

Mindfulness Meditation

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Definition # 1

"Mindfulness is **to be aware** . To be aware when you are breathing in and to be aware when you are breathing out...it is the capacity to be aware of what is **here**. Anything can be the object of mindfulness. Your breath. The sky. It is to be in touch with our felt **experience in each moment**"

Thich Nhat Hanh

Book recommendation: Peace is Every Step

Definition # 2

"Mindfulness is paying attention,
on purpose,
in the present, and
non-judgmentally ,
to the unfolding of experience moment by moment"

Jon Kabat-Zinn

Book Recommendation: Full Catastrophe Living

Definition #3

“ Mindfulness is to distinguish
awareness from mental activity
it is to learn to be aware of our own mental
states without being caught in them “

Jack Kornfield

Book Recommendation: Wise Heart

Some Facts About Mindfulness

- Mindfulness does not require any particular religious or cultural belief system.
- It is not something we acquire.
- It is simple but not easy!

Mindfulness is historically tied to Buddhism

- The Buddha taught that suffering is universal.
- We suffer because of the way in which we relate to our human condition (not the human condition itself).
- There is hope of liberation from suffering

Suggestion: Replace the word “suffering” with “stress”

- *We all experience stress. It's part of being human. We cannot change sources of stress, but we can change the way we handle the stress.*

Pain vs. Suffering

Pain

- Inevitable
- Sensation
- Impermanence
(Sickness, old age, death) is inherent in human condition

Suffering / Stress

- Optional?
- Pain + resistance to the experience pain
(This is unfair; I don't deserve this; this should not be happening)

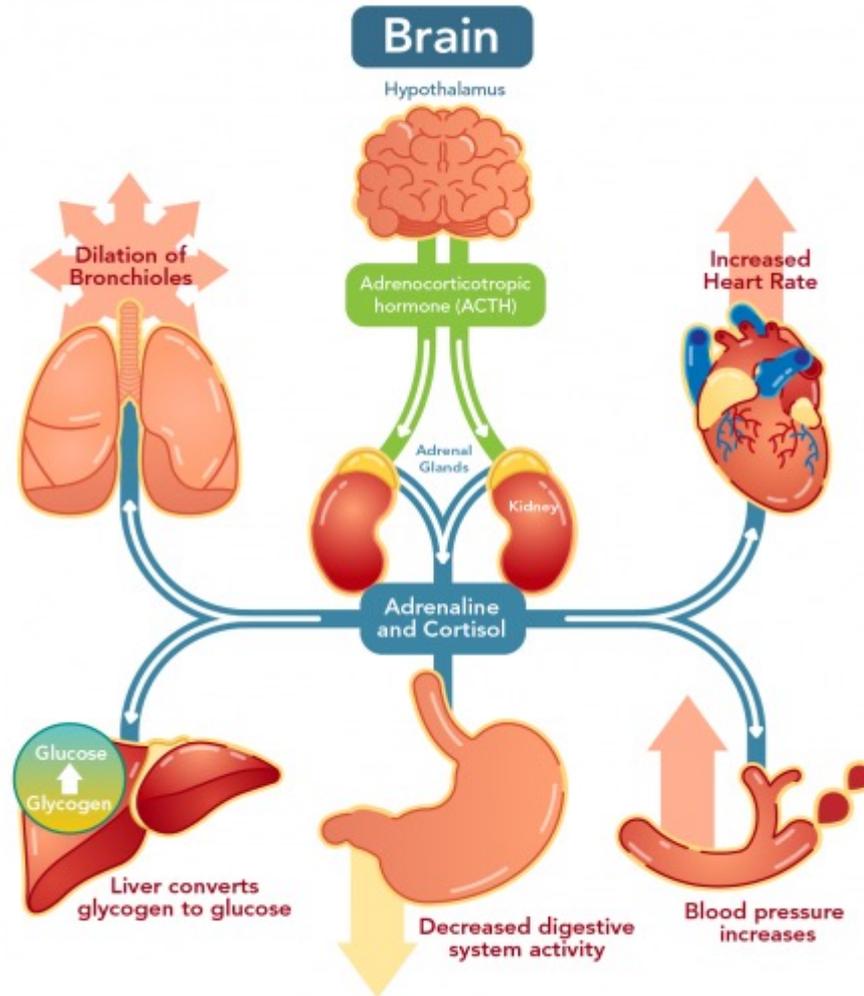
Mindfulness is a potential solution
to handling stress, not pain.

Pain is inevitable. Stress is not.

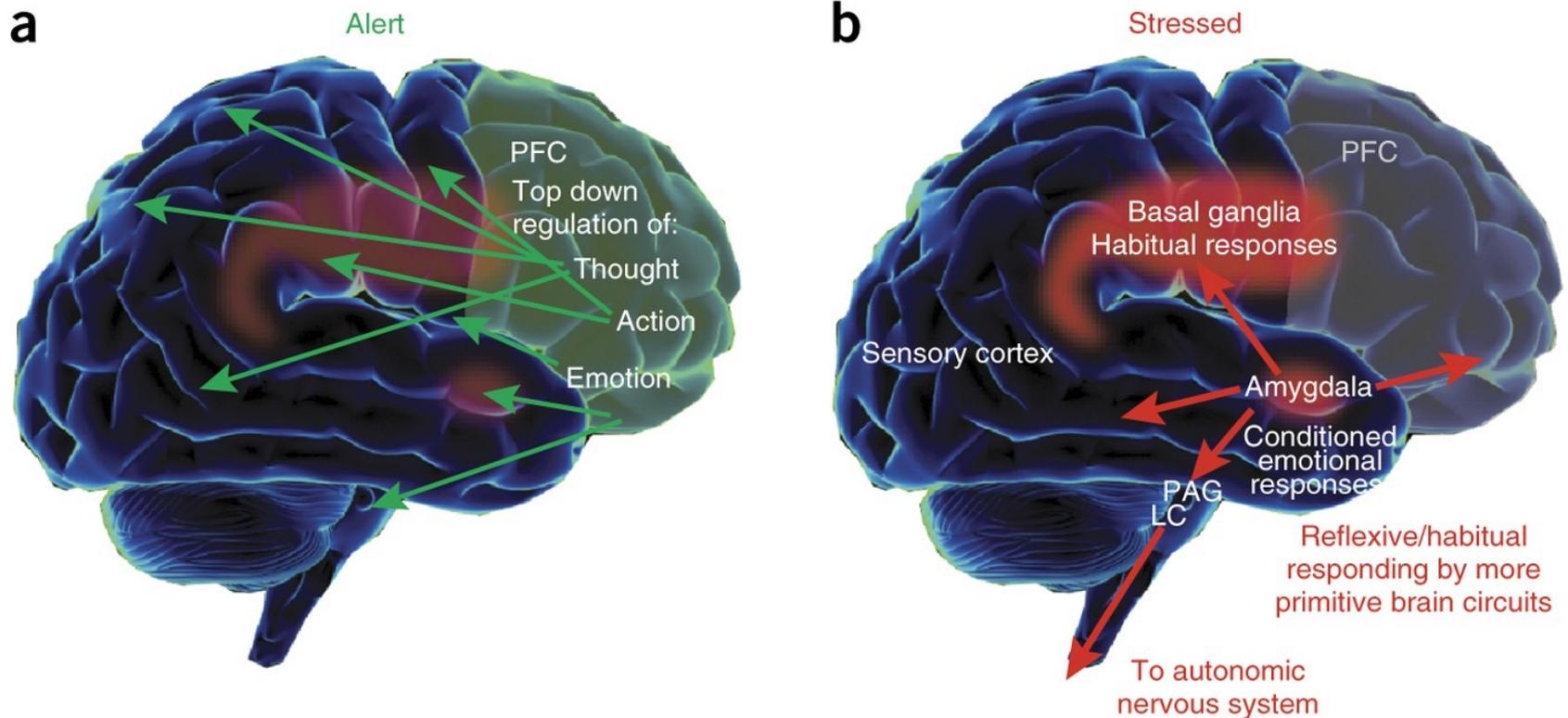
Adverse impact of stress

- Immune system
- Cardiovascular system
- Nervous system
- Increases inflammation
- Increases negative mood states
- Increases adrenaline and cortisol levels

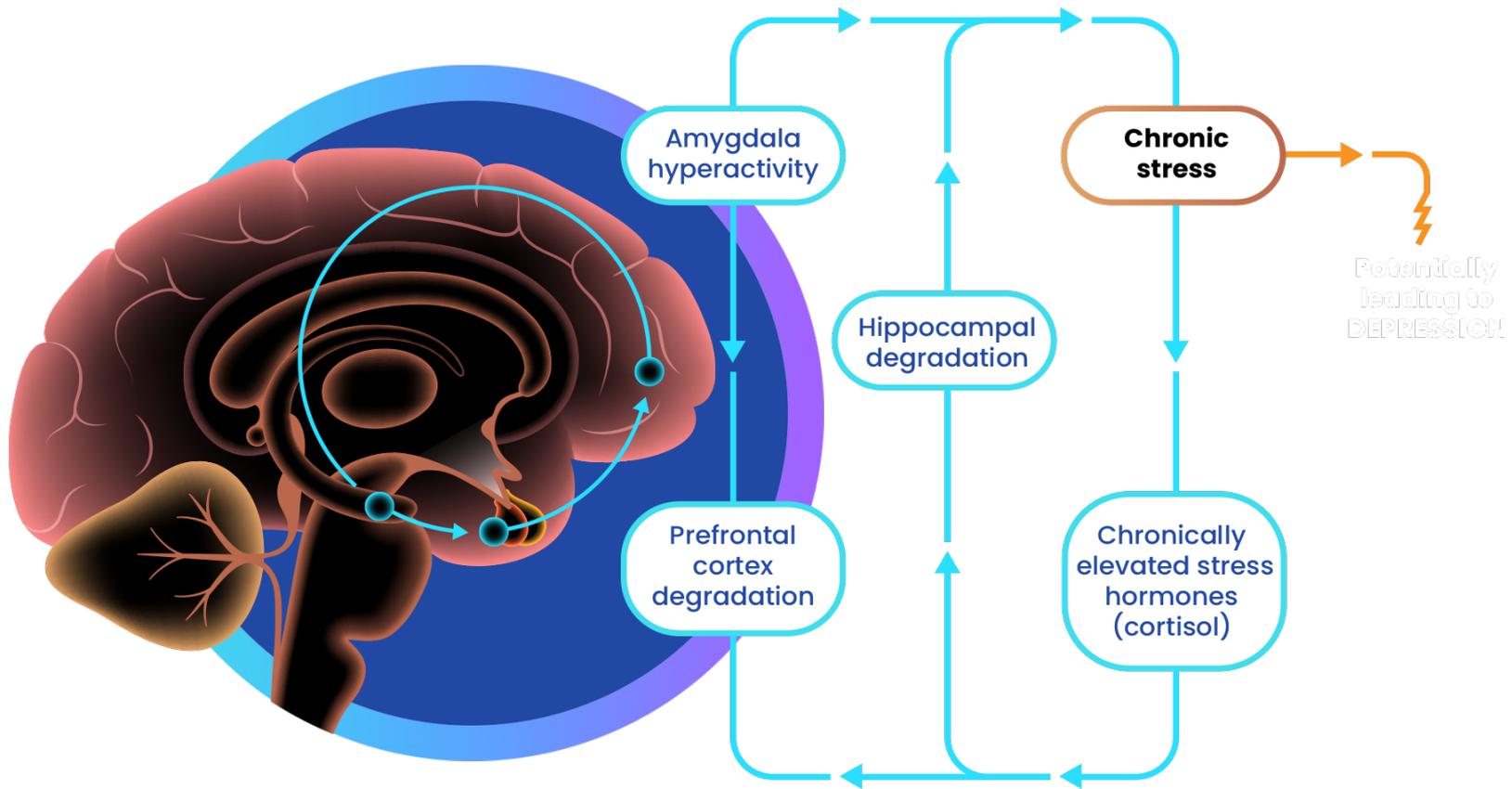
STRESS RESPONSE SYSTEM



Changes to the Brain During Acute Stress



Changes to the Brain As A Result of Chronic Stress



Stress Reaction Vs. Response

- **Stress reaction:** External event → internal event → alarm reactivity → stress reaction → acute hyper arousal → increases chance of survival in a dangerous and hostile situations
- **Stress Response:** introducing conscious process that influences the flow of events that are likely to bring about automatic reactivity.

We can make a choice: React or Respond

“Between the stimulus and response, there is a space and in that space lies our freedom and power to choose our response.”

Victor Frankl

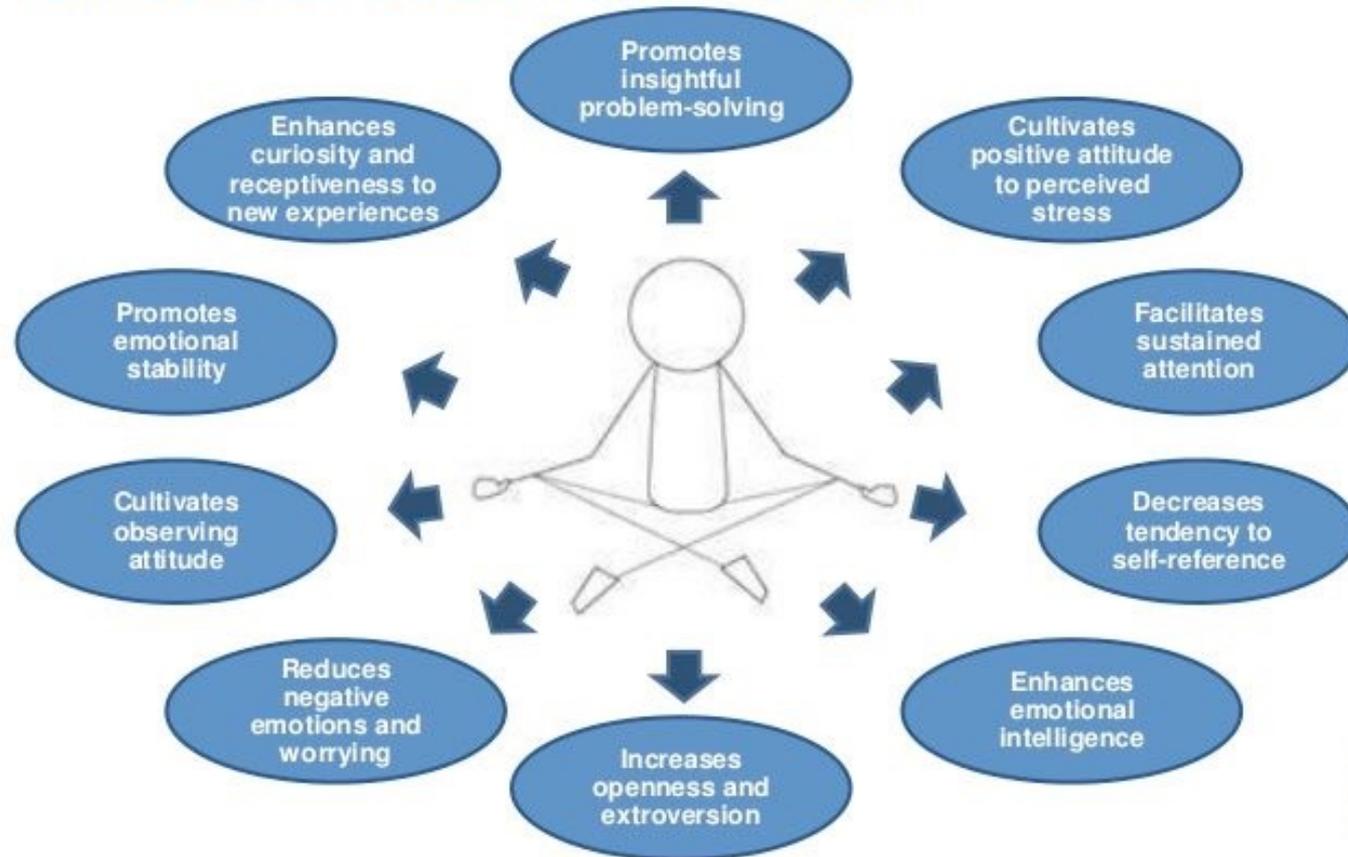
How do we do it? simplified RAIN of Compassion

- Recognition- NOTICE what is happening
- Acceptance – Make room for the experience.
- Investigate –be curious, even familiar experiences do not repeat.
- Non-identification –become a witness to the experience. Do not get caught in it.
- + Compassion: maintaining an attitude of kindness, friendliness, and gentleness towards self and others.

Where does meditation come in?

- Meditation helps increase the space between stimulus and response; i.e., it increases the likelihood we will *respond* rather than *react*.

MINDFULNESS PRACTICE HAS MULTITUDE OF EFFECTS OF COGNITIVE FUNCTION



Copyright 2012 Dr Shanida Nataraja, Author of *The Blissful Brain: Neuroscience and Proof of the Power of Meditation*

How?

Adopt helpful attitudes (in our mindfulness practice)

Adopt certain attitudes

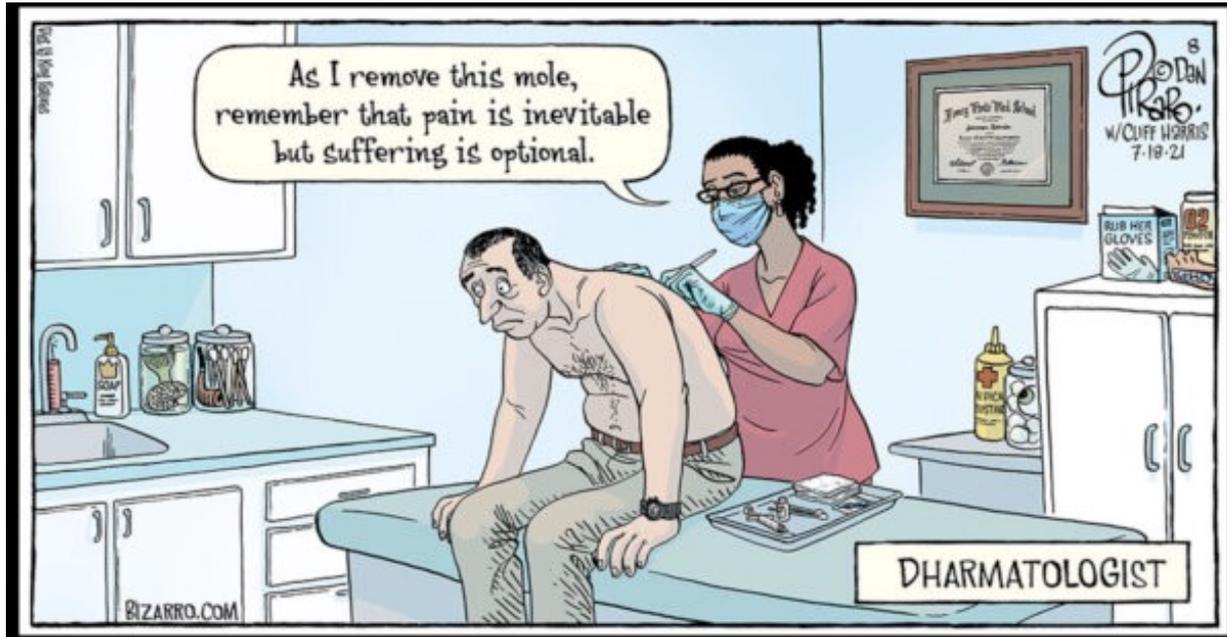
- Non-judging (of ourselves and others)
- Patience
- Non-striving
- Acceptance
- Letting go

Familiar?

God grant me the serenity
to accept the things I cannot change;
courage to change the things I can;
and wisdom to know the difference.

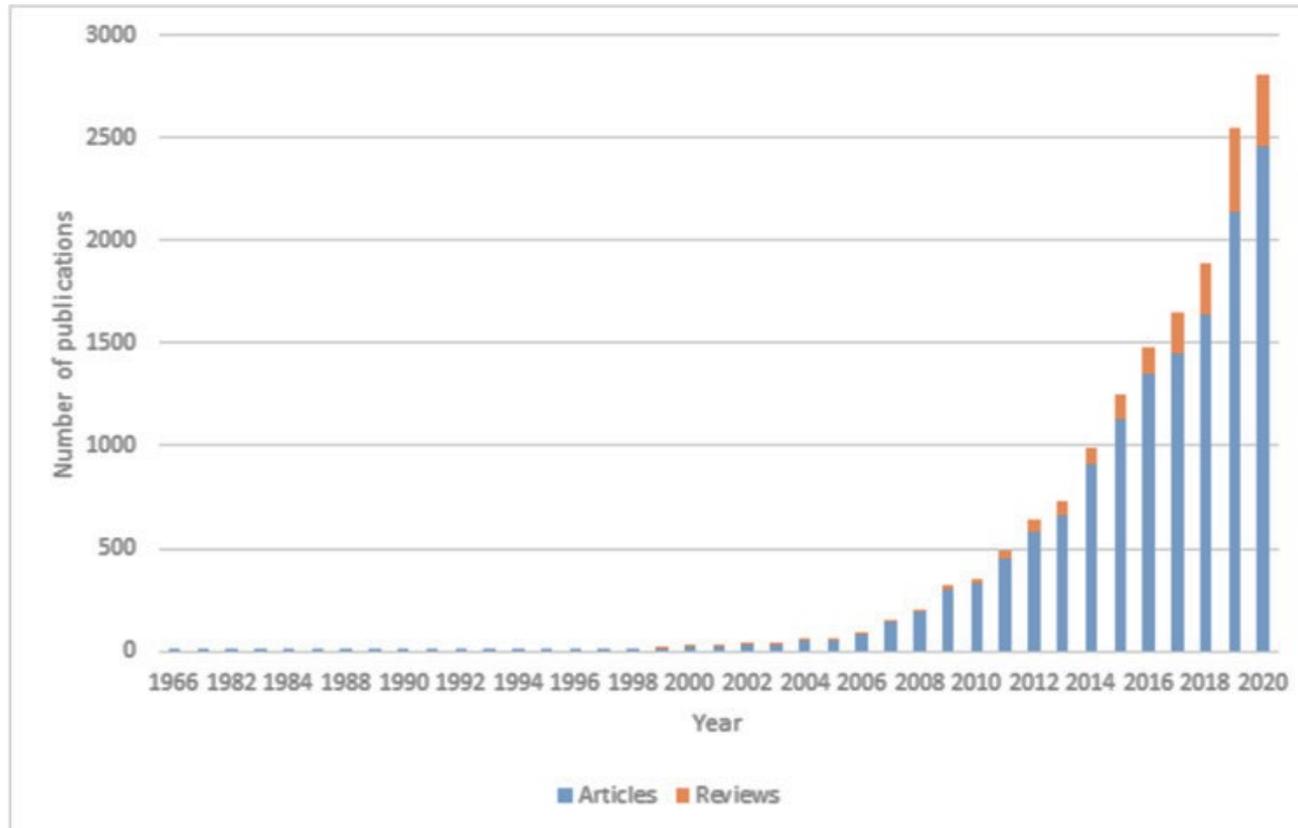
Reinhold Niebuhr (1892-1971)

This all sounds nice but...really?



What the science says

There has been an explosion of scientific interest in mindfulness.



2808
papers
in 2020

The effects of a mindfulness-based lifestyle program for adults with Parkinson's disease: a mixed methods, wait list controlled randomised control study

Jenny Advocat^{1*}, Joanne Enticott², Brooke Vandenberg³, Craig Hassed⁴, Jennifer Hester^{1,6} and Grant F

A qualitative analysis of mindfulness-based cognitive therapy (MBCT) in Parkinson's disease

Lee Fitzpatrick^{1*}, Jane Simpson¹ and Alistair Smith²

¹Institute for Health Research, Lancaster University, UK

²Older People's Mental Health Services, Lancashire Care Foundation NHS Trust, Chorley, Lancashire, UK

Mindfulness-based stress reduction in Parkinson's disease: a systematic review

G. McLean¹, M. Lawrence², R. Simpson¹ and S. W. Mercer^{1*}

Pilot Study of a Mindfulness-Based Group Intervention for Individuals with Parkinson's Disease and Their Caregivers

Therese Verkerke Cash¹ · Vanessa Sepopo Ekouevi¹ · Christopher Kilbourn² · Sarah K. Lageman³

Stress and Mindfulness in Parkinson's Disease: Clinical Effects and Potential Underlying Mechanisms

Anouk van der Heide, MSc,^{1,2*} Marjan J. Meinders, PhD,³ Anne E.M. Speckens, MD, PhD,⁴ Tessa F. Peerbolte, BSc,² Bastiaan R. Bloem, MD, PhD,¹ and Rick C. Helmich, MD, PhD^{1,2} 

TABLE 1. Reported change in reviewed articles after mindfulness-based intervention

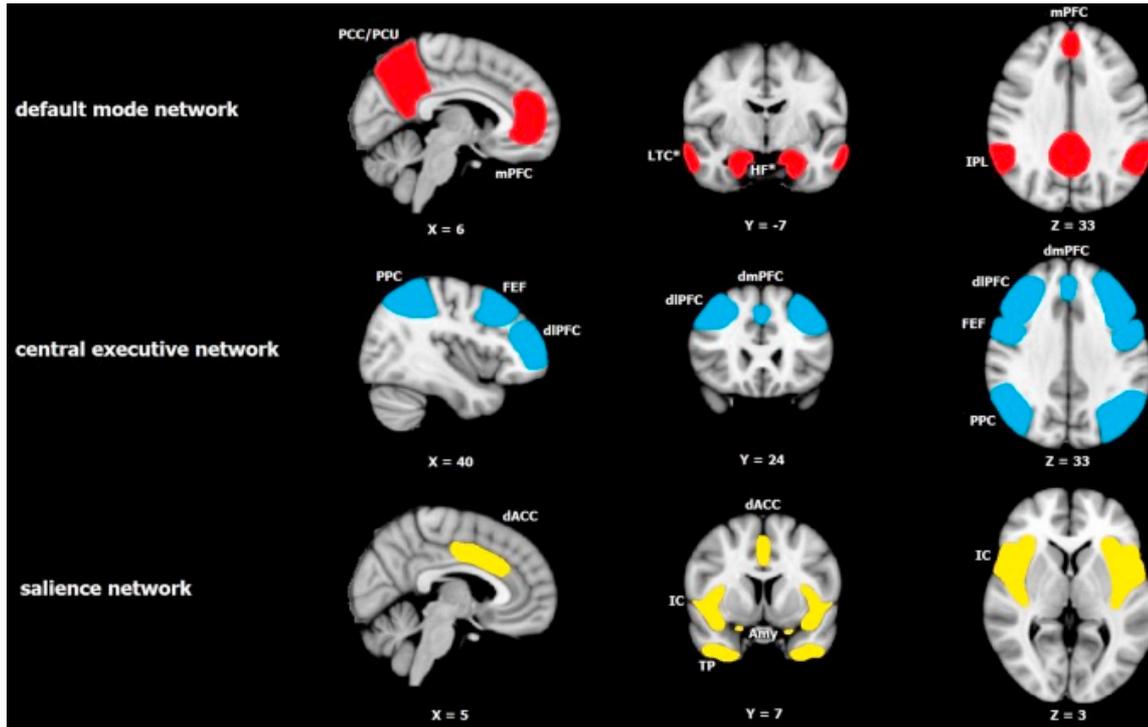
Study	Sample Size		Motor Symptoms Instrument (Maximum Score) Absolute Change (SD)		Depression Instrument (Maximum Score) Absolute Change (SD)		Anxiety Instrument (Maximum Score) Absolute Change (SD)		Quality-of-Life Instrument (Maximum Score) Absolute Change (SD)	
	Intervention	Control	Intervention	Control	Intervention	Control	Intervention	Control	Intervention	Control
Advocat (2016) [22]	n = 24	n = 33			DASS-D (42) +1.9 ^a	+1.1	DASS-A (42) +0.3	-0.6	PDQ-39 (156) -0.5	-1.5
Birtwell (2017) [23]	n = 6 (uncontrolled)				DASS-D (42) -9.0^a		DASS-A (42) -7.5^a		PDQ-39 (156) N.I.	
Cash (2016) [24]	n = 39 (combined: 29 patients with PD with 10 caregivers)				PHQ-9 (27) -1.6^a		GAD-7 (21) -0.9		PDQ-39 (156) -2.4	
Dissanayaka (2016) [12]	n = 14 (uncontrolled)		MDS UPDRS-III (76) -0.8		HAM-D (52) -0.8^a		GAI (20) -1.9^a		PDQ-39 (156) -2.8	
Kwok (2019) [23]	n = 71	n = 67	MDS UPDRS-III (76) ^c -13.8^a	-9.1^a	HADS-D (21) ^c -2.6	-0.3	HADS-A (21) ^c -2.4	-0.4	PDQ-8 (32) ^c -2.2	+0.5
Pickut (2015) [25]	n = 14	n = 13	MDS UPDRS-III (76) ^c -5.5^a	+1.1	BDI N.I.	N.I.			PDQ-pain (12) +0.8 ^a	-0.7
Rodgers (2019) [26]	n = 15	n = 12			DASS-D (42) ^c -0.8^a	+0.4	DASS-A (42) ^a -0.7	-1.3	PDQ-39 (156) ^a -1.8	-3.0
Son (2018) [24]	n = 33	n = 30			GDS (30) ^b -3.4	-1.0	STAI (160) ^b -6.5	+9.4	PDQL (185) ^b +17.4	-8.6

What's happening in the brain?

Background: Major Neural Networks

Three Major Neural Networks

Symptoms Associated with Network Dysfunction



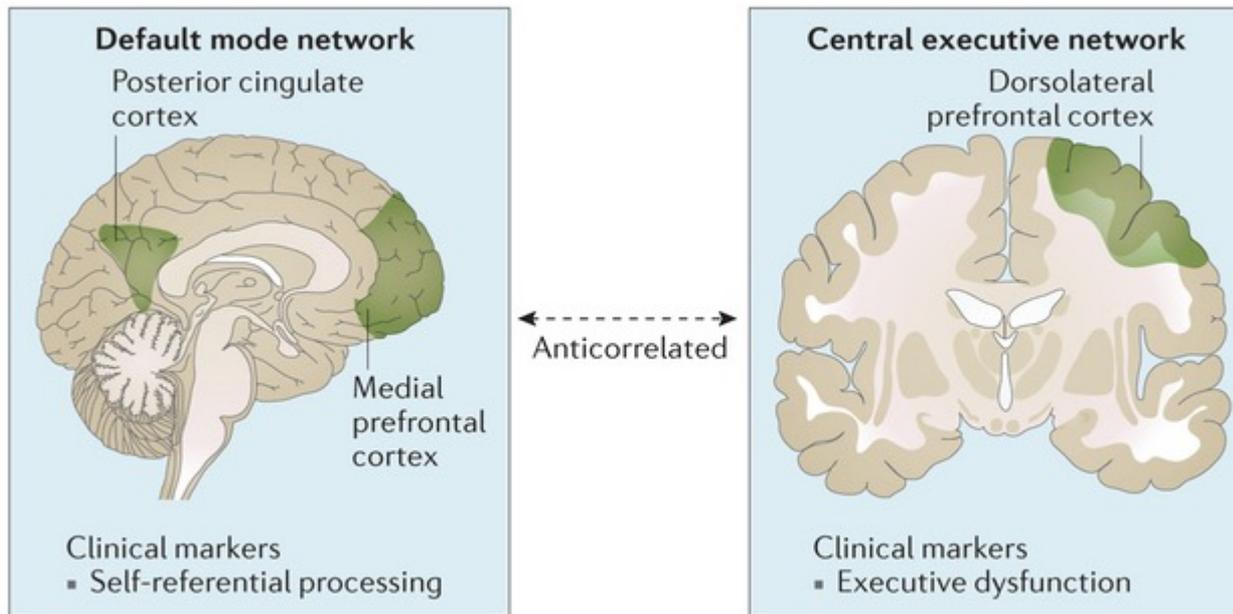
Negative Affect / Rumination
Critical Self-Talk

Focused Attention

Motivation / Effort /
Sense of Reward

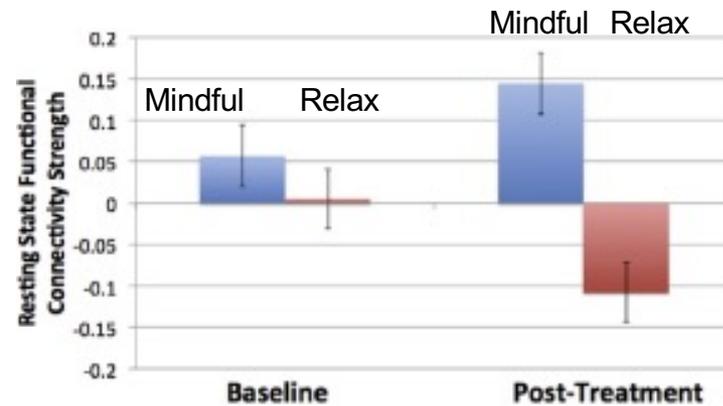
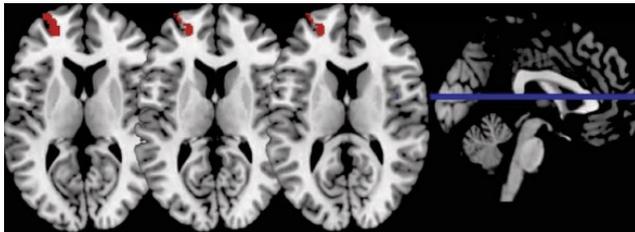
Mulders et al. 2015 *Neuroscience and Biobehavioral Reviews*

Background: Focus on Default Mode and Cognitive Control Networks



Yehuda et al. 2015 *Nature Reviews Disease Primers*

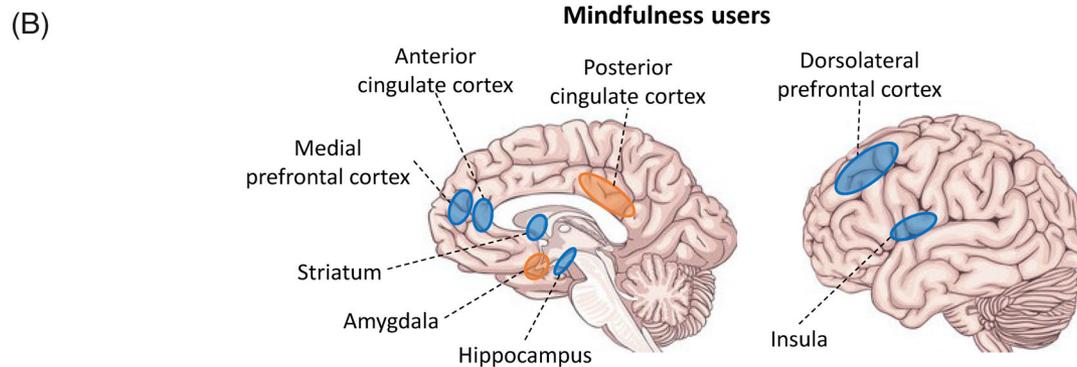
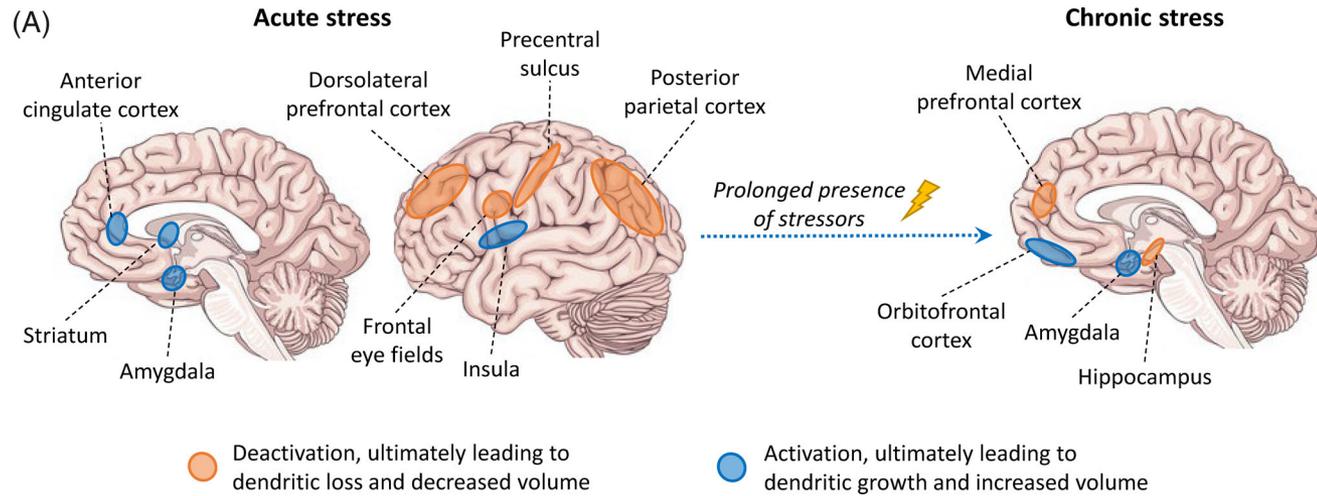
Mindfulness Meditation Improves Functional Connectivity Between Brain Regions Involved in Focused Attention and Rumination



Intensive 3 day mindfulness program increased functional connectivity between left dorsolateral prefrontal cortex (CCN) and posterior cingulate (DMN).

Relaxation training did not result in similar enhancement of connectivity.

What's happening in the brain as a result of stress and mindfulness?



Model Theorizing Effect of Mindfulness in persons with PD

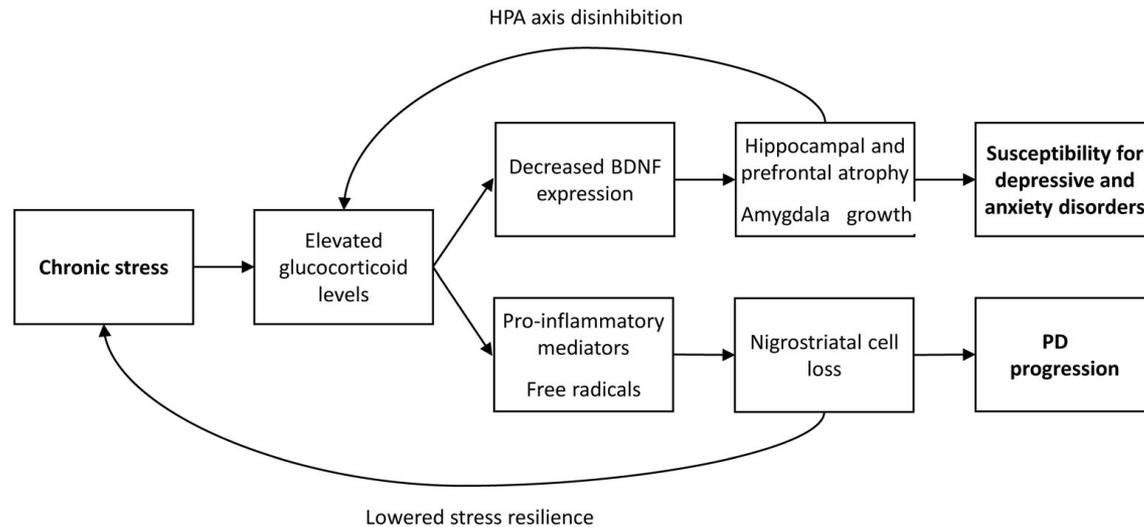
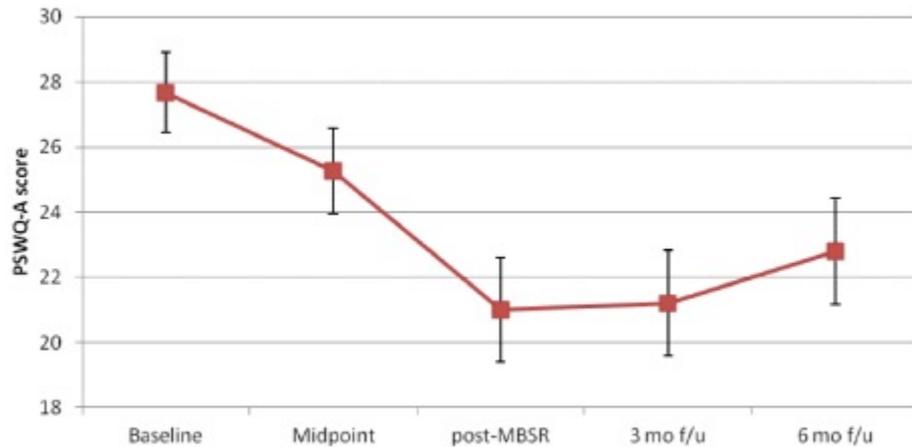


FIG. 2. A pathophysiological model of chronic stress in Parkinson's disease (PD). This figure provides a hypothetical (and simplified) framework of how chronic stress in patients with PD may lead to higher susceptibility for depressive and anxiety disorders on the one hand, and to a more rapid progression of the disease on the other hand. Upper part: the high levels of glucocorticoids that result from chronic stress decrease the expression of brain-derived neurotrophic factor (BDNF), which induces atrophy in the hippocampus and prefrontal cortex and growth in the amygdala.³³ This increases the risk for development of depressive and anxiety disorders.³⁴ Hippocampal atrophy also disinhibits the hypothalamic–pituitary–adrenal (HPA) axis, further increasing glucocorticoid levels.³⁵ Lower part: elevated glucocorticoid levels also increase neuroinflammation³⁶ and production of reactive oxygen species (ROS).³⁷ These molecular changes may contribute to degeneration of nigrostriatal dopaminergic neurons.³⁸

Mindfulness Meditation Decreases Anxiety/Worry and Improves Cognition in Older Adults



Measure	Baseline mean or z-score (SE)	Post-MBSR mean or z-score (SE)	Cohen's d (95% CI)	Analysis	
				F (df)	p
List learning, number of words recalled	-0.03 (.2)	0.16 (0.17)	0.19 (-0.33 to 0.70)	2.9 (1,28)	0.10
List delayed recall, number of words recalled	-0.09 (.2)	0.17 (0.18)	0.26 (-0.26 to 0.77)	6.17 (1,28)	0.019
Paragraph immediate recall, number of words recalled	-0.26 (0.17)	0.47 (0.15)	0.83 (.28 to 1.35)	27.2 (1, 28)	<0.001
Paragraph delayed recall, number of words recalled	-0.06 (0.2)	0.65 (0.16)	0.75 (0.21 to 1.27)	25.0 (1,28)	<0.001
Verbal fluency, number of correct words named	35.1 (2.1)	37.3 (2.0)	0.20 (-0.32 to 0.71)	3.9 (1,28)	0.04
Color-word interference, time (seconds)	84.3 (9.9)	71.7 (6.2)	0.39 (-0.31 to 1.08)	9.1 (1,15)	0.009
Digit span test, score (higher score = more digits forward correctly repeated)	9.1 (2.7)	10.3 (2.2)	0.46 (-0.24 to 1.16)	4.4 (1,15)	0.053

What do people report after a course in mindfulness training?

- Lasting decrease in physical and psychological symptoms
- An increase in ability to relax
- Reduction in pain/or enhanced coping with pain
- Greater energy and enthusiasm for life
- Improved self-esteem

Center for Mindfulness in Medicine, Health Care, and Society, UMASS School of Medicine

Different methods – let's practice!

Focusing on breath

- Count 10 in and out breaths
 - Notice when your mind goes somewhere else and bring it back to the breath.

Open monitoring

- Senses
- Body scan

Practice, practice, practice

- Developing and cultivating a mindfulness practice is simple but not easy. Most likely you will need teachers and fellow travelers along the way.
- Formal practice
- Informal practice

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Dan Harris is a fidgety, skeptical journalist who had a panic attack on live national television, which led him to try something he otherwise never would have considered: meditation. He went on to write the bestselling book, 10% Happier. On this show, Dan talks with eminent meditators. MORE

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Use Apple Watch to practice mindfulness

The Mindfulness app  on your Apple Watch encourages you to set aside a few minutes a day to focus, center, and connect as you breathe. You can also use State of Mind to reflect on how you're feeling. With an Apple Fitness+ subscription, you can listen to guided meditations on Apple Watch.

Revenue in the Meditation Apps market is projected to reach 4.43 billion dollars in 2023.

Still a free resource... Youtube



Jon Kabat Zinn Body Scan Meditation GUIDED MEDITATION

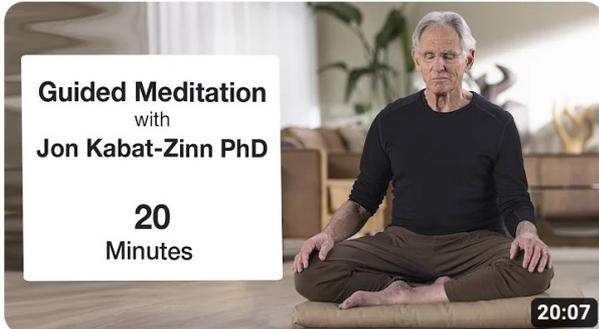
3.3M views • 7 years ago

 People in Pain Network

The spiritual teacher Jon Kabat-Zinn teaches us about body scan meditation.



dwell in a state of very deep physical and mental relaxation | lie alongside your body palms open... 4



20 Minute Guided Meditation with Jon Kabat-Zinn PhD

790K views • 2 years ago

 No Nonsense Meditation

Jon Kabat-Zinn, Ph.D. is internationally known for his work as a scientist, writer, and meditation teacher engaged in

Thank you for your attention.

Let's try it!