Beat Burnout with Mindfulness Meditation

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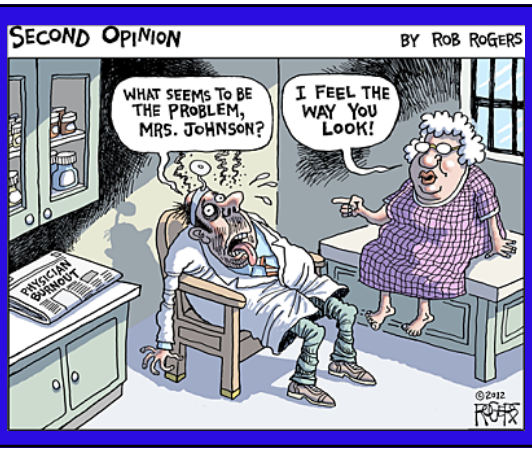
Objectives

- Describe the concept of physician burnout.
- Review current evidence for the benefits of mindfulness meditation.
- Understand how mindfulness meditation can help reduce burnout.
- Familiarize with the practice of mindfulness meditation.



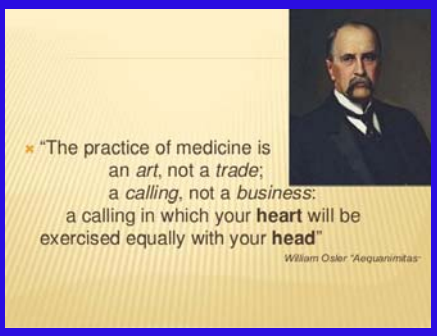
Physicians' Health Status

- Overall mortality rates are half that of age-matched general population
- Lower rates are due to decreased rates of cardiovascular disease, lung cancer and other diseases related to smoking
- Drug and alcoholism → 30-100x general population
- 3x other profession to spend >60 hrs/wk working, 21% 80 hrs/wk, 16% longer hrs
- 13% F and 20% M physicians → episode of depression
- Divorce rates → 10-20% higher than general population
- Physicians are twice as likely as the general population to commit suicide

The Resilient Physician. Sotile, WM 2002

Some of the factors involved in our becoming doctors contribute to a lack of balance

- Family of origin issues
- Compulsive personality traits
- Psychology of postponement



Physician Burnout

- Marked by emotional exhaustion, cynicism, depersonalization
- Seems to be increasing- affects up to 65% of residents
- Nearly 46% of 7288 surveyed physicians said they experienced at least one symptom of serious burnout
  - Arch Intern Med. 2012;DOI:10.1001/archinternmed.2012.31.3199.
  - Annals of Emergency Medicine, 2017.DOI: https://dx.doi.org/10.1016/j.annemergmed.2017.07.005

The Wounded Healer

- Ancient mythology
  - Chiron
    - Teacher /Healer– Asklepios
    - Arrow wound – poison of the hydra –permanent wound
    - By way of overcoming the pain of his wounds, Chiron became the compassionate teacher of healing
- Jungian – analytical psychology
- "The doctor is effective only when he himself is affected. Only the wounded physician heals" Carl Jung, MD

Concept of Physician Burnout

- The loss of concern for the people with whom one is working (Maslach 1976).
- Three domains of burnout: emotional exhaustion, depersonalization, and low personal accomplishment (Maslach 1976).
- A literal collapse of the human spirit (Storlie 1979).
- Psychological withdrawal from work in response to excessive stress and dissatisfaction (Cherniss 1980).
- Burnout, at its core, is the impaired ability to experience positive emotion (Sexton 2017).

Implications of Burnout in Physicians

- Burnout in physicians has many important implications for
  - -persons experiencing it.
  - -recipients of health care.
- Knowledge on how stress and burnout develops is important.
- This understanding will help prevent burnout.

Schneider J. Self-care: Challenges and rewards for hospice professionals. Hopice J 1987;3:121-146
Fawzy FI, Fawzy NW, Pasnau RO. Burnout in health professions. In: Judd, Burrows, Lipsid, eds. Handbook on general hospital psychiatry. 1991 p.119-130.

Substance Use by Physicians

- Physicians less likely to use cigarettes and illicit substances than the general public
- Physicians more likely to use alcohol
- Overall, 8% of physicians reported ever having a substance use or dependence problem

Hughes, et al. JAMA 1992;267:2333

Physician Suicide

- Male physicians appear to commit suicide at about the rate of the general population.
- The rate among female physicians may be two to four times higher.
- The rate of suicide attempts among female physicians is lower than the general population- are physicians who attempt suicide more likely to be successful?

JAMA 1987;257:2949, Frank and Dingle. Am J Psych 1999;156:12

Factors Leading to Burnout

- Family of origin issues
- Work stress- lack of control
- Personality factors- compulsive traits
  - Doubt
  - Guilt feelings
  - Exaggerated sense of self-importance
- Family stressors

Spickard et al, JAMA 2002;288:1447

Causes of Burnout

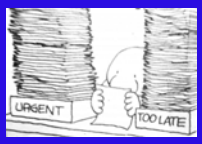
- Workload
- Specialty choice
- Practice setting
- Patient characteristics
- Sleep deprivation
- Personality type
- Methods of dealing with medical mistakes
- Malpractice suits
- Lack of control over practice
- Environment
- Problems with work-life balance
- Rising student debt
- Increasing govt regulations
- Business aspect of medicine
- Increase clinical demands
- Rapidly expanding knowledge base
- Less time with patients

The Well-Being of Physicians. Am J Med 4/2003

Why are physicians frustrated and burning out?

- Weak?
- Entitled (I've worked really hard and got all As)?
- Anxiety from transition, change, and uncertainty? "Broken contract"
- Addicted to affirmation—less appreciation shown by patients
- Frustrated with blame for ills of the system (especially cost)
- More deep rooted? This is not what I signed up for, this is not my calling, these are not my values.
- Is it because physicians' values are being compromised?

Sources of Stress



- House officers syndrome:
- - long training hours
- - excessive work loads
- - sleep deprivation
- - changing work conditions
- - peer competition
- - self denial

Sources of Stress-2

- Senior Physician find new stresses waiting for them:
- - work faster and longer hours
- - mountains of paper work and threat of malpractice suits
- - economic security prove elusive

Sources of Stress-3

- Difficulties to keep up to date
- Challenge to explain and defend work
- Daily confrontation with sickness and death

Stress vs. Burnout

STRESS	BURNOUT
Over-engaged	Disengaged
Emotions are overactive	Emotions may be blunted
Produces Urgency and Hyperactivity	Produces Helplessness and Hopelessness
Loss of energy	Loss of motivation, ideal and hope
Leads to anxiety disorders	Leads to detachment
Primary damage = physical	Primary damage = emotional
May have an impact to physical health	May lead to depression

http://www.bmgak.com/burnout-bmg-blog/

Coping behavior

- Working harder and longer
- Sense of entitlement
- Belief on immunity to difficulties
- Failure of self recognition of mental problems

Martin CA, Julian RA. Causes of stress and burnout in physicians caring for the chronically ill. Hospice j 1987;3:121-147.

Coping behavior-2

- Alienating family members and friends- three explanations:

- anger and frustration are vented to family and friends

- inability to share troublesome experiences

-family and friends are another source of demand

Martin CA, Julian RA. Causes of stress and burnout in physicians caring for the chronically ill. Hospice j 1987;3:121-147.

Coping behavior-3

- Avoiding being with family:
- - Physician dawdler- spends time socializing around and needs to stay late to finish work
- - Electronic pediatrician- available 24/7
- - Out-of-town academician

Brent and Brent, 1978

Impact of Physician Burnout

The cost of burnout

- Effect on patient care and safety
  - Patient medication adherence
  - Physician recommended evidence based screening and health counseling reduced when physicians have poor personal health
- Reduced workplace productivity and efficiency
- Cost of replacing a physician (150-300 K, maybe 1million)

(Wallace, 2009)

Stress: seen and unseen

The Stress System

- Hypothalamic-Pituitary-Adrenal Axis
- Increased blood pressure
- Increased heart rate
- Pain and discomfort
- Anxiety
- And on and on…

Brain

- Mental Activity Can Lead to Changes in the Brain
  - Dendritic remodeling and stress exposure
    - The Hippocampus
      - Memory impairment?
    - The Pre-Frontal Cortex
      - Executive functioning?
    - The Amygdala
      - Anxiety and hypertrophy
        - More to be learned about the adolescent brain

(Romeo 2006)
(Lupien 2009)
(Romeo 2013)

Self care – Doctors are miserable at this

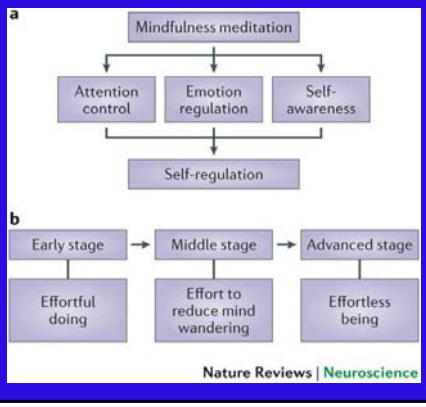
- Less doctor visits for themselves
  - Self-prescribe drugs (i.e. will not see a doctor)
  - Perceived (??) stigma around seeking help or support
- Willing to work when sick… and expect the same from colleagues (but not patients)
- Denial and avoidance – physician coping strategies
  - Poor record of mutual support and positive feedback in the field
  - Protecting the privacy of colleagues
  - Doctors are self-reliant, individually driven, achievers who are industrious and self-sacrificing

(Wallace, 2009)

https://valhallamind.com

What is Mindfulness and Meditation?

- Mindfulness- a kind of attention that is present- centered, intentional, and nonjudgmental. Jon Kabat-Zinn, PhD, is founding Executive Director of the Center for Mindfulness in Medicine, Health Care, and Society at the University of Massachusetts Medical School.
- You can use your mind to strengthen the structure of your brain.
- Dan Siegal
  - Meditation- practices from Buddhist traditions to cultivate qualities of attention.
  - Can be applied to many internal and external experiences. -Sensory, body, emotions, thoughts, actions.
  - Thought to improve well-being and health.



Tang et al., 2017

Mindfulness-Based Stress Reduction (MBSR)

- Since the MBSR program started at UMass Medical School in 1979 (Dr. Kabat-Zinn):
- over 22,000 people have completed it
- more than 6,000 medical doctors referred their patients
- Participants of the MBSR Program report:
- 38% reduction in medical symptoms
- 43% reduction in psychological and emotional distress
- 26% reduction in perceived stress
- Physicians who take this eight week meditation and yoga training have superior resilience skills

https://www.umassmed.edu/cfm/mindfulness-in-medicine/intro-to-mindfulness/

Mindfulness (3 practices)

- Focused Attention (concentration) meditation
- Single-pointed object- Breath and body focus
- Image (e.g., flame, shape)
- Sound (mantra, Transcendental Meditation)

- Open Monitoring (receptive) meditation
- Allowing anything to arise (e.g., insight, Shikantaza)
- Mental noting and labeling

- Ethical Enhancement meditation
- Loving kindness, forgiveness, compassion

How Does Mindfulness Meditation improve Health?

- Focused attention on the breath
  -Stabilize attention

- Mindfulness of emotions
  -Awareness and understanding of emotions

- Loving kindness (wishing well-being) and compassion (caring for and relief from suffering)
  - Cultivating positive relationship with self and others

- Compassion described as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help". (Goetz et al., 2010)

Cultivating Positive Relationships- Loving Kindness

- Harvard Study of Adult Development — a study that has tracked the lives of 724 men for 78 years; 60 from original group (1938), 2000 children

Lessons from the longest study on happiness:

- **1. A happy childhood has very, very long-lasting effects.**
- **2. But … people with difficult childhoods can make up for them in midlife.**
- **3. Learning how to cope well with stress has a lifelong payoff.**
- **4. Time with others protects us from the bruises of life's ups and downs.**
- Dr. Waldinger (4th PI) has said "it's the quality of your relationships that matters"

https://ideas.ted.com/4-lessons-from-the-longest-running-study-on-happiness/

How Does Mindfulness Meditation improve Health?

- Attentional skills to recognize internal patterns (habits, "automatic pilot")
  - Increasing awareness of internal events to slow down the habits (increasing resolution) and chose new ways of responding ("cycle breakers")

"We are what we repeatedly do."
Aristotle

  - Can decrease stress (improving immune system), help people chose healthier behaviors, improve relationships.

Choice and Habit

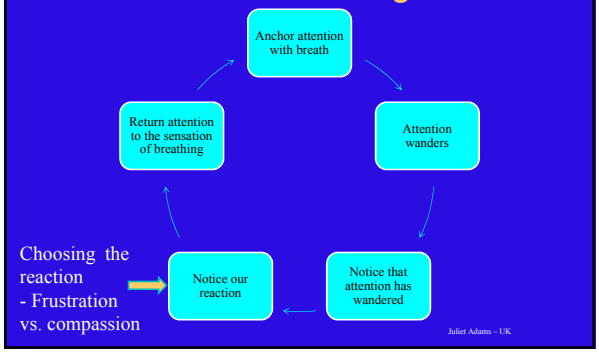
"Between stimulus and response, there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom."

Viktor E. Frankl. Man's Search for Meaning

Common sense and common action
Just because we know what to do, doesn't mean we do it.

Tetris

Brain Training



https://www.youtube.com/watch?v=8bxw4IYW1eE.
Juliet Adams – UK

Time 2:28 min

How do you increase your happiness?

- https://www.youtube.com/watch?v=RP4abiHdQpc

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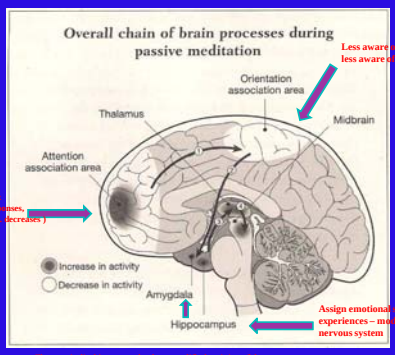
LAUGHTER AND HEALTH

- https://www.youtube.com/watch?v=RP4abiHdQpc

The Mindful Brain – Physiology



Less aware of environment and less aware of space and time

Attention increases (PET Pics) frontal cortex activity (medical responses, planning, decisions, etc. decreases)

Assign emotional significance to our experiences – modify activity of nervous system

Changes in limbic system leads to modified activity of the autonomic nervous system

Scientific Attention to Mindfulness Meditation

In recent decades, public interest in mindfulness meditation has soared.
The number of randomized controlled trials — the gold standard for clinical study — involving mindfulness:
1 from 1995–1997
11 from 2004–2006
216 from 2013–2015

https://news.harvard.edu/gazette/story/2018/04/harvard-researchers-study-how-mindfulness-may-change-the-brain-in-depressed-patients/

Benefits of Meditation

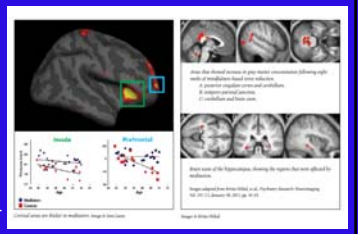
- The primary health benefit from meditation practices appears to be a general shift in the autonomic nervous system that decreases sympathetic tone and increases parasympathetic tone.
- As the parasympathetic system is stimulated, heart rate and breathing slow, stress hormones decrease, blood vessels dilate, and digestion is facilitated.

- Depression
- Anxiety
- Sleep
- Immune Function
- Cortisol Levels
- Decision Making
- Coping

PIMR (2016)

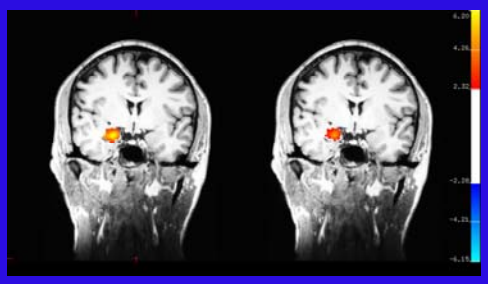
The Brain of Meditators

- Hippocampus – increased gray matter
  - Governs learning and memory
  - Decreased in depression and PTSD
- Amygdala
  - Decreased gray matter
  - Smaller amygdala
    - Participants had less reported stress



Lazar 2011

Effects of Meditation



Functional MRI (left) showing activation in the amygdala when participants were watching images with emotional content before learning meditation. After eight weeks of training in mindful attention meditation (right) note the amygdala is less activated after the meditation training.
Courtesy of Gaelle Desbordes

Structural Changes in Brain

Meditation tradition*	Control	Sample size of meditation (M) and control (C) groups	Type of measurement	Key areas affected*	Refs
Cross-sectional studies (non-clinical samples)					
Insight	Non-meditators	M: 20, C: 15	Cortical thickness	Right anterior insula and right middle and superior frontal sulci	32
Zen	Non-meditators	M: 13, C: 13	Grey-matter volume	Less age-related decline at left putamen	94
Insight	Non-meditators	M: 20, C: 20	Grey-matter density	Right anterior insula, left inferior temporal gyrus and right hippocampus	31
Tibetan Dzogchen	Non-meditators	M: 10, C: 10	Grey-matter density	Medulla oblongata, left superior and inferior frontal gyrus, anterior lobe of the cerebellum (bilateral) and left fusiform gyrus	33
Zen	Non-meditators	M: 17, C: 18	Cortical thickness	Right dorsal anterior cingulate cortex and secondary somatosensory cortices (bilateral)	34
MBSR	Non-meditators	M: 20, C: 16	Grey-matter volume	Left caudate nucleus	52
Zen	Non-meditators	M: 10, C: 10	DTI: mean diffusivity and fractional anisotropy	Lower mean diffusivity in left posterior parietal white matter and lower fractional anisotropy in left primary sensorimotor cortex grey matter	37
Longitudinal studies (non-clinical samples)					
IBMT (4 weeks)	Active control: relaxation training	M: 22, C: 23	DTI: FA and grey-matter volume	FA increased for left anterior corona radiata, superior corona radiata (bilateral), left superior longitudinal fasciculus, genu and body of corpus callosum. No effect on grey-matter volume	38
MBSR	Individuals on a waiting list	M: 16, C: 17	Grey-matter density	Left hippocampus, left posterior cingulate gyrus, cerebellum and left middle temporal gyrus	40
IBMT (2 weeks)	Active control: relaxation training	M: 14, C: 14	DTI: FA, radial diffusivity and axial diffusivity	Decrease of axial diffusivity in corpus callosum, corona radiata, superior longitudinal fasciculus, posterior thalamic radiation and sagittal striatum	39
Longitudinal studies (clinical samples)					
MBI	Usual care (patients with Parkinson disease)	M: 14, C: 13	Grey-matter density	Caudate (bilateral), left inferior temporal lobe, hippocampus (bilateral), left occipital cuneus and other small clusters; anterior cerebellum increased in usual care group	42
MBSR	Waiting list (patients with mild cognitive impairment)	M: 8, C: 5	Hippocampal volume (region of interest analysis)	Trend towards less hippocampal atrophy	41

DTI, diffusion tensor imaging; FA, fractional anisotropy; IBMT, integrative body–mind training; MBI, mindfulness-based interventions; MBSR, mindfulness-based stress reduction. *Studies that include meditators from traditions other than mindfulness or studies only investigating correlations with other variables are not listed. ‡Meditators show increased values, unless otherwise noted.

Evidence for Changes in Brain After Mindfulness Meditation

Brain region	Study design	Findings*	Refs
ACC (self-regulation of attention and emotion)	Cross-sectional, Vipassana meditators (N = 15) versus controls (N = 15)	Enhanced ACC activation during breath awareness (focused attention) meditation	70
	Longitudinal, IBMT versus active control (relaxation training) (N = 23 each group)	Enhanced ACC activity in resting state	38
PFC (attention and emotion)	Longitudinal, mindfulness training (N = 30) versus active control (N = 31)	Greater dorsolateral PFC activation during emotional Stroop executive processing	82
	Longitudinal, patients with generalized anxiety disorder, MBSR (N = 15) versus active control (N = 11)	Enhanced activation of ventrolateral PFC, enhanced connectivity of several PFC regions with amygdala	87
	Longitudinal, uncontrolled, before and after mindfulness training (N = 15)	Anxiety relief following mindfulness training was related to ventromedial PFC and ACC activation (along with insula)	157
PCC (self-awareness)	Cross-sectional, expert meditators (N = 12) versus controls (N = 13)	PCC deactivation during different types of meditation, increased coupling with ACC and dorsolateral PFC	117
	Cross-sectional, expert meditators (N = 14) divided into high and low practice groups	Reduced connectivity between left PCC and medial PFC and ACC at rest in high practice group	118
	Longitudinal, IBMT, active control (relaxation training) (N = 23 each group)	Enhanced right PCC activity at resting state	38
Insula (awareness and emotional processing)	Cross-sectional, MBSR (N = 20) and waiting list control (N = 16)	Greater anterior insula activation and altered coupling between dorsomedial PFC, and posterior insula during interoceptive attention to respiratory sensations	93
	Cross-sectional, expert Tibetan Buddhist meditators (N = 15) and novices (N = 15)	Enhanced insula activation when presented with emotional sounds during compassion meditation	128
	Longitudinal, IBMT, active control (relaxation training) (N = 23 each group)	Enhanced left insula activity at resting state	38
Striatum (regulation of attention and emotion)	Longitudinal, IBMT, active control (relaxation training) (N = 23 each group)	Enhanced caudate and putamen activity at resting state	38
	Cross-sectional, expert meditators (N = 34) and controls (N = 44)	Lower activation in the caudate nucleus during reward anticipation	106
Amygdala (emotional processing)	Longitudinal, mindful attention training (N = 12), compassion training (N = 12) and active control (N = 12)	Decreased activation in right amygdala in response to emotional pictures in a non-meditative state	88
	Longitudinal, uncontrolled, patients with social anxiety disorder before and after MBSR (N = 14)	Diminished right dorsal amygdala activity during reacting to negative self-belief statements	83
	Cross-sectional, beginner (N = 10) and expert Zen meditators (N = 12)	Downregulation of the left amygdala when viewing emotional pictures in a mindful state in beginner but not expert meditators	95

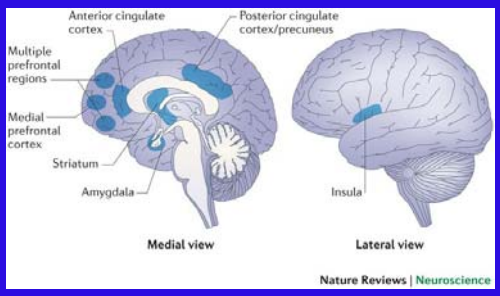
Exemplary studies for each region support its involvement in mindfulness (the list is not comprehensive). Future research will need to test the hypothesized functions by referring behavioural and neuroimaging findings. ACC, anterior cingulate cortex; IBMT, integrative body–mind training; MBSR, mindfulness-based stress reduction; PCC, posterior cingulate cortex; PFC, prefrontal cortex. *Meditators show increased values, unless otherwise noted.

Brain Regions Involved in Mindfulness Meditation

- Attention control (the anterior cingulate cortex and the striatum),
- Emotion regulation (multiple prefrontal regions, limbic regions and the striatum)
- Self-awareness (the insula, medial prefrontal cortex and posterior cingulate cortex and precuneus).

Tang et al., 2017

The Mindful Brain



Tang et al., 2017

Emotional regulation

- Research indicates that the anterior cingulate cortex (ACC) is involved in both cognitive control and emotional regulation.
- Neuroimaging studies show that the ventral part of ACC and its adjacent medial prefrontal cortex (mPFC) are mainly associated with emotional regulation (Bush et al., 2000, Posner et al., 2007, Rudebeck et al., 2008).

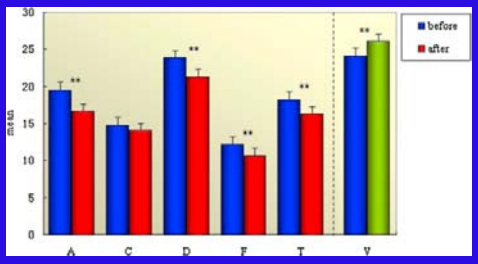
Mindfulness Meditation

- A non-judgmental attention or regulation to the present experiences (Hart, 1987, Kabat-Zinn, 1990).
- Improvements in emotion regulation associated with mindfulness meditation have been investigated through self-report, physiology and neuroimaging methods (Tang and Posner, 2014).
- Mindfulness-based emotion regulation may involve a mix of the implicit and explicit processes (Tang et al., 2015).
- Studies indicate increased positive emotion and decreased negative emotion (Holzel et al., 2011, Jain et al., 2007, Tang et al., 2007, Robins et al., 2012, Ding et al., 2014).

Emotion regulation and mindfulness meditation

- College students: Integrative Body Mind Training Method (IBMT) ($N = 40$) or a relaxation training group ($N = 40$) 5 days of short-term training (20 min/day).
- IBMT group-lower negative affect and fatigue, and higher positive feelings on the Profile of Mood States (POMS; Tang et al., 2007).
- IBMT can also decrease levels of the stress hormone cortisol and increase immune reactivity (Tang et al., 2007).
- IBMT showed the significantly better positive mood states compared to relaxation (Ding et al., 2014).
- A similar study showed that in comparison with a waitlist control group, an 8-week mindfulness training program significantly reduced negative moods (Robins et al., 2012).

Profile of Mood States



Comparison of six scales of the POMS before and after IBMT. Blue bar, five negative moods and one positive mood pretraining; red bar, five negative moods posttraining; green bar, one positive mood posttraining. Significance was found in POMS scales of anger-hostility (A), depression-dejection (D), fatigue-inertia (F), tension-anxiety (T), and vigor-activity (V) posttraining in the experimental group. No significant difference was found in POMS scale C (confusion-bewilderment) posttraining. **, $P_{average} < 0.01$. Error bars indicate 1 SD

The Practitioner and Health Care

- Interestingly, studies in psychotherapists in training who received mindfulness training showed an improvement in the efficacy of their counseling skills in this area as compared to controls—**mirroring the outcomes of studies showing physicians who have adopted a healthy lifestyle as more efficacious counselors to their patients.**

Grepmair (2007)
Frank (2000)

What does self care look like for you…

- Self-compassion
- Reframing
- Gratitude and appreciation
- Humor
- ? Financial goals
- Time for yourself
- Sleep
- Food
- Aligning with your values

Doctors who view medicine as a calling are more satisfied

- National survey of 1504 primary-care physicians showed that doctors who see medicine as a calling are more likely than other physicians to be satisfied treating patients with complex conditions.
- The reasons that drive doctors to practice medicine can have an impact on how satisfied they are caring for patients with challenging conditions.
- Physicians who are unhappy with their career choice are less likely to be satisfied treating those disorders, and they often blame patients for their conditions.
- The findings are significant, given high rates of burnout in the profession.

Doctors who view medicine as a calling are more satisfied - medicalxpress.com

Intervention

- Initiation of programs to alert physicians to stresses
- Re-evaluation and restructuring medical training
- Offering programs and conferences training in mindfulness meditation.
- Such programs might be valuable to teach physician that asking for help is acceptable for them

Intervention-2

- Learning of new adaptive coping mechanisms:
- - self-assesment and determination of stressors
- - specification of life priorities
- - sharing and expressing feelings

Intervention-3

- Aleviating stres at work:
- - focusing on positive aspects and small success
- - setting daily and weekly goals
- - breaks and variation in daily schedule
- - utilizing a team approach

Healthy Approaches to Physician Stress

- Increase self-awareness
  - Spiritual pursuits- religion, meditation
  - Psychotherapy
- Share feelings and responsibilities
  - Protect time with family and friends
  - Participate in group social activities outside of medicine
  - Participate in formal groups

(Quill and Williamson. Arch Intern Med 1990;150:1857)

Healthy Approaches - 2

- Promote self-care
  - Attention to work scheduling
  - Express feelings
  - Pursue interests outside of medicine
  - Regular exercise
- Develop a personal philosophy
  - Develop realistic short and long-term goals
  - Prioritize goals
  - Develop a time management system

"We as physicians need to cultivate a life that is not only "dedicated" but also balanced and healthy in mind, body, and spirit."

Collins. Cleveland Clinic J Med 1998;65:106.

Conclusion

- Burnout among physician is a serious problem, with a risk for suicide.
- Mindfulness is a method for improving self-awareness, self-regulation, and self-transcendence.
- Mindfulness can be cultivated by specific styles of meditative practice to decrease burnout.
- Being a physician is a career with a calling.

Quote from Mark Twain

- "There isn't time, so brief is life, for bickerings, apologies, heartburnings, callings to account. There is only time for loving, and but an instant, so to speak, for that."

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Thank you

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Questions?
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