
Mindfulness, gambling and addiction

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Mind wandering and happiness

- “In conclusion, a human mind is a wandering mind, and a wandering mind is an unhappy mind. The ability to think about what is not happening is a cognitive achievement that comes at an emotional cost.”

- Killingsworth MA, Gilbert DT. A Wandering Mind Is an Unhappy Mind. *Science* 12 November 2010: Vol. 330. no. 6006, p. 932 DOI: 10.1126/science.1192439
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Allostatic load

- Prolonged stress leads to wear-and-tear on the body (allostatic load)
 - Mediated through the Sympathetic Nervous System
 - Allostatic load leads to:
 - Impaired immunity, atherosclerosis, metabolic syndrome, bone demineralization
 - Atrophy of nerve cells in the brain
 - **Hippocampal formation:** learning and memory
 - **Prefrontal cortex:** working memory, executive function
 - Growth of **Amygdala** mediates fear response
 - Many of these processes are seen in chronic depression and anxiety
 - McEwen BS. Ann N Y Acad Sci. 2004;1032:1-7.
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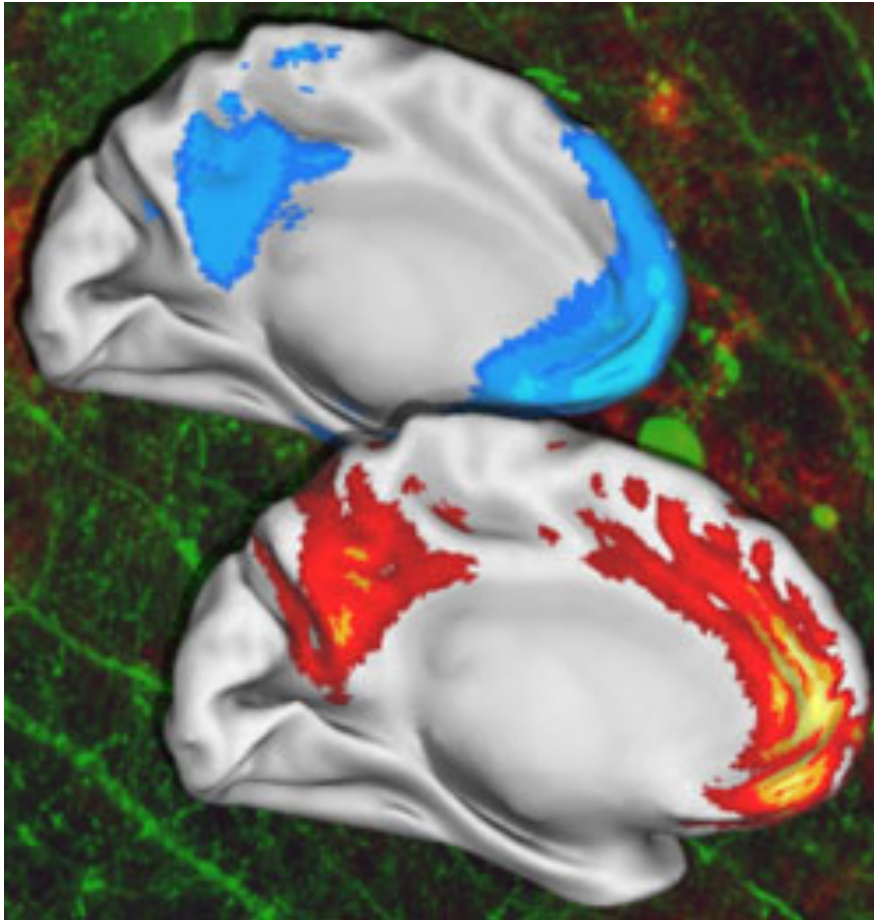
Child abuse and brain development

- The brains of adolescents brought up in hostile and unsupportive environments are predisposed to reproduce anti-social behaviours and aggression because of overstimulation of the amygdala and underdevelopment of the prefrontal cortex
 - Whittle S, Allen NB, Lubman DI, Yücel M. The neurobiological basis of temperament: towards a better understanding of psychopathology. *Neurosci Biobehav Rev*. 2006;30(4):511-25.
 - Whittle S, Yap MB, Yücel M, et al. Prefrontal and amygdala volumes are related to adolescents' affective behaviors during parent-adolescent interactions. *Proc Natl Acad Sci U S A*. 2008 Mar 4;105(9):3652-7. doi: 10.1073/pnas.0709815105.
 - Whittle S, Yücel M, Fornito A, et al. Neuroanatomical correlates of temperament in early adolescents. *J Am Acad Child Adolesc Psychiatry*. 2008 Jun;47(6):682-93. doi: 10.1097/CHI.0b013e31816bffca.
 - Visser TA, Ohan JL, Whittle S, et al. Sex differences in structural brain asymmetry predict overt aggression in early adolescents. *Soc Cogn Affect Neurosci*. 2013 Mar 12. [Epub ahead of print]
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Stress, genetics and addiction

- Stress is a trigger to addictive behaviours and other mental health problems in those with a genetic disposition to addiction and mental illness
 - Exposure to drugs triggers the genetic disposition to express itself
 - Self D., Nestler E. Relapse to drug seeking: neural and molecular mechanisms. Drug and Alcohol Dependence 1998;51(1-2):49-60.
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The Default Brain



- Mindfulness – focused
 - ❑ Tasks associated with paying attention
 - ❑ Brain efficient and quiet
- Default state (mode)
 - ❑ The default-mode network (DMN) is a major resting-state network that supports most of the baseline brain activity
 - ❑ Mind is inattentive, distracted, idle, recalling past, daydreaming

Plato's 3 aspects of the psyche or soul

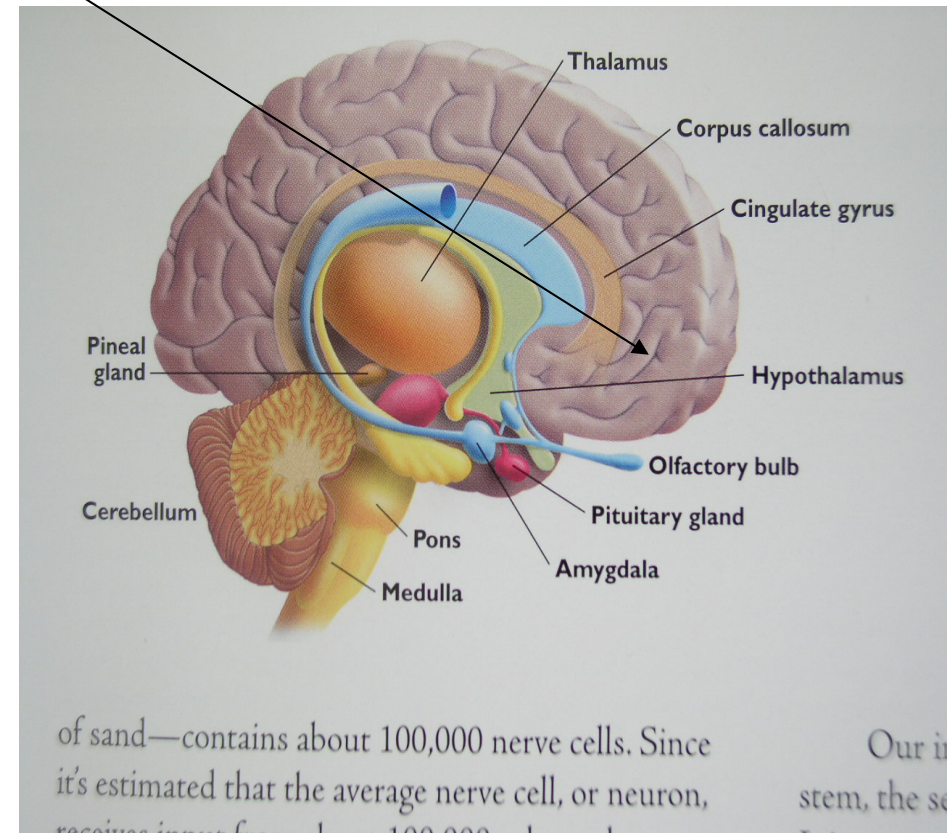
- “Human behavior flows from three main sources: desire, emotion, and knowledge.”
 - Reason (intelligence)
 - Emotive element (passion, courage)
 - Appetitive element (desire, instincts, pleasure)
- Health of body and mind are based upon the right alignment of these elements
- Reason governs/regulates emotions and appetites



Botticelli's "Pallas and the Centaur"

Three regions of the brain

- Frontal lobes (prefrontal cortex)
centre for executive functioning
 - ❑ Attention regulation
 - ❑ Working memory
 - ❑ Self-awareness
 - ❑ Reasoning and decision making
 - ❑ Emotional regulation
 - ❑ Appetite regulation
 - ❑ Impulse control
 - ❑ Directs immune system
- Limbic system – emotion centre
- Mesolimbic reward system – appetites



Falling attention spans

- According to a Microsoft Canada report, the average human's attention span is below that of a goldfish (8 sec vs. 9 sec)
 - “We are moving from a world where computing power was scarce to a place where it now is almost limitless, and where the true scarce commodity is increasingly human attention”
 - Satya Nadella
 - <file:///Users/craighassed/Downloads/microsoft-attention-spans-research-report.pdf>
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Attention Deficit Trait

- Newly recognized neurological phenomenon: attention deficit trait (ADT)
 - Response to hyperkinetic environment
 - Trying to deal with too much input, results in:
 - Black-and-white thinking; perspective and shades of grey disappear
 - Difficulty staying organized, setting priorities, and managing time
 - Feel a constant low level of panic and guilt
 - Hallowell EM. Overloaded circuits: why smart people underperform. Harv Bus Rev. 2005 Jan;83(1):54-62, 116.
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Week away from Facebook improves happiness

- Study by Happiness Research Institute on 1,095 people in Denmark
 - Measured life satisfaction and then asked half of the people to stop using Facebook for one week
 - After a week, participants asked to re-evaluate level of life satisfaction: those who had taken a break from Facebook were more satisfied with life
 - On the last day of the experiment, all participants were asked what moods they experienced that day
 - Facebook-removed group said they felt happier, less sad and lonely, more decisive, less angry or worried, more enthusiastic, and less depressed and experienced an increase in satisfaction with social lives, and 18% more likely to be present in the moment
 - People on Facebook 55% more likely to feel stressed than their unplugged counterparts, and 39% more likely to feel less happy than their friends
 - <http://www.happinessresearchinstitute.com/publications/4579836749>
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Mobile phone use and motor vehicle accidents

- Driver's use of a mobile phone within 5 min before a crash associated with fourfold increased likelihood of crashing (OR 4.1)
 - McEvoy SP, Stevenson MR, Woodward M. The contribution of passengers versus mobile phone use to motor vehicle crashes resulting in hospital attendance by the driver. *Accid Anal Prev.* 2007 Nov;39(6):1170-6. Epub 2007 Apr 9.
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Multitasking or task-switching?

- Multitasking is an illusion (misnomer)
 - Switching happens so fast that it appears we are performing multiple tasks simultaneously like the concurrent performance of several jobs by a computer
 - Reality is that we are switching back and forth between tasks
 - <http://ucsdcfm.wordpress.com/2011/07/01/our-brains-are-evolving-to-multitask-not-the-illusion-of-multitasking/>
-

Multitasking vs. efficient attention switching

- Multitasking is a myth – the human brain does not pay attention to multiple complex tasks at the same time
 - Efficient attention switching is useful – focus on one thing at a time
 - Manage the environment – remove unnecessary inputs
 - Avoid interrupting complex tasks
 - Don't multitask
-

Murray Rose on mindfulness

- REPORTER: Do you have any philosophy on life as an individual?
 - MURRAY ROSE: I think it revolves around this perhaps secret of concentration on one thing. When you're eating, you do nothing else but eat. And when you're swimming, you do nothing else but swim, and I think that by doing that you achieve the greatest satisfaction by devoting your whole self, your whole energies, your whole thoughts to just one activity at a time. And I think that perhaps would be the essence of my personal philosophy.
 - <http://www.abc.net.au/austory/content/2012/s3893380.htm>
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- “The faculty of voluntarily bringing back a wandering attention over and over again, is the very root of judgment, character, and will. No one is compos sui if he have it not. An education which should improve this faculty would be the education par excellence.”

- William James, Principles of Psychology, 1890

Mindfulness and attention regulation

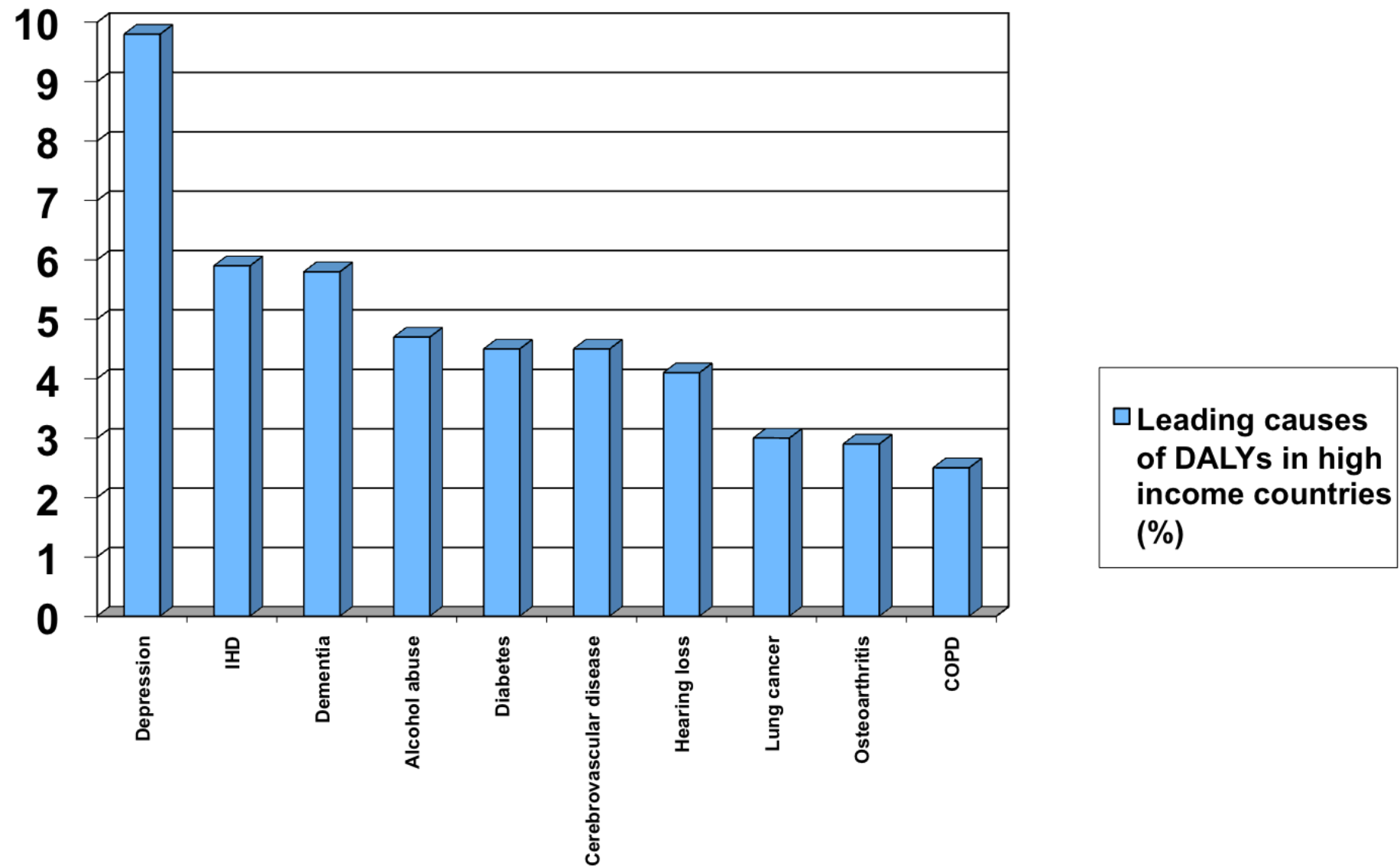
- Mindfulness involves **attention** and **attitude**
- Attention regulation has three aspects
 1. To know where our attention is
 2. To prioritise where the attention needs to be
 3. For the attention to go there and stay there
- Mindful attitude includes:
 1. Openness
 2. Curiosity
 3. Acceptance
 4. Self-compassion

Practicing mindfulness

- Formal practice
 - Mindfulness meditation
 - Informal practice
 - Mindful while engaged in daily activities and work
 - Cognitive practices
 - Perception
 - Letting go (non-attachment)
 - Acceptance
 - Presence of mind
-

Applications of mindfulness

- **Mental health:** E.g. therapeutic application for depression, anxiety, panic disorder, stress, emotional regulation, addiction, sleep problems, eating disorders, psychosis, ADHD, autism, reduced burnout, greater resilience
 - **Neuroscience:** E.g. structural and functional changes in the brain, stimulation of neurogenesis, possible prevention of dementia and cognitive decline, down-regulating the amygdala, improved executive functioning and working memory, reduced default mental activity, improved self-monitoring and cognitive control, improved perception of sensory input
 - **Clinical:** E.g. therapeutic applications for pain management, symptom control, coping with chronic illness (e.g. cancer and MS), metabolic and hormonal benefits (e.g. reduced allostatic load, cortisol), facilitating lifestyle change (e.g. weight management, smoking cessation), improved immunity (e.g. improved resistance, reduced inflammation), improved genetic function and repair, slower ageing as measured by telomeres
 - **Performance:** E.g. sport, academic, leadership qualities, mental flexibility and problem solving, decision-making, sunk-cost bias
 - **Education:** E.g. improved problem-solving, executive functioning and working memory, better focus, less behavioural problems, fostering growth mindsets
 - **Relationships:** E.g. greater emotional intelligence and empathy, improved communication, reduced vicarious stress and carer burnout
 - **Spiritual**
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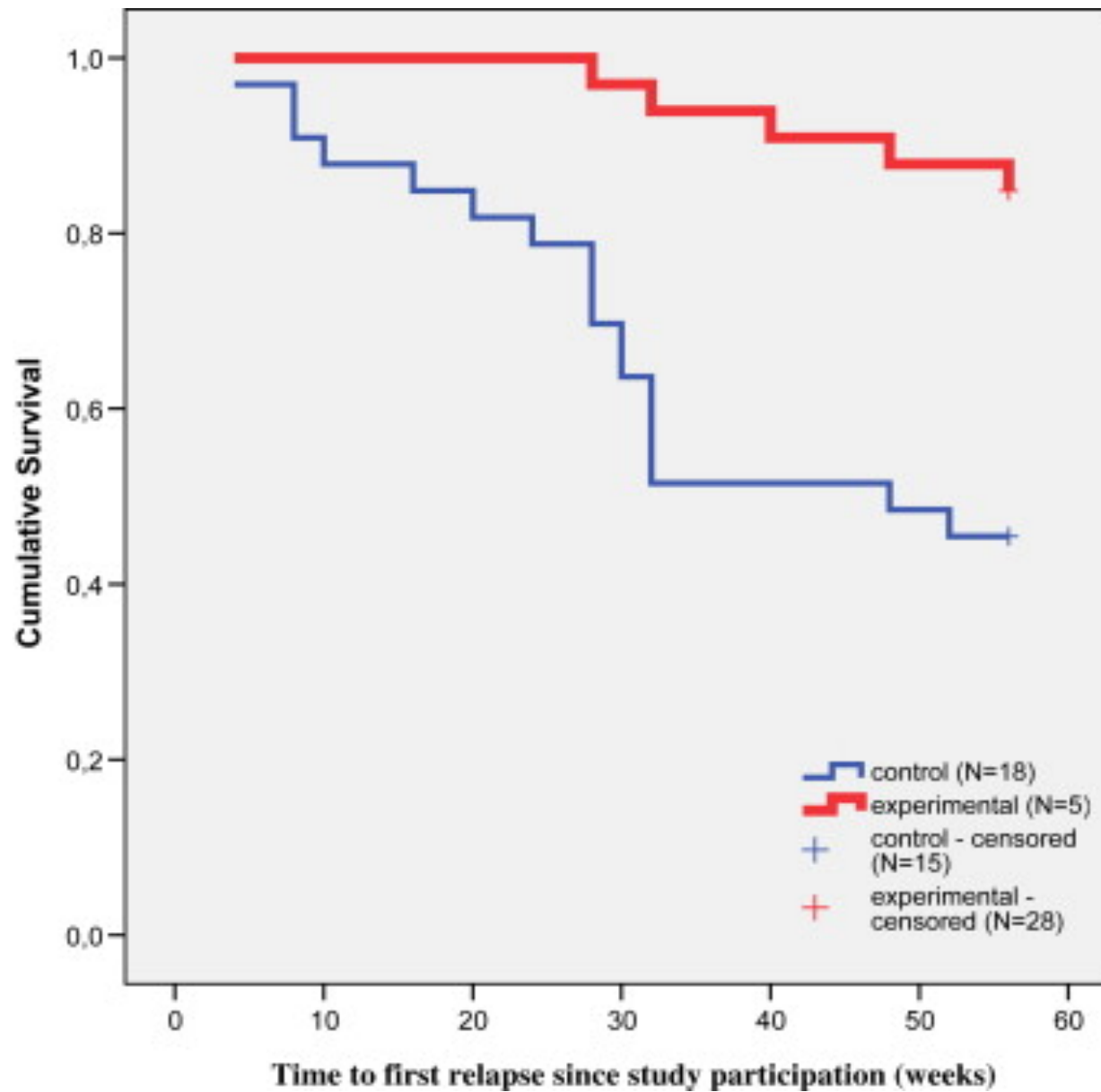
Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med. 2006 Nov;3(11):e442.

Antidepressants and placebo

- Antidepressants no different to placebo for mild-moderate depression
 - Relatively small difference even for severe depression
 - Publication bias makes studies look better than they are
 - Kirsch I et al. PLoS Medicine 2008 Feb;5(2):e45 doi: 10.1371/journal.pmed.0050045
 - Fournier JC, DeRubeis RJ, Hollon SD, et al. Antidepressant drug effects and depression severity: a patient-level meta-analysis. JAMA. 2010 Jan 6;303(1):47-53.
 - Turner EH, Matthews AM, Linardatos E, et al. Selective publication of antidepressant trials and its influence on apparent efficacy. N Engl J Med. 2008 Jan 17;358(3):252-60.
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MBCT and depression

- RCT investigated the effects of Mindfulness-based cognitive therapy (MBCT) on the relapse in depression, time to first relapse and the quality of life
 - 106 recovered depressed patients with a history of at least 3 depressive episodes
 - Treatment as usual (TAU) vs MBCT plus TAU 1 year f/up
 - Relapse/recurrence significantly reduced and the time until first relapse increased in the MBCT plus TAU c/w TAU
 - MBCT plus TAU group also showed a significant reduction in both short and longer-term depressive mood, better mood states and quality of the life
 - Godfrin KA, van Heeringen C. The effects of mindfulness-based cognitive therapy on recurrence of depressive episodes, mental health and quality of life: A randomized controlled study. Behav Res Ther. 2010 Aug;48(8):738-46.
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Godfrin KA, van Heeringen C. Behav Res Ther. 2010 Aug;48(8):738-46.

Default mode network

- Default mental activity flourishes in various forms of psychopathology including depression, anxiety, schizophrenia and autism
 - Default activity decreased or deactivated when paying attention (e.g. experienced meditators)
 - In experienced meditators but not novices, even when the default mode network is active, brain regions associated with self-monitoring and cognitive control are co-activated
 - Reduces vulnerability to default thinking
 - Brewer JA, Worhunsky PD, Gray JR, et al. Meditation experience is associated with differences in default mode network activity and connectivity. Proc Natl Acad Sci U S A. 2011 Dec 13;108(50):20254-9.
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Mindfulness in mundane activities

- Study investigated whether washing dishes could be used as an informal contemplative practice, promoting the state of mindfulness, emotional wellbeing
 - College students engaged in either a mindful or control dishwashing practice
 - Mindful dishwashers had greater state mindfulness, more enjoyment, increase in positive affect (i.e., inspiration), decrease in negative affect (i.e., nervousness), and overestimations of dishwashing time
 - Hanley AW, Warner AR, Dehili VM, Canto AI, Garland EL. Washing Dishes to Wash the Dishes: Brief Instruction in an Informal Mindfulness Practice. *Mindfulness* (2015) 6:1095–1103. DOI 10.1007/s12671-014-0360-9
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Mindfulness and practitioner wellbeing

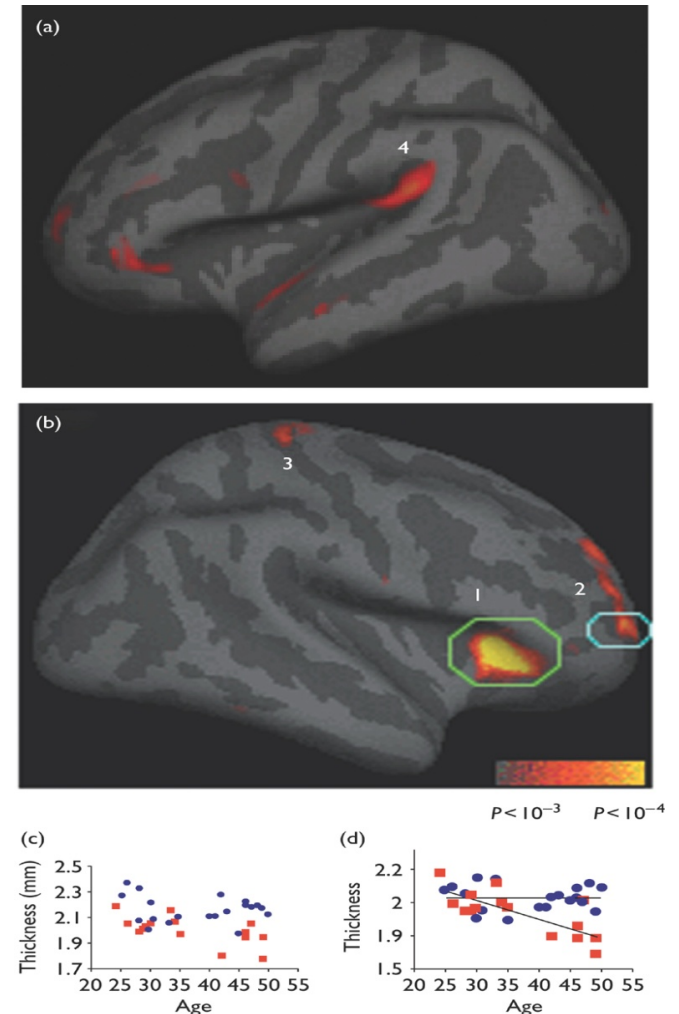
- An 8-week mindfulness program: improvements on all measures of wellbeing including:
 - Mindfulness
 - Burnout (emotional exhaustion; depersonalization; personal accomplishment)
 - Empathy and responsiveness to psychosocial aspects
 - Total mood disturbance
 - Personality (conscientiousness; emotional stability)
 - Improvements in mindfulness correlated with improvements on other scales
 - Krasner MS, Epstein RM, Beckman H, et al. JAMA. 2009;302(12):1338-40.
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Meditation and the brain

- Review and meta-analysis of 123 brain morphology differences from 21 neuroimaging studies examining ~300 meditation practitioners
 - Eight brain regions consistently altered in meditators including areas key to:
 - ❑ meta-awareness (frontopolar cortex/BA 10)
 - ❑ exteroceptive and interoceptive body awareness (sensory cortices / insula)
 - ❑ memory consolidation and reconsolidation (hippocampus)
 - ❑ self and emotion regulation (anterior / mid cingulate; orbitofrontal cortex)
 - ❑ intra- and interhemispheric communication (superior longitudinal fasciculus; corpus callosum)
 - Fox KC, Nijeboer S, Dixon ML, et al. Is meditation associated with altered brain structure? A systematic review and meta-analysis of morphometric neuroimaging in meditation practitioners. *Neurosci Biobehav Rev.* 2014 Jun;43:48-73. doi: 10.1016/j.neubiorev.2014.03.016. Epub 2014 Apr 3.
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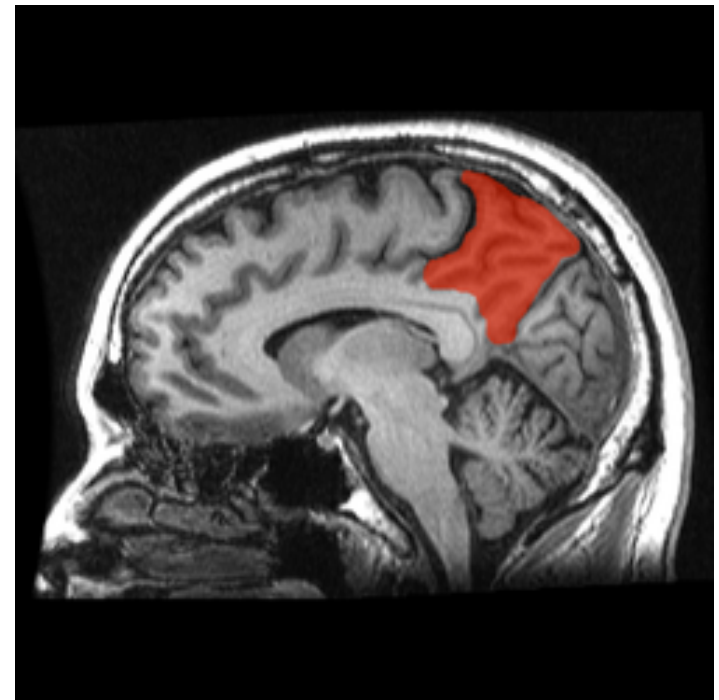
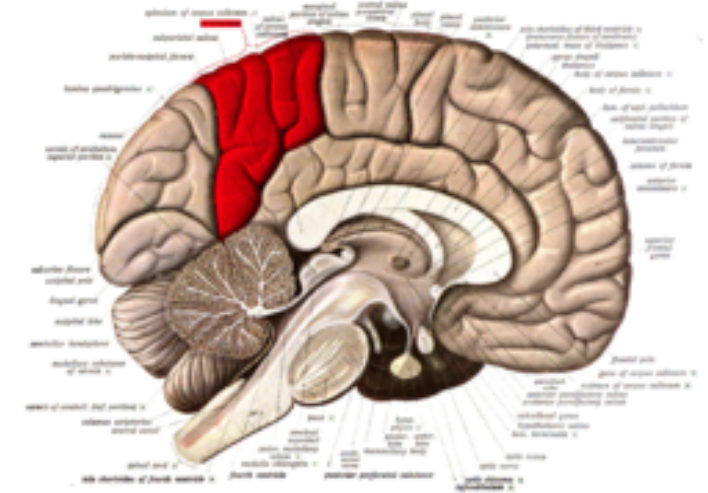
Mindfulness and the brain

- Mindfulness training improves functioning in areas related to executive functioning, attentional control, self-regulation, sensory processing, memory and regulation of the stress response
 - Thickening of cortex in regions associated with attention, self-awareness and sensory processing thicker in meditators
 - “The regular practice of meditation may have neuroprotective effects and reduce the cognitive decline associated with normal aging.”
 - Hölzel BK, Carmody J, Evans KC, et al. Stress reduction correlates with structural changes in the amygdala. Soc Cogn Affect Neurosci. 2010 Mar; 5(1):11-7.
 - Hölzel BK, Carmody J, Vangel M, et al. Mindfulness practice leads to increases in regional brain gray matter density. Psychiatry Res. 2011 Jan 30;191(1):36-43.
 - Kilpatrick LA, Suyenobu BY, Smith SR, et al. Impact of Mindfulness-Based Stress Reduction training on intrinsic brain connectivity. Neuroimage. 2011 May 1;56(1):290-8.
 - Lazar SW, Kerr CE, Wasserman RH, et al. Neuroreport. 2005;16(17): 1893-1897.
 - Pagnoni G, Cekic M. Neurobiology of Aging. 2007;28(10):1623-7.



Precuneus

- A brain region that becomes active when experiencing:
 - ❑ consciousness, wakefulness, self-awareness
 - ❑ attention, episodic memory retrieval, working memory and conscious perception
 - ❑ visuospatial processing
- Impaired by default mental activity
- Larger in happy people
 - Sato W, Kochiyama T, Uono S, et al. The structural neural substrate of subjective happiness. Scientific Reports, 2015; 5: 16891 DOI: 10.1038/srep16891
- 6-week mindfulness program on the grey matter: a significant grey matter increase identified within the precuneus
 - Kurth F, Luders E, Wu B, Black DS. Brain Gray Matter Changes Associated with Mindfulness Meditation in Older Adults: An Exploratory Pilot Study using Voxel-based Morphometry. Neuro. 2014; 1(1): 23–26. Published online 2014 Nov 12. doi: 10.17140/NOJ-1-106



Acceptance therapy and alcohol abuse

- Negative affect (emotion) involved in the development and maintenance of alcohol dependence
 - Difficulty coping with negative emotion a common precipitant of relapse
 - Acceptance-based strategies for preventing relapse intended to improve coping with distress
 - Acceptance-Based Coping for Relapse Prevention (ABCRP)
 - “A small uncontrolled pilot study (N = 23) showed significant ($P < .01$) improvements in self-reported negative affect, emotional reactivity, perceived stress, positive affect, psychological well-being, and mindfulness level, as well as a trend ($P = .06$) toward reduction in craving severity between pre- and post-intervention assessments
 - Vieten C, Astin JA, Buscemi R, Galloway GP. Development of an acceptance-based coping intervention for alcohol dependence relapse prevention. *Subst Abus.* 2010 Apr; 31(2):108-16.
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Mindfulness for addiction

- “Reduced psychological and physiological indices of stress during provocation in Mindfulness Therapy compared to CBT.”
 - Study provided evidence of the feasibility of MT in treating substance abuse
 - MT may be efficacious in targeting stress
 - Brewer JA, Sinha R, Chen JA, et al. Mindfulness training and stress reactivity in substance abuse: results from a randomized, controlled stage I pilot study. Subst Abus. 2009 Oct-Dec;30(4):306-17.
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Mindfulness and substance abuse

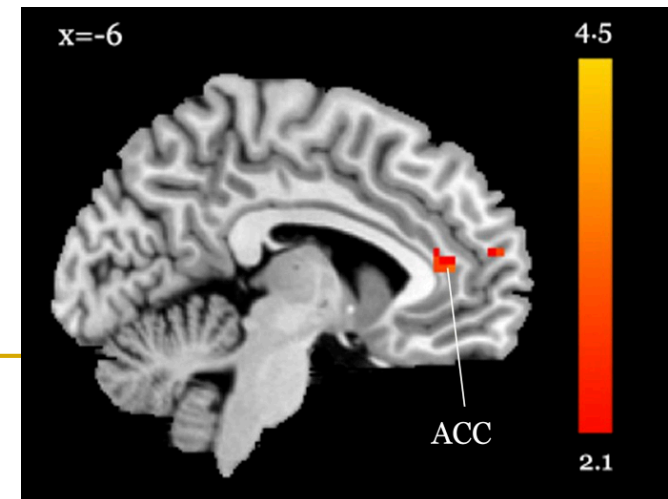
- RCT on 168 patients evaluating 8-week outpatient Mindfulness-Based Relapse Prevention (MBRP) program c/w treatment as usual (TAU)
 - Feasibility: MBRP group demonstrated consistent homework compliance, attendance, and participant satisfaction
 - Efficacy: significantly lower rates of substance use in MBRP group c/w TAU over 4-month post-intervention period
 - MBRP participants also demonstrated:
 - Greater decreases in craving
 - Increases in acceptance and acting with awareness c/w TAU
 - Bowen S, Chawla N, Collins SE, et al. Mindfulness-based relapse prevention for substance use disorders: a pilot efficacy trial. Subst Abus. 2009 Oct-Dec;30(4): 295-305.
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Vipassana and addiction

- Study on effectiveness of Vipassana meditation course on substance use and psychosocial outcomes in a prison population
 - After release from gaol VM group c/w TAU:
 - ❑ Significant reductions in alcohol, marijuana, and crack cocaine use
 - ❑ Decrease in alcohol-related problems and psychiatric symptoms
 - ❑ Increases in positive psychosocial outcomes
 - Bowen S, Witkiewitz K, Dillworth TM, et al. Mindfulness meditation and substance use in an incarcerated population. Psychol Addict Behav. 2006 Sep;20(3):343-7.
-

Meditation and smoking

- Attempts to help people either quit or reduce their smoking often fail: the intention to quit activates brain networks related to craving
- Study on the effect of meditation training vs. relaxation training
- Among smokers, 2 weeks of meditation training produced a 60% reduction in smoking but no reduction in the relaxation control
- Resting-state brain scans showed increased activity for the meditation group in the anterior cingulate and prefrontal cortex, brain areas related to self-control
 - Tang YY, Tang R, Posner MI. Brief meditation training induces smoking reduction. *Proc Natl Acad Sci U S A*. 2013 Aug 20;110(34):13971-5. doi: 10.1073/pnas.1311887110.



Mindfulness and gambling

- Systematic review of 13 mindfulness-based interventions for gambling behavior and symptoms, urges, and financial outcomes
 - Effects moderate to large for gambling behaviors / symptoms, gambling urges, and financial outcomes
 - “The findings provide support for mindfulness-based interventions in the treatment of disordered gambling.”
 - Maynard BR, Wilson AN, Labuzienski E, Whiting SW. Mindfulness-Based Approaches in the Treatment of Disordered Gambling: A Systematic Review and Meta-Analysis. Research on Social Work Practice Published online October 16, 2015. doi: 10.1177/1049731515606977
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Mindfulness and problem gambling

- Review of literature on mindfulness and its potential for reducing the severity of problem gambling behaviour
 - Dispositional mindfulness related to less severe problem gambling outcomes
 - Mediators: psychological distress, overconfidence and risk willingness, myopic focus on reward and ego involvement
 - Inverse relationship b/w mindfulness and psychological distress mediated by:
 - values clarification
 - emotional, cognitive, and behavioural flexibility
 - non-attachment
 - emotion regulation / distress tolerance
 - reduced rumination
 - de Lisle SM, Dowling NA, Allen JS. Mindfulness and problem gambling: a review of the literature. J Gambl Stud. 2012 Dec;28(4):719-39. doi: 10.1007/s10899-011-9284-7.
-

Problem gambling and mindfulness

- Australian study on poker-machine gamblers assessed problem-gambling severity and trait mindfulness
 - Trait mindfulness significantly negatively associated with both problem-gambling severity and cue-reactive urge
 - McKeith CF, Rock AJ, Clark GI. Trait Mindfulness, Problem-Gambling Severity, Altered State of Awareness and Urge to Gamble in Poker-Machine Gamblers. J Gambl Stud. 2016 Sep 12. [Epub ahead of print]
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Mindfulness and problem gambling

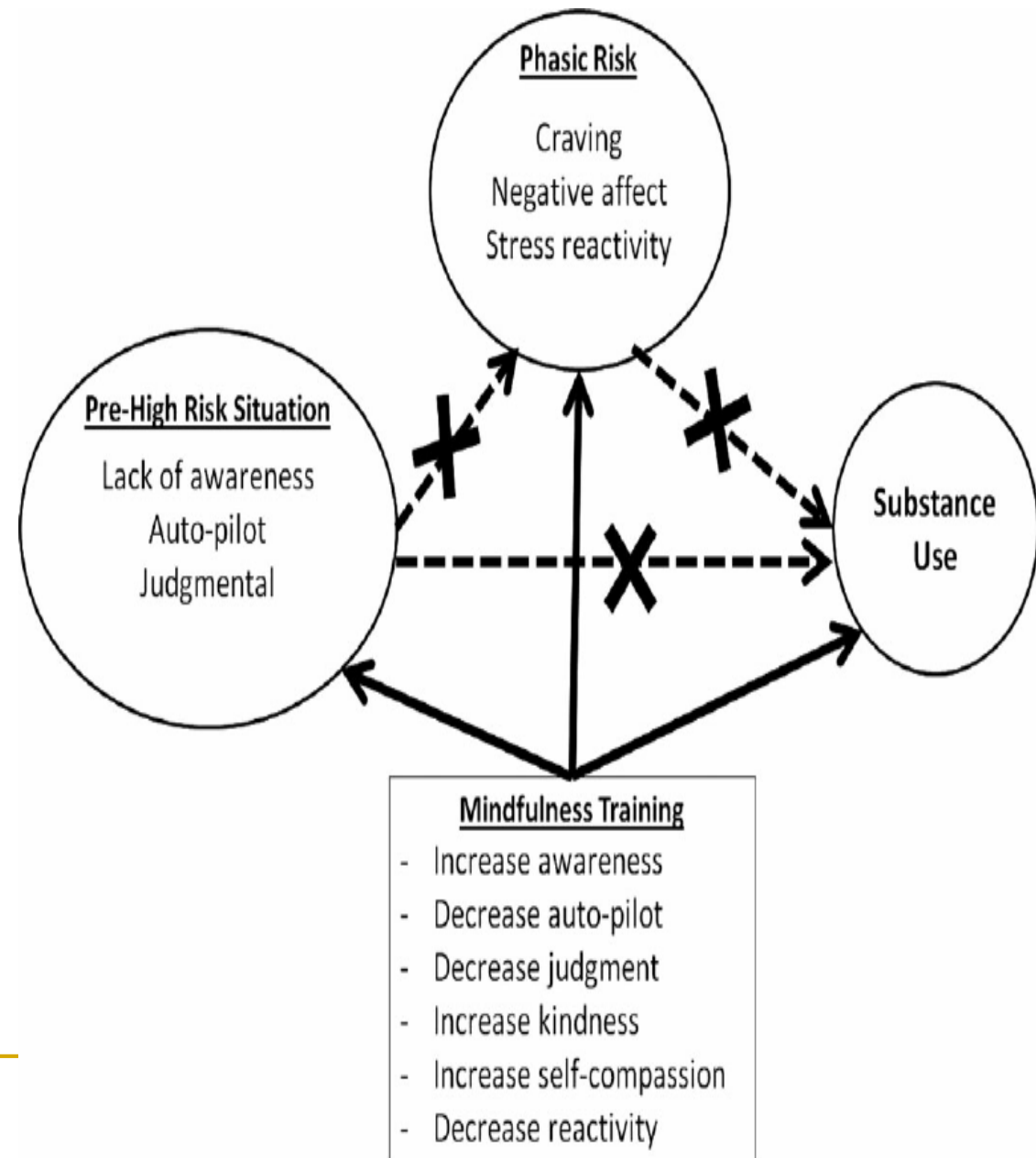
- PG conceptualized from biomedical perspective as something negative within the individual: too narrow to capture complexity of human behaviour
 - Study on young adults of the predictive ability of positive dispositions on problem gambling severity, gambling-related cognitions, and gambling urges
 - Positive psychological dispositions: curiosity, gratitude, hope, personal growth initiative, and mindfulness
 - Higher gratitude and hope predict lower PG, gambling-related cognitions, or gambling urges
 - Higher mindfulness predicted lower PG among males
 - Lower personal growth initiative predicted lower PG, gambling-related cognitions, and gambling urges
 - Loo JM, Tsai JS, Raylu N, Oei TP. Gratitude, hope, mindfulness and personal-growth initiative: buffers or risk factors for problem gambling? PLoS One. 2014 Feb 11;9(2):e83889. doi: 10.1371/journal.pone.0083889.
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Problem gambling, mindfulness & CBT

- Study tested effectiveness of interventions to treat PGs
 1. Cognitive Behaviour Therapy (CBT)
 2. Mindfulness-based treatment
 - All returned large effect size improvements in PG after 7 sessions at post-treatment and 6-month f-up
 - Mindfulness effective at reducing PG behavior and associated distress plus improvements in other measures such as quality of life-mental functioning and certain mindfulness facets more effectively than CBT
 - McIntosh CC, Crino RD, O'Neill K. Treating Problem Gambling Samples with Cognitive Behavioural Therapy and Mindfulness-Based Interventions: A Clinical Trial. J Gambl Stud. 2016 Apr 4. [Epub ahead of print]
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Mindfulness and addiction: mechanisms

- From: Witkiewitz K, Bowen S, Harrop EN, et al. Mindfulness-based treatment to prevent addictive behavior relapse: theoretical models and hypothesized mechanisms of change. Subst Use Misuse. 2014 Apr;49(5):513-24. doi: 10.3109/10826084.2014.891845.



Urge-surfing using mindfulness

1. Observing and riding the rise and fall of an urge with acceptance and non-attachment
 2. Not attempting to suppress or control the urge, but not being controlled by it either
 3. Gently reorientating attention back to the present moment through the senses and away from the default thinking about the object of the urge
 4. Persevering over time
-

Bias: the root of diagnostic errors

- Confirmation bias: the pursuit of data that support a diagnosis over data that refute it
 - Anchoring bias: a resistance to adapting appropriately to subsequent data that suggest alternative diagnoses
 - Sibinga EM, Wu AW. Clinician Mindfulness and Patient Safety. JAMA 2010;304(22):2532-3.
-

Mindfulness and ‘sunk-cost bias’

- Sunk-cost bias: “tendency to continue an endeavour once an investment in money, effort, or time has been made”
 - Often underlies escalation of commitment or entrapment
 - Large scale: disastrous military campaigns and over-budget public-works projects are publicly visible examples
 - Small scale: difficulty selling stock that has fallen in value, ignoring bad advice that one has paid for, deleting carefully written text from a manuscript, overstaying in dysfunctional relationships or jobs, gambling
 - Sunk-cost bias attenuated by drawing one’s focus away from the future and past and reducing negative affect through mindfulness meditation
 - Hafenbrack AC, Kinias Z, Barsade SG. Debiasing the Mind Through Meditation: Mindfulness and the Sunk-Cost Bias. Psychological Science 2014, Vol. 25(2) 369–376.
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Self-compassion and performance

- Can treating oneself with compassion after making a mistake increase self-improvement motivation?
 - Self-compassion intervention compared to a self-esteem control group, no intervention or a positive distraction control group
 - Self-compassion associated with:
 - ❑ Greater belief that a personal weakness can be changed for the better
 - ❑ Greater motivation to make amends and avoid repeating a moral transgression
 - ❑ More time studying for a difficult test following an initial failure
 - ❑ A preference for upward social comparison after reflecting on a personal weakness
 - ❑ Greater motivation to change the weakness
 - Breines JG, Chen S. Self-Compassion Increases Self-Improvement Motivation. Pers Soc Psychol Bull published online 29 May 2012 DOI: 10.1177/0146167212445599
-

Emotional Intelligence & mindfulness

- Mindfulness related to aspects of personality and mental health
 - Lower neuroticism, psychological symptoms, experiential avoidance, dissociation
 - Higher emotional intelligence and absorption
 - Baer RA, et al. Assessment. 2004;11(3): 191-206.

EI	Definition
Self-awareness	Ability to recognise and understand emotions, drives and effects
Self-regulation	Can control or redirect disruptive impulses, can think before acting
Motivation	Passion for work that goes beyond money or status, energy and persistence
Empathy	Ability to understand emotions of others, skill in interacting with others
Social skill	Can manage relationships and build networks, can find common ground, rapport

Mindfulness and communication

- Comparing clinicians with highest and lowest mindfulness scores: high-mindfulness clinician consultations:
 - ❑ Patient-centered pattern of communication (OR 4.14)
 - ❑ Both patients and clinicians engaged in more rapport building and discussion of psychosocial issues
 - ❑ Displayed more positive emotional tone with patients
 - ❑ Patients more likely to give high ratings on clinician communication and to report high overall satisfaction
 - Beach MC, Roter D, Korthuis PT, Epstein RM, et al. A Multicenter Study of Physician Mindfulness and Health Care Quality doi: 10.1370/afm.1507 Ann Fam Med 2013;11(5):421-428.
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Vicarious stress (trauma)

- The term vicarious stress or trauma (also called compassion fatigue) describes the phenomenon generally associated with the cost of caring for others
 - Perlman & Saakvitne, 1995
 - Figley, 1982
 - Vicarious trauma is the emotional residue of exposure that professionals have from working with people as they are hearing their trauma stories and become witnesses to the pain, fear, and terror that trauma survivors have endured
 - <http://www.counseling.org/docs/trauma-disaster/fact-sheet-9---vicarious-trauma.pdf>
-

Dealing with vicarious stress

- Unhelpful ways of coping include:
 - ❑ cut off, become cold, removed, dissociated...
 - ❑ become overwhelmed, burned out, unable to continue...
 - ❑ (carer) burnout associated with depersonalisation
 - May need to make a choice about whether to stay in that environment
 - ❑ No: change careers?
 - ❑ Yes: then need to learn ways to manage it
-

Meditation, vicarious stress & compassion

- Limbic brain regions (esp. amygdala) implicated in empathic response to another's pain
- Meditators have more active empathic response
 - Reduced activation of amygdala
 - Activation in insula associated with compassion greater in expert than novices
- Empathy w/o stress reduces carer fatigue
 - Lutz A, Brefczynski-Lewis J, Johnstone T, Davidson RJ. PLoS ONE. 2008 Mar 26;3(3):e1897.

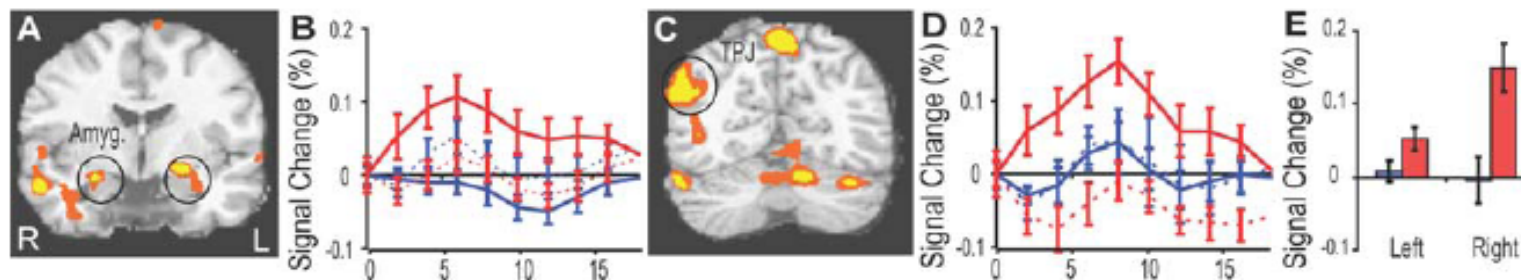


Figure 3. State by Group Interaction: **A.** (Amyg.) stands for amygdala ($y = -5$, color codes: orange, $p < 2.10^{-3}$, yellow, $p < 5.10^{-4}$). **B.** Impulse response in (Amyg.) for 15 experts (red) and for 15 novices (blue) during rest (dashed line) and compassion (full line). **C–D.** Same as **A–B** in TPJ; $y = -61$. **E.** Side by side effect and side by side by group effect in TPJ on the average impulse response between meditation and rest; experts are in red, novices in blue.

doi:10.1371/journal.pone.0001897.g003

Mindfulness for vicarious stress

- Formal practice of meditation

1. Learning to be comfortable (open, equanimous, non-judgmental, non-reactive) in the presence of our own distress
2. Paying attention / self-compassion

- Informal practice of mindfulness

3. Learning to be comfortable (open, equanimous, non-judgmental, non-reactive) in the presence of others' distress
 4. Paying attention / compassion for others
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co-author of the bestselling *Mindfulness for Life*
DR CRAIG HASSED
& DR RICHARD CHAMBERS

mindful learning

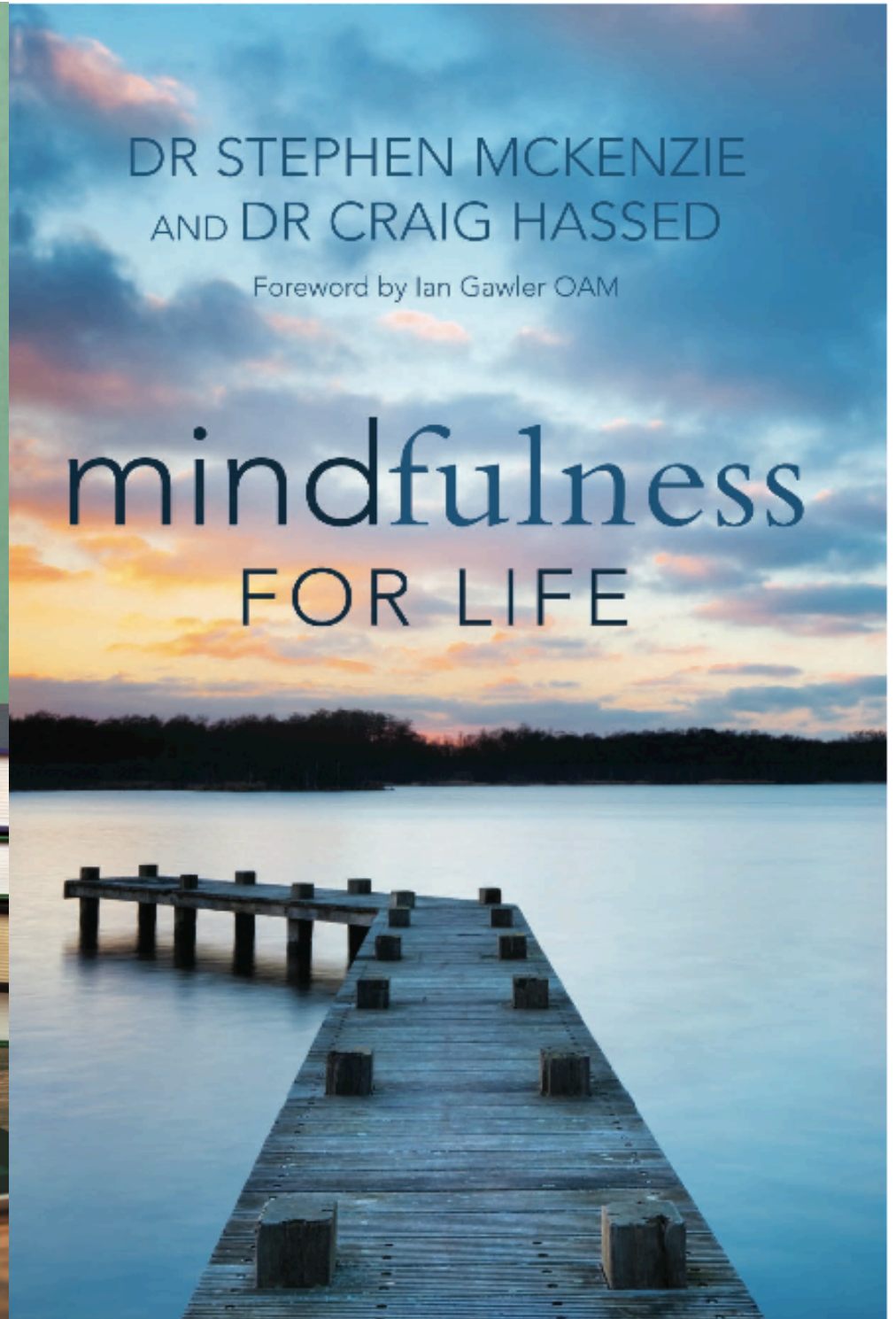
Reduce stress and improve brain
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DR STEPHEN MCKENZIE
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Foreword by Ian Gawler OAM

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Free 6-week online mindfulness course

- <https://www.futurelearn.com/courses/mindfulness-wellbeing-performance>
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