



# Overview

- Introduction: The Dog Story that led me on this journey
- Defining the view of Mindfulness we'll use Today
  - What it is
  - What it isn't
- Is It “Medical Grade”?
  - General Psych Conditions
  - Hard Biologic Endpoints
  - What other conditions have been studied?
  - Burnout
- What is the Mechanism of Action?
  - A holistic, Osteopathic view
  - Coherence of Triune Brain, Autonomic Nervous System, Heart
  - HRV, a product of Mindfulness and producer of Health
- Burnout
- Why should a Cardiologist care?
- Where does this fit in today's culture?

# Topics and Definitions

- Mindfulness
- Meditation
- Mindful Meditation
  
- Relaxation
- “Zoning out”

# Trials in Anxiety and Depression

Public Enemies #1 and #2

More common in Primary Care

Increasing Incidence

60% reduction in symptoms in meta analysis of a large group of psychological symptoms (Hofman et al, 2010)

Similar focus by Goyal, et al, 2014

<b>Reduction in ...</b>	<b>8 weeks</b>	<b>3-6 months</b>
Anxiety	38%	22%
Depression	30%	23%
Pain	33 %	not reported

# Anxiety, Depression, General Psych Conditions

- Goldberg, 2017
- 142 trials
- 12,005 participants
- Substantial differences, but up to 50% improvements from a variety of Mindfulness interventions
- Mindfulness “equal to other Evidence-Based Therapies”

# What about Hard Endpoints?

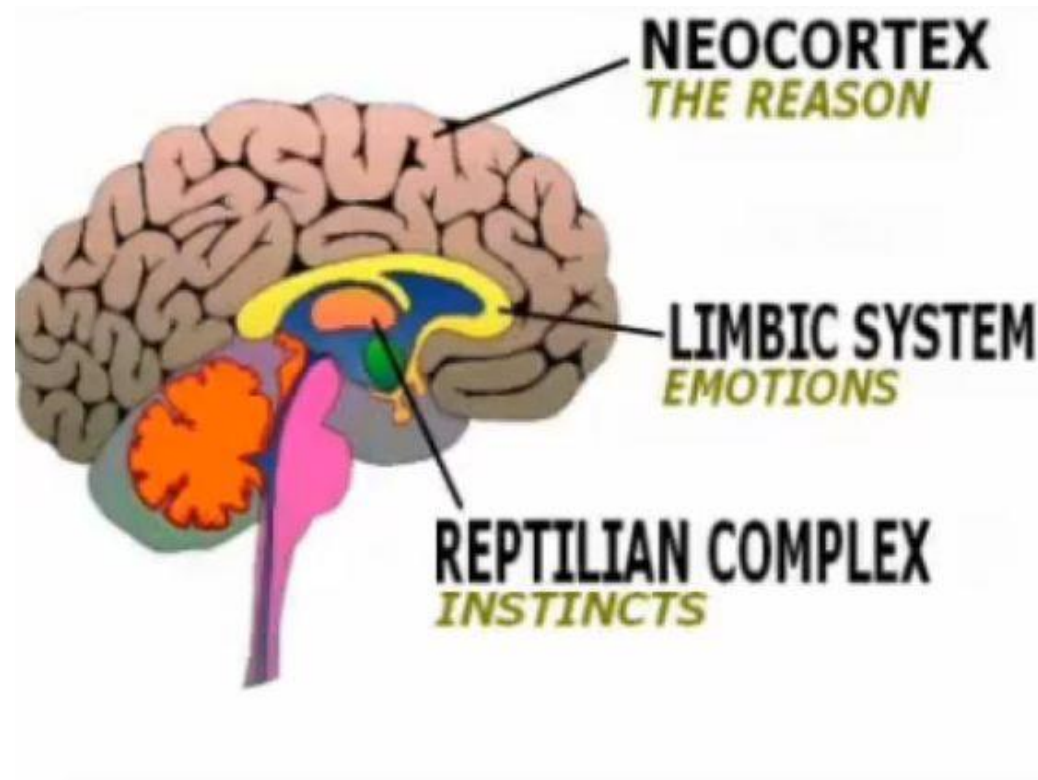
- Brain structures
- EEG's
- Stress Hormones
- Inflammatory Markers
- Telomere Length

# Clinical Conditions

- General Psych
- Stress alone
- PTSD
- Rheumatoid Arthritis
- Asthma
- ADHD
- Burnout

# Mechanism of Action

- We'll use the (somewhat outdated but useful) model of “Triune Brain”

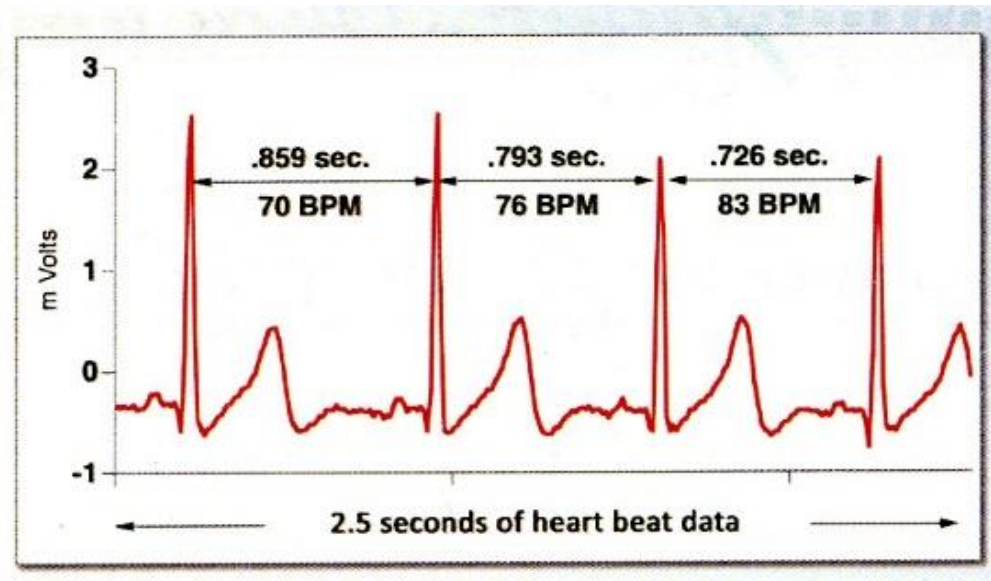




# A More Holistic View

- “Head Brain”
- Musculoskeletal System
- Autonomic Nervous System
- “Heart Brain”

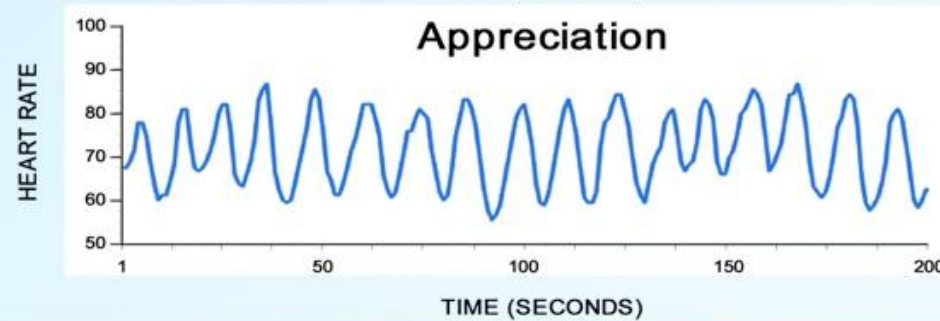
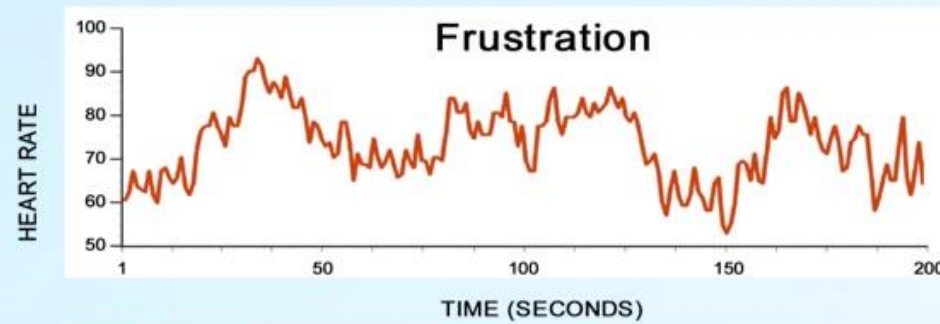
# Heart Rate Variability (HRV)



# HRV and Coherence

HeartMath® Institute

## Heart-Rhythm Pattern of An Individual



# Miscellaneous Topics

- HRV and Health Outcomes
- Test Anxiety
- Concentration, Memory tests
- Resilience and Energy
- Intuition
- Hypothalamic hormones
- Cannabis
- Inflammatory Markers

**400**  
physicians die by suicide  
each year, a rate more than  
**2X**  
that of the general  
population  
*Andrew & Brenner, 2015*

**→ 24%**  
of ICU nurses tested positive  
for symptoms of post-traumatic  
stress disorder  
*Mealer et al., 2007*



Physician rates of  
depression  
remain alarmingly  
high at  
**39%**  
*Shanafelt, 2015*

**23-31%**  
Prevalence of emotional  
exhaustion among  
primary care nurses  
*Gomez-Urquiza et al, 2016*

## How can we protect the health of the people who protect our own?



**National Academy of Medicine**  
Action Collaborative on  
Clinician Well-Being and Resilience

Learn more at [nam.edu/ClinicianWellBeing](https://nam.edu/ClinicianWellBeing)

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# Burnout

- Emotional Exhaustion
- Depersonalization
- Lack of Personal Accomplishment

# Burnout

- Mindfulness training is not a substitute for institutional reforms needed at multiple levels!
- It can be mis-used, “Victim Blaming” physicians for being unable to cope.
- Regardless, we have to take care of ourselves. Mindfulness is a potent tool for those affected by the rapid changes in the medical environment.
- Personal and institutional programs are often needed



# Primary Prevention of Cardiac Disease

- Challenges in studying these topics
- Recent Guideline from American Heart Association
- Recent article on Happiness and Heart Disease in JACC
- Many suggestive studies

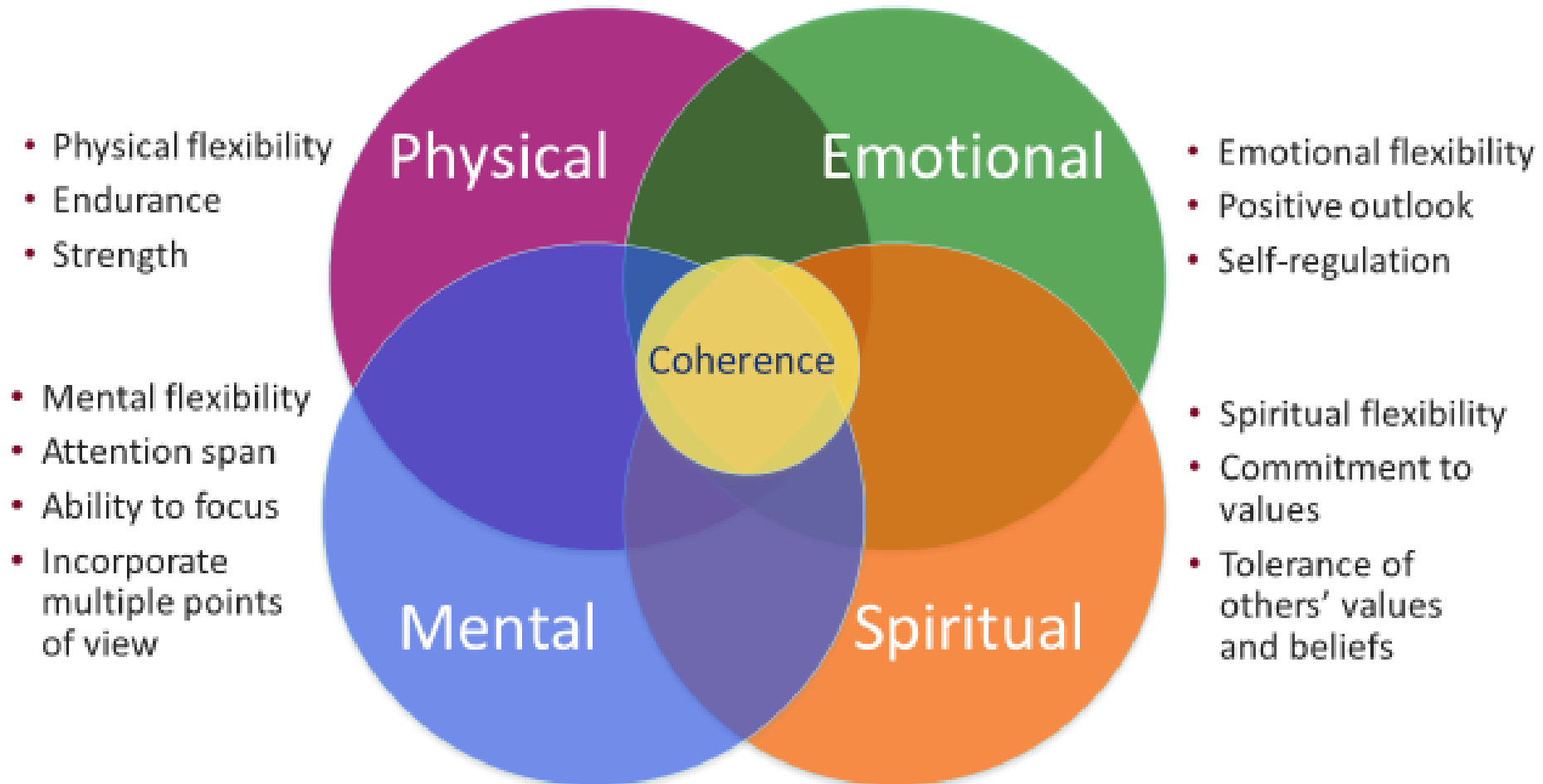
# What Can You Do for your Patients?

- Find local resources ... Google search “MBSR” or “Mindfulness Based Stress Reduction Courses”
- Multiple online apps
- Roll your own in office or hospital, etc.
- Be effective ... and even though it’s not “Professional”, make your own health the priority. Happiness is a legitimate medical goal.

# Trendy? YES! ... Trick? No ... Tool? Yes

- Teaches us to get back in touch with our body
- Helps us recognize unhelpful thought patterns, such as rumination
- Offers an alternative perspective
- Promotes self compassion, something that many people, especially physicians, were not taught very well
- Requires us to rest both body and mind
- Nurtures calmness and self-acceptance
- Improves many markers of health
- An increasingly important tool in an ever more complex world

# Domains of Resilience



# Bibliography and Resources

- **The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review.** J Consult Clin Psychol. 2010 Apr;78(2):169-83. doi: 10.1037/a0018555.
- **Meditation programs for psychological stress and well-being: a systematic review and meta-analysis.** Goyal M<sup>1</sup>, et. al. JAMA Intern Med. 2014 Mar;174(3):357-68.
- **Meditation: Should a Cardiologist Care?** Olex et.al. Intl J of Cardio. October 2013, 168,;1805-10.
- **Meditation and Cardiovascular Risk Reduction.** A Scientific Statement From the American Heart Association, Levine et. al. 28 Sep 2017, JAHA.
- **Positive Psychological Well-Being and Cardiovascular Disease.** Kubzansky, et. al. JACC 2018;72:1382-96
- **Stress and Cardiovascular Disease: An Update on Current Knowledge,** Steptoe and Kivimaki, Annual Review of Public Health Vol. 34:337-354
- **Relation between resting amygdalar activity and cardiovascular events: a longitudinal and cohort study** Tawakol, et. al., Lancet 2017; 389: 834–45
- 8-week Mindfulness Based Stress Reduction induces brain changes similar to traditional long-term meditation practice – A systematic review. Gotink et al. Brain and Cognition, 108: 2016, 32-41.
- Recommended books:
  - Mindfulness: It's not what you Think. John Kabat-Zinn Ph.D.
  - Aware. Daniel Siegel, M.D.
- Online Resources
  - Heartmath.com
  - Mindful.org
  - Apps: Headspace, Insight Timer, 10% Happier
  - Dan Harris YouTube (really good!) <https://www.youtube.com/watch?v=w6T02g5hnT4>
  - Meditation Can Change Your Brain, Sara Lazar. <https://www.youtube.com/watch?v=m8rRzTtP7Tc&vl=en>
  - Welltory: Great introductory video. [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=video&cd=4&cad=rja&uact=8&ved=0ahUKEwjX0umDh8vdAhUBca0KHWcNaf4QtwiINDAD&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DgPQxY4qFxnA&usg=AOvVaw0yDOAtAHQ8tjTIFim\\_YHnd](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=video&cd=4&cad=rja&uact=8&ved=0ahUKEwjX0umDh8vdAhUBca0KHWcNaf4QtwiINDAD&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DgPQxY4qFxnA&usg=AOvVaw0yDOAtAHQ8tjTIFim_YHnd)