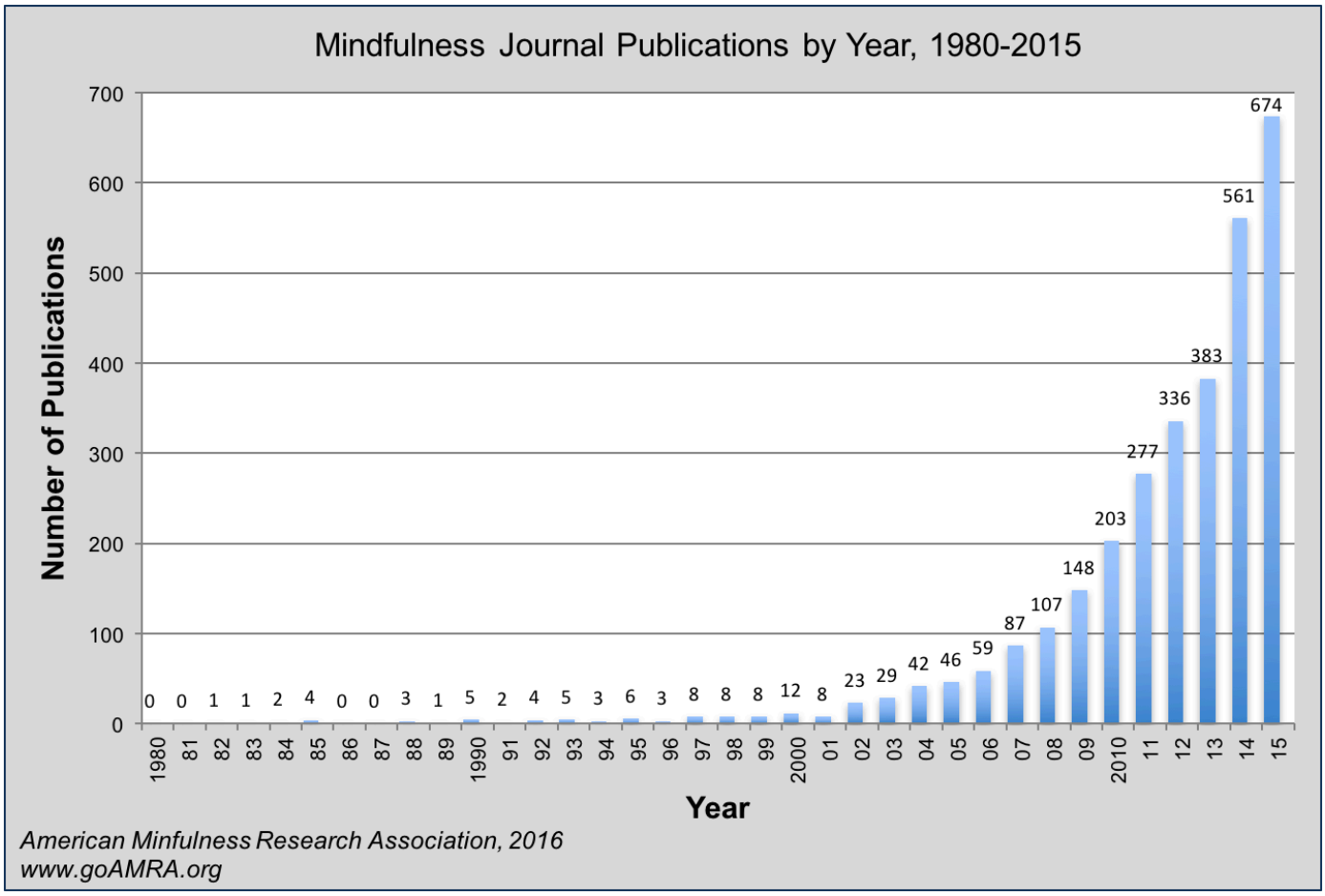
MINDFUL AWARENESS RESEARCH ABSTRACTS

The practices associated with mindful awareness have been scientifically studied for 35 years.

An example of growth in the mindful awareness research literature from 1980 – 2015



Notes. Data obtained from a search for "mindful awareness" in the ISI Web of Science database. Search limited to research-related articles; book-related material excluded

Research Abstract Summary: January 2017

Academic Impact:

Reading and Science grades up 4.8 and 6.6 points respectively with 60% fewer discipline events.

Bakosh, L., Snow, R., Houlihan, J., Tobias, J., Barbosa-Leiker, C. (2015). **Maximizing mindful learning: An innovative mindful awareness intervention improves elementary students' quarterly grades**. *Journal of Mindfulness, DOI 10.1007/s12671-015-0387-6.*

https://www.researchgate.net/publication/270638339_Maximizing_Mindful_Learning_An_Innovative_Mindful_Awareness_Intervention_Improves_Element

This controlled research study was conducted in eight 3rd grade classrooms to measure the effect of a 10-minute per day audio mindful-based social emotional learning (MBSEL) intervention on academic and behavior measures as well as on teaching operations. The results showed a statistically significant positive effect in reading grades, +4.8 points, and science grades, +6.6 points. Additionally, students had 60% fewer discipline events as measured by principal office referrals, with no change to curriculum since the program was run during normal transition times.

Mindfulness shown to lessen anxiety, enhance social skills and improve academic performance in students with learning disabilities.

Beauchemin, J., Hutchins, T. L., & Patterson, F. (2008). **Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning disabilities. *Complementary Health Practice Review, 13*, 34–45.**

http://journals.sagepub.com/doi/pdf/10.1177/1533210107311624

Thirty-four students diagnosed with a learning disability participated in a pilot study with a pre-post no-control design to determine the feasibility and outcomes of a 5-week mindfulness intervention. Those adolescents that completed the program demonstrated decreased state and trait anxiety, enhanced social skills, and improved academic performance. Interviews performed post-study revealed an overwhelmingly positive attitude toward the program.

MBSR program increases academic performance while preserving psychological health in students.

Bennett, K. & Dorjee, D. Mindfulness (2016). **The Impact of a Mindfulness-Based Stress Reduction Course (MBSR) on Well-Being and Academic Attainment of Sixth-form Students.**

http://link.springer.com/article/10.1007/s12671-015-0430-7

A feasibility pilot study with a non-randomized controlled design, explored the potential impact of a Mindfulness Based Stress Reduction Program (MBSR) for 23 students ages 16-18 as they studied for their General Certificate of Education (GCE) examinations. Participants (11 in MBSR program and 13 in control) experienced a greater decrease in depressive symptoms as well as reduction in anxiety while they attained a better grades on the GCE equivalent to one grade per subject. 90 % of the course attendees said they would recommend the course. ($d = 0.74$, $p = 0.07$, two-tailed) in the training group only. Authors suggest their study supports MBSR programs as an acceptable means of preserving students' psychological health while promoting an increase in academic achievement.

Mindfulness reduces test-anxiety and boosts cognitive performance on math tests.

Bellinger, D.B., Decara, M.S. (2015). **Mindfulness, anxiety, and high-stakes mathematics performance in the laboratory and classroom.**

https://www.ncbi.nlm.nih.gov/pubmed/26372885

Research demonstrates mindfulness' positive impact on both cognitive performance and emotional regulation. Since anxious thoughts disrupt cognitive control, a mindfulness practice may be beneficial for situations where anxiety interferes with positive performance, such as test taking. In Study 1, the authors determined that mindfulness indirectly benefited math performance through reduced state anxiety, particularly problems that required greater working memory. In Study 2, similar findings were found among undergraduate engineering majors and increased "performance on high-stakes quizzes and exams by reducing their cognitive test anxiety." Findings show how mindfulness benefits academic performance and suggest a positive influence on lowering test anxiety.

Contemplative practices positively impact learning and behavior.

Hart, T. (2004). **Opening the Contemplative Mind in the Classroom**. Journal of Transformative Education Vol. 2 No. 1, 28-46DOI: 10.1177/1541344603259311.

http://sites.middlebury.edu/mindfulness/files/2016/03/jj2_Hart-2004-Opening-the-Contemplative-Mind-in-the-Classroom.pdf

This paper provides a comprehensive view of contemplative programs in education. Hart notes that contemporary curriculum typically "exclude a fundamental way of knowing—the contemplative—from any viable role in education in favor of a rational and empirical approach. As a result, few mainstream teachers or curriculum planners have explicitly integrated the contemplative into the classroom. Yet, "contemplative knowing has been described as fundamental to the quest for knowledge and wisdom and complementary to analytic processing". His article offers a compelling rationale for returning to the contemplative to positively impact learning and behavior.

Behavior:

Teacher's perceive fewer behavioral problems in their classroom with school-based, mindfulness program.

Black, D., Fernando, R. (2013). **Mindfulness Training and Classroom Behavior Among Lower-Income and Ethnic Minority Elementary School Children.**

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304073/

This study examined the effect of teacher reported changes in classroom behavior as a result of a 5-week school-based, mindfulness program. 409 kindergarten through sixth grade students were evaluated at pre, post, and 7 week post-intervention with regard to classroom behavior. Of the 409 students, 83% were enrolled in a California free lunch program and 95.7 % were of ethnic minority. The components of classroom behavior included: paying attention, participation, self-control and caring/respect for others. Teachers reported significant results for improved classroom behavior. These results held at the 7 week post-intervention evaluation. Additional mindfulness training was shown to continue gains in students' ability to pay attention. While this study had some limitations due to lack of a true control group, the results remain promising.

Mindfulness demonstrates gains in prosocial behavior.

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2014). **Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum.** ***Developmental Psychology*****.**

https://www.ncbi.nlm.nih.gov/pubmed/25383689

68 ethnically diverse preschool students participated in a mindfulness based program in a public school setting to measure impact on prosocial behavior, executive function, and self-regulation. The mindfulness intervention group showed greater improvements in social competence and received higher grades from teachers in the following areas: learning, health, and social emotional development. Those students who were initially lower in social competence and executive functioning showed the greatest improvements as compared to the control group. The control group displayed more selfish behavior over time.

Significant decreases in impulsivity and aggression.

Franco,C. Et al. (2011)**. Effects of a Mindfulness Training Program on the Impulsivity and Aggression Levels of Adolescents with Behavioural Problems in the Classroom.**

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5031764/

The purpose of this study was to determine the efficacy of a mindfulness program to reduce impulsivity and aggression among high school students with behavioral problems. 27 students ages 12-19, 59 percent boys and 41 percent girls, participated in the study. The control group consisted of 14 of these students while the experimental group had 13 students. During the 10 week program, significant decreases in impulsivity and aggression were reported in the experimental group. In conclusion, the authors of the study concluded that the increase in self-regulation as it relates to attention and emotion support positive social relationships and learning.

Behavioral and attention problems decrease in adolescents with ADHD.

van de Weijer-Bergsma, E., Formsma, A. R., de Bruin, E. I., & Bögels, S. M. (2012). **The effectiveness of mindfulness training on behavioral problems and attentional functioning in adolescents with ADHD. Journal of Child and Family Studies, 21(5), 775-787.**

https://www.ncbi.nlm.nih.gov/pubmed/22993482

This study involved an 8 week mindfulness training program for adolescents with ADHD and a parallel Mindful Parenting program with their parents. For the adolescents, executive functioning improved while behavioral and attention problems decreased by self-report. Both teachers and fathers confirmed these

results. Adolescents' performance on attention tests also improved. While fathers did not report reduction in over-reactive parenting, they did report a reduction in parenting related stress. Mothers did report a reduction in over-reactive parenting. Improvements increased at 8 week follow-up period but declined at 16 weeks. This study supports the growing amount of evidence that mindfulness practice is an effective approach for adolescents with ADHD and their parents. Maintenance of an on-going practice seems to be a key element in the success.

Cognitive/Developmental:

Mindfulness improves executive functioning in 7-9 year olds.

Diamond, Adele & Lee, Kathleen (2011). **Interventions shown to aid executive function: Development in children 4 to 12 years old.** *Science, 333, 959-964.*

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3159917/

This review looks at 6 activities used to improve executive functions (EF). It states that all successful programs involve repeated practice. In the mindful awareness group, with 7 to 9 year olds they found a significant improvement with self regulation and emotional control skills in children who had initially poorer EFs than those with initially better EFs compared with controls.

Ability to self-regulate improves with MBSR Training program.

Flook, L. et al. (2010). **The effects of mindful awareness practices on executive function in elementary school children**, *Journal of Applied School Psychology, 26: 1, 70-95.*

https://pdfs.semanticscholar.org/0bf4/59d3fffb6d8ab1290b4cbef42d01fb35cf8d.pdf

These two pilot studies demonstrated that mindful awareness practices improve executive function in elementary school children. Specifically, there was improvement in self-regulatory abilities among preschool and elementary school students who participated in an 8-week modified Mindfulness Based Stress Reduction (MBSR) training program, taught in two 30-minute sessions per week. Children who were initially less well-regulated showed the strongest improvements subsequent to training, as compared to children in the control group who did not receive the training.

Mindfulness practice changes grey matter in brain to aid learning, memory processing and emotion regulation.

Hozel, B.K, et al (2011). **Mindfulness practice leads to increases in regional brain gray matter density.** *Psychiatry Res. 191*(1), 36-43.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004979/

The authors analyzed the neural mechanisms associated with mindful awareness practice. Using MR images they compared pre and post brain scan to measure regional gray matter density. They found that those who practiced mindful awareness, compared to controls, had increases in grey matter concentration in the left hippocampus, the posterior cingulate cortex, the temporo-parietal junction and the cerebellum. This suggests that mindful awareness practices can increase brain size in regions involved in learning, memory processing, emotion regulation, self-referential processing, and perspective taking.

Mindfulness awareness training balances external attentional demands.

Immordino-Yang, M. H., Christodoulou, J. A., & Singh, V. (2012). **Rest is not idleness: Implications of the brain's default mode for human development and education.** *Perspectives on Psychological Sciences, 7*, 352-364.

http://www-bcf.usc.edu/~immordin/papers/Immordino-YangetalRESTISNOTIDLENESSPPS2012.pdf

Neuroscience shows that the brain is highly active during periods of 'wakeful rest'. Neural processes in the 'default mode' (DM) increase, which is important for psychosocial functioning, mental health and cognitive abilities like reading comprehension and divergent thinking. The authors recommend mindful awareness training in schools as a way to balance the largely external attentional demands in our culture. They also suggest that some social and emotional skills are vulnerable to disruption by the overuse of technology and social media, which inhibit DM activity.

Mindfulness Awareness training improves working memory capacity.

Jha, A. P., Stanley, E. A., Kiyonaga, A., Wong, L., & Gelfand, L. (2010). **Examining the protective effects of mindfulness training on working memory capacity and affective experience.** *Emotion 10*(1), 54-64.

https://www.ncbi.nlm.nih.gov/pubmed/20141302

This study measured the effects of mindful awareness training on working memory capacity (WMC). WMC is used in managing cognitive demands and regulating emotions. Yet persistent stress may deplete WMC and lead to cognitive failures and emotional disturbances. The authors found that participants who had mindful awareness training improved WMC compared to a control group. They also found that practice time mediated the gains in WMC as well as gains in wellbeing and reductions in stress and anxiety.

Attention training increases IQ test scores and executive attention.

Posner, M.I. & Rothbart, M.K. (2005). **Influencing brain networks: implications for education**. *Trends in Cognitive Science 9, 99-103*.

http://amyalexander.wiki.westga.edu/file/view/influencing+brain+networks.pdf

According to a model first proposed by University of Oregon neuroscientist Michael I. Posner, attention can be trained. This research shows, and others have replicated the results, that attention training results in higher scores on IQ tests and a marked gain in executive attention. The results have been so remarkable that Posner and others are calling on educators to consider teaching attention as early as preschool. He said, "We should think of this work not just as remediation, but as a normal part of education."

29% increase in working memory capacity with mindfulness training.

Quach, D., Mano, K. E. J., & Alexander, K. (2015). **A randomized controlled trial examining the effect of mindfulness meditation on working memory capacity in adolescents.** ***Journal of Adolescent Health*****.**

https://www.ncbi.nlm.nih.gov/pubmed/26576819

198 middle school students were randomly assigned to one of three groups: mindfulness training, hatha yoga and a waitlist control group. Working memory capacity was objectively measured using the Automated Operational Span Task. Mindfulness participants experienced a 29 percent increase in working memory capacity whereas control group declined by 5 percent. This was the first study to support the positive impact of a short-term mindfulness practice on working memory capacity for adolescents.

Mental Health/Well-Being:

More frequent mindfulness practice leads to even greater gains in well-being and stress reduction.

Kuyken, W., et al. (2013). **Effectiveness of the Mindfulness in Schools Programme: Non-randomised controlled feasibility study.** ***British Journal of Psychiatry.***

https://www.ncbi.nlm.nih.gov/pubmed/23787061

Research positively correlates mindfulness practice with greater well-being for adults. This study aimed to evaluate the efficacy of a mindfulness intervention to enhance emotional and mental well-being. The study involved 522 students, ages 12-16, in 12 secondary schools. In the six schools that received the mindfulness program, students experienced significantly lower rates of depression immediately following the program and at post follow-up.. After three months, students reported lower stress and greater well-being. Those in the mindfulness intervention that practiced more frequently saw even more benefit in terms of increased well-being and lower stress. This study highlights the benefits of mindfulness practice in a school setting for improved well-being in adolescents.

Positive indicators on Mindfulness Attention Awareness Scale for Children follows previous research with MAAS for adults.

Lawlor, M. S., Schonert-Reichl, K. A., Gadermann, A. M., & Zumbo, B. D. (2012). **A Validation Study of the Mindful Attention Awareness Scale Adapted for Children.** ***Mindfulness*****, 1-12.**

https://www.researchgate.net/publication/272892566_Adaptation_of_the_Mindful_Attention_Awareness_Scale-Adolescents_MAAS-A_to_assess_the_mindfulness_trait_in_Spanish_adolescents

A total of 286 fourth to seventh grade children completed the Mindful Attention Awareness Scale—Children (MAAS-C), a modified version of a measure designed to assess mindfulness in adults. Results indicated that mindfulness, as assessed via the MAAS-C, was related in expected directions to indicators of well-being across the domains of traits and attributes, emotional disturbance, emotional well-being, and eudaimonic well-being. These findings were in accord with those of previous research with the MAAS in adult populations.

Mindfulness improves overall health and well-being as youth adopt a 'mindfulness mindset'.

Monshat, K., Khong, B., Hassed, C., Vella-Brodrick, D., Norrish, J., Burns, J., & Herrman, H. (2012). **A conscious control over life and my emotions:" Mindfulness practice and healthy young people. A qualitative study. Journal of Adolescent Health, 52(5):572-7. [PMID: 23298987]**

http://www.sciencedirect.com/science/article/pii/S1054139X12004004

This study offers a qualitative view of the how young people interact with the process of mindfulness. While most studies focus on the quantitative benefits of a mindfulness practice, this study used coded qualitative data collected over three months. Initially, students reported frequent distress on a daily basis as well as destructive reactions. Following the completion of a 6-week mindfulness based program, participants reported "greater calm, balance, and control." The most encouraging aspect of this study, is that it demonstrated that youth (similar to those studies with adults) who practice mindfulness not only experience the more immediate benefits of emotional regulation and reduction of stress, but develop a growth mindset regarding their ability to manage their lives.

Mindfulness significantly reduces depression in adolescents.

Raes, F., Griffith, J. W., Van der Gucht, K., & Williams, J. M. G. (2014). **School-based prevention and reduction of depression in adolescents: A cluster-randomized controlled trial of a mindfulness group program. *Mindfulness, 5*(5), 477-486.**

408 students, ages 13-20 from 24 classrooms in five schools participated in the study. Those students that received the mindfulness intervention had significantly reduced levels of depression than those who did not practice mindfulness. The authors concluded that mindfulness is an effective means of reducing depression among adolescents in schools.

Social/Emotional:

Self-regulation, empathy and compassion cultivated through contemplative practices.

Davidson, R. J. et al. (2012). **Contemplative practices and mental training: prospects for American education.** *Child Development Perspectives, 6*(2) 146-153.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3420012/

The authors put forth that it is possible to cultivate positive qualities, to highlight a set of mental skills and socioemotional dispositions that are central to the aims of education in the 21st century. These include self-regulations skills associated with emotion and attention and prosocial dispositions such as empathy and compassion. They believe this can be accomplished through systematic contemplative practice, which changes brain structure and function to support academic success and prosocial behavior.

15% better math scores, 24% more social behaviors, were 24% less aggressive, and saw themselves as 20% more prosocial.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). **Enhancing cognitive and social–emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology*.**

https://www.ncbi.nlm.nih.gov/pubmed/25546595

This study was initiated to determine the effectiveness of a SEL program when combined with mindful awareness to positively impact stress levels, pro-sociality, cognitive function and overall well-being -- all linked to positive school outcomes. Two groups of combined 4th and 5th graders participated in this study with one group assigned to the SEL/Mindfulness program and the other a social responsibility program. Those students in the SEL/Mindfulness program saw greater improvements in cognitive control, stress reduction, empathy, emotional control and optimism. They also experienced self-reported decreases in depression and peer aggression. They were rated by peers as more prosocial and gained in peer acceptance. The results underscore the potential of SEL intervention with mindfulness programs.

Students report increase in optimism as teachers site more socially competent behaviors in classrooms using mindfulness.

Schonert-Reichl, K. & Lawlor, M. S.(2010). **The effects of a mindful-based education program on pre- and early adolescents' well-being and social and emotional competence.** *Mindfulness, 1, 137-151.*

http://greatergood.berkeley.edu/article/item/mindfulness_in_education_research_highlights

This study evaluated the effectiveness of the Mindful Education (ME) program using self-reporting measure by the students on optimism, general and school self-concept, and positive and negative affect and by teacher ratings of classroom social and emotional competence. The results showed that there was a significant increase in optimism by students in the ME program, and there was an effect for self-concept. Teacher rated classroom socially competent behaviors were found favoring the ME program and they reported that they were easily able to integrate the short mindful attention exercises within their classrooms.

Stress:

School-based mindfulness programs significantly decrease stress in children from lower socioeconomic backgrounds who are at higher risk for stress that undermines academic performance.

Costello, Elizabeth; Lawler, Margaret. (2014) **An Exploratory Study of the Effects of Mindfulness on Perceived Levels of Stress among School-Children from Lower Socioeconomic Backgrounds.** International Journal of Emotional Education, v6 n2 p21-39 Nov 2014.

https://eric.ed.gov/?id=EJ1085614

Research clearly links stress to decreased health and well-being as well as negative outcomes for student success. A lower socioeconomic background increases the risk for student stress, behavioral problems, social-emotional challenges and poor academic performance. These combined increase the risk of a student dropping out of school altogether. While many studies focus on teacher reported change and/or quantitative outcomes, this study focuses on children's experiences of mindfulness as it relates to stress. 63 primary school children who were " at risk of social exclusion" participated in a 5-week school-based, mindfulness program. Interviews with 16 children and 2 teachers identified five areas: conceptualization of stress, awareness, self-regulation, classroom regulation, and future stress. Quantitative analysis of children's perceived stress levels pre-and post intervention demonstrated significant reductions in stress levels. The authors' conclude, "These findings offer support for the incorporation of mindfulness interventions into the school curriculum, as a means of empowering children to address stress in their lives and improving full participation in the education system."

Mindfulness positively impacts health as it helps the brain manage stress and lower levels of Interleukin-6.

Creswell, D., J.Adrienne, A. Taren,Emily K. Lindsay,Carol M. Greco,Peter J. Gianaros,April Fairgrieve, Anna L. Marsland,Kirk Warren Brown,Baldwin M. Way,Rhonda K. Rosen,Jennifer L. Ferris. 2016) **Alterations in Resting-State Functional Connectivity Link Mindfulness Meditation With Reduced Interleukin-6: A Randomized Controlled Trial.**

http://www.biologicalpsychiatryjournal.com/article/S0006-3223%252816%252900079-2/fulltext

A multitude of studies demonstrate the positive effects of mindfulness meditation on stress and overall health and well-being, including but not limited to cancer, depression, and PTSD. However, few studies have determined how mindfulness practices actually improve health. The study by Carnegie Mellon University involved 35 Stressed and unemployed job seekers (adults) were randomized and placed in either a three day residential mindfulness meditation training program or a relaxation program. The study measured the amount of iL-6 from blood samples taken pre and post study at 4 months, as a key marker of inflammation. The study also used brain scans ,before and after, to determine the effects of mindfulness on brain circuitry. The research revealed that mindfulness practices connected two parts of the brain that typically work in opposition: the part of the brain that allows for internal reflection and mind-wandering (the default mode network) and that which allows for decision making and attention (the executive function network). This connectivity was absent from the relaxation program. Further, blood samples revealed

lower levels of interleukin-6 for those that participated in the mindfulness program versus the relaxation program. The study's author proposes that the reason the mindfulness program was more effective as the training seems to have more lasting impact on the subjects' ability to attend to their experiences.

Mindfulness programs in schools reduce stress and increase focus.

Garrison Institute (2005). **Contemplation and education: A survey of programs using contemplative techniques in K-12 educational settings: A mapping report. NY.**

http://ase.tufts.edu/iaryd/documents/researchRefContemplativeEdu.pdf

An extensive survey of mindful awareness programs currently being used throughout the United States in schools. It showed that schools are adopting secular mindful trainings because the techniques are easy to learn and help children become "more responsive and less reactive, more focused and less distracted, [and] more calm and less stressed." While mindful awareness can produce internal benefits to kids, including fostering love and forgiveness, the report also found it can create a more positive learning environment, where kids are primed to pay attention.

School-based mindfulness program positively impacts stress response for urban, underserved youth.

Mendelson, T., Greenberg, M., Dariotis, J., Gould, L. F., Rhoaedes, B., & Leaf, P. (2010). **Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth.** *Journal of Abnormal Child Psychology, 38*(7), *985-994.*

https://www.ncbi.nlm.nih.gov/pubmed/20440550

This paper reports findings from a pilot randomized controlled trial assessing the feasibility, acceptability, and preliminary outcomes of a school-based mindfulness and yoga intervention. The study was conducted with four urban public schools, 4th and 5th graders, for 12 weeks. The research suggests that the intervention was attractive to students, teachers, and school administrators and that it had a positive impact on problematic responses to stress including rumination, intrusive thoughts, and emotional arousal.

High School students perceive benefits of mindfulness for stress relief and improved school climate.

Wisner, B. L. (2013). **An exploratory study of mindfulness meditation for alternative school students: Perceived benefits for improving school climate and student functioning.**

https://scholar.google.com/citations?user=kl36ok0AAAAJ&hl=en

Wisner's study explored at-risk high school students' perception of the benefits of an eight week mindfulness meditation program. Thirty five high school students from a low-income rural community participated, comprised of 19 boys and 16 girls**.** Students participated in 20 minute guided mindfulness practices at least twice per week. Concept mapping, used to collect and analyze the data, yielded eight including stress management, enhanced emotional coping, enhanced self-awareness and improved school climate. Students rated improved school climate, particularly through enhanced teacher mood and stress relief as most important. The study demonstrated that students perceive the benefits of mindfulness even after relatively short exposure to the practice.

Teacher Stress:

Mindfulness reduces teacher stress and burnout.

Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., & Davidson, R. J. (2013). **Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy.** ***Mind, Brain, and Education,***

https://www.ncbi.nlm.nih.gov/pubmed/24324528

A randomized, controlled trial using a modified Mindfulness-Based Stress Reduction course (MBSR), adapted especially for teachers, demonstrated significant reductions in psychological symptoms, teacher burnout, and an increase in self-compassion. Improvements in observer-rated classroom organization were also noted. Unlike the MBSR intervention group, the control group experienced decreases in cortisol functioning and increased symptoms of burnout. According to the study's authors, "results suggest that tending to stress reduction translates into tangible benefits for teachers' sense of well-being and effectiveness in the classroom, which in turn are likely to have a positive impact on students' own well-being and learning, for example, via the teacher-student relationship and classroom climate."

MBSR program promotes educator personal and professional well-being.

Frank, J. L., Reibel, D., Broderick, P., Cantrell, T., & Metz, S. (2015). **The effectiveness of mindfulness-based stress reduction on educator stress and well-being: Results from a pilot study.** ***Mindfulness, 6*****(2), 208-216.**

http://link.springer.com/article/10.1007/s12671-013-0246-2

Thirty-six high school educators participated in either an 8-week MBSR program or a waitlist control group to determine the effectiveness of a mindfulness-based stress reduction program on educator stress and well-being. The findings suggest that the MBSR program positively correlated to significant gains in self-regulation, self-compassion and skills related to mindfulness, such as non-judgement and observation. In addition, the results demonstrated significant improvements in sleep quality. The study supports the use of a mindfulness-based stress reduction program to promote educator personal and professional well-being.

Both teachers and students experience cognitive, social and psychological benefits of mindfulness training.

Meiklejohn, J., Phillips, C., Freedman, M.L. et al. **Integrating Mindfulness Training into K-12 Education: Fostering the Resilience of Teachers and Students. Mindfulness (2012) 3: 291. doi:10.1007/s12671-012-0094-5.**

http://link.springer.com/article/10.1007/s12671-012-0094-5

This paper offers a review of research and curricula prior to 2012 regarding mindfulness training in K-12 education. The overview includes both teachers who receive training as well as students who experience the training directly. Research demonstrate a multitude of cognitive, social and psychological benefits for students who participate in direct training, including working memory, attention and academic skills. In addition, according to self-reports, students report decreases in anxiety, depression, stress and fatigue. Results for teachers suggest that personal training in mindfulness practices can increase not only a teacher's sense of self-efficacy but overall well-being. Teachers reported a greater ability to manage their classrooms and promote more supportive relationships with their students.

Mindfulness training reduces teacher stress, burnout, anxiety and depression.

Roeser, R. W., Schonert-Reichl, K. A., Jha, A., Cullen, M., Wallace, L., Wilensky, R., Oberle, E., Thomson, K., Taylor, C., & Harrison, J. (2013) **Mindfulness Training and Reductions in Teacher Stress and Burnout: Results From Two Randomized, Waitlist-Control Field Trials.** *Journal of Educational Psychology*. Advance online publication. doi: 10.1037/a0032093

http://www.amishi.com/lab/wp-content/uploads/Jha_MindfulnessTrainingAndReductionsInTeacherStress_Apr2013.pdf

In two field trials, researchers examined the effects of mindfulness training (MT) versus a waitlist control condition on the psychological and physiological indicators of teacher stress and burnout 113 elementary and secondary school teachers (895 female) from Canada and the United States participated in the study. 90% of the teachers who participated in the MT training attended the majority of the sessions with 87 teachers completing the program. Study results supported the research hypothesis regarding the positive effects of mindfulness on self-compassion, stress, focused attention, and working memory capacity. MT reduced symptoms of stress, burnout, anxiety and depression. Teachers in the MT reported greater mindfulness post-program and follow-up and their self-compassionate mindset persisted post-program as well. The results were consistent with larger studies that demonstrate the potential for mindfulness to mitigate occupational stress, while improving overall well-being.

Mindfulness training improves teacher-student interactions in the classroom.

Singh, N. N., Lancioni, G. E., Winton, A. S., Karazsia, B. T., & Singh, J. (2013). **Mindfulness training for teachers changes the behavior of their preschool students.** ***Research in Human Development****, 10*(3), 211-233.

http://www.tandfonline.com/doi/abs/10.1080/15427609.2013.818484

This study explores the effects on student behavior in the classroom when preschool teachers attended an 8-week mindfulness program. Students' challenging behaviors decreased while their compliance with teacher requests increased. These positive changes persisted during the training and continued following the training. Students did not experience a change in positive interactions with peers, however, the study demonstrated a decrease in negative social interactions and an increase in isolate play. Authors of the study state, "Our results indicate that mindfulness training for teachers was effective in changing teacher-student interactions in desirable ways."

Trauma:

MBSR program reduces post-traumatic stress symptoms for urban youth.

Sibinga, E., Webb,L., Ghazarian,S., Ellen, J. (2015). **School-Based Mindfulness Instruction: An RCT.**

http://pediatrics.aappublications.org/content/137/1/e20152532

An adapted mindfulness-based stress reduction program was evaluated to determine its ability to ameliorate the negative effects of stress and trauma. Low-income, minority, middle school students from two Baltimore City Public Schools were randomly assigned to receive either the MBSR program or a health education program. 300 students in grades 5-8 provided survey data. Both the MBSR and the Health Training group were comparable at baseline. However, post-program, the MBSR students experienced significantly lower negative coping and affect, depression, rumination, self-hostility and posttraumatic symptom severity. The results support the hypothesis that MBSR supports improved psychological functioning and may reduce symptoms of trauma among urban middle school students.