IM and the Essence of Health in the management of chronic disease

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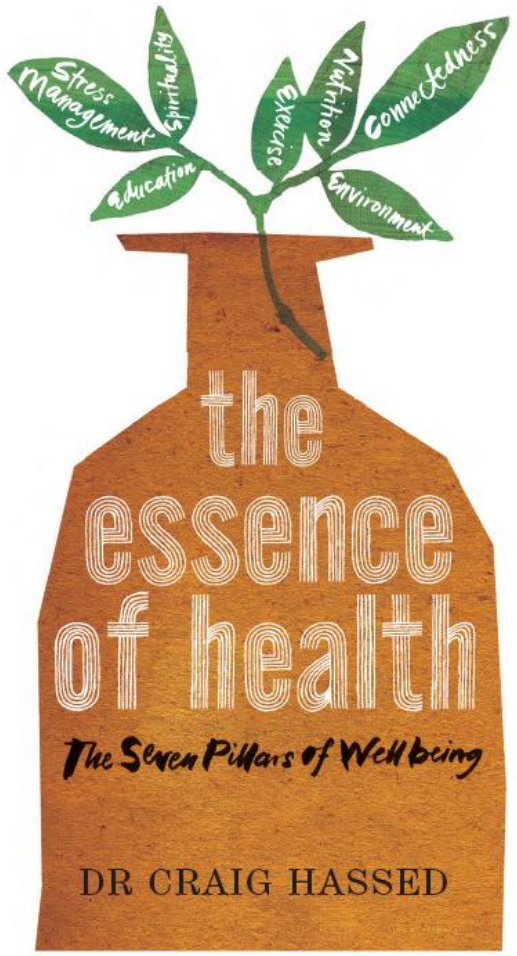
Integrative Medicine

- Doctors who incorporate evidence-based and safe therapies
  - Conventional medical treatments
  - Lifestyle interventions
  - Holistic approach
    - Physical, mental, emotional, spiritual, social, environmental
  - Evidence-based complementary therapies
- Many would increasingly say that this is not ‘alternative practice’ but ‘best practice’
- This is the optimal model

The Essence of Health

- Education
- Stress management
- Spirituality
- Exercise
- Nutrition
- Connectedness
- Environment



Student wellbeing

- Health Enhancement Program (HEP) at Monash comprises mindfulness and ESSENCE lifestyle programs
- Study of 2006 cohort found that 90.5% of students personally applied strategies
- Improved student wellbeing noted at time 2 (post-course / pre-exam) compared to time 1 (pre-course / mid-semester) on all measures
  - Reduced depression, hostility and anxiety subscale
  - Improved psychological and physical quality of life
    - Hassed C, de Lisle S, Sullivan G, Pier C. Adv Health Sci Educ Theory Pract. 2008 May 31. [Epub ahead of print]

Personal health practices and professional practice

- Study on 2316 U.S. medical students' nutritional practices and their nutrition counseling of patients
- Freshmen students more likely (72%) to find nutrition counseling highly relevant than students at the time of ward orientation (61%) or during their senior year (46%)
- Those intending to specialize had lower and declining perceptions of counseling relevance whereas the perceived relevance of counseling by primary care physicians remained high
  - Spencer EH, Frank E, Elon LK, Hertzberg VS, Serdula MK, Galuska DA. Predictors of nutrition counseling behaviors and attitudes in US medical students. Am J Clin Nutr. 2006 Sep;84(3):655-62.

Personal health practices and professional practice

- Students significantly more likely to find nutrition counseling highly relevant if they were female, consumed more fruit and vegetables, believed in primary prevention, had personal physicians who encouraged disease prevention, or intended to specialize in primary care
  - Medical students consumed an average of 3.0 fruit and vegetable servings/day, which declined over time
- Only 19% of students believed that they had been extensively trained in nutrition counseling
- 17% of seniors reported frequently counseling their patients about nutrition

- Spencer EH, Frank E, Elon LK, Hertzberg VS, Serdula MK, Galuska DA. Predictors of nutrition counseling behaviors and attitudes in US medical students. Am J Clin Nutr. 2006 Sep;84(3):655-62.

Education

Education

- Associated with:
  - Better physical and mental health
  - Lower rate of dementia
  - Healthier lifestyle
  - Greater autonomy
  - Decision-making ability
  - Confidence
  - Opportunities
  - Social and economic advantage
- Education is not just giving factual information, it is about knowing ourselves and enabling ourselves:
  - Understanding our own minds
  - Cultivating mindfulness
  - Stress management
  - Behaviour change strategies
  - Goal setting

Stress management

The consciousness-mind-body link

Mental Health in developed countries

- Mental health problems predicted to soon be the largest single non-fatal burden of illness in Australia independent of the contribution of mental health to illness via:
  - Lifestyle (e.g. smoking and physical inactivity)
  - Direct physiological effects (independent risk factor for CHD etc)
    - MJA 2000;172(12):592-6

Burnout and psychiatric morbidity in new medical graduates

- 8 months into internship: 75% interns had burnout
- 73% (of interns) met criteria for psychiatric morbidity on at least one occasion
  - Willcock SM et al. Burnout and psychiatric morbidity in new medical graduates. Med J Aust. 2004;181(7):357-60.

“The body is the shadow of the soul.”

Marsilio Ficino (1433-99)

The mind and body

- “You ought not to attempt to cure the body without the soul (psyche) for this is the great error of our day (400BC), in the treatment of the human body, that physicians separate the soul from the body.”
  - Attributed to Socrates by Plato in Charmides

Allostatic load

- Prolonged stress leads to wear-and-tear on the body (allostatic load)
- Allostatic load leads to:
  - Immune dysregulation, atherosclerosis, metabolic syndrome (high blood pressure, diabetes …), osteoporosis
  - Loss of nerve cells in the brain
    - **Hippocampus:** learning and memory
    - **Prefrontal cortex:** working memory, executive function
  - Growth of **Amygdala** mediates fear response
- Similar in chronic depression and anxiety
  - McEwen BS. Ann N Y Acad Sci. 2004;1032:1-7.

Neuroplasticity

- “Neurons that fire together, wire together.”
  - Hebbe’s hypothesis

Psychoneuroimmunology

1. Lowered immunity
2. Susceptibility to infections and relapse
3. Increased inflammation
4. Activates autoimmune conditions
5. Poor response to immunisation
6. Worsening allergies
7. Poorer defence against cancer

Mindfulness

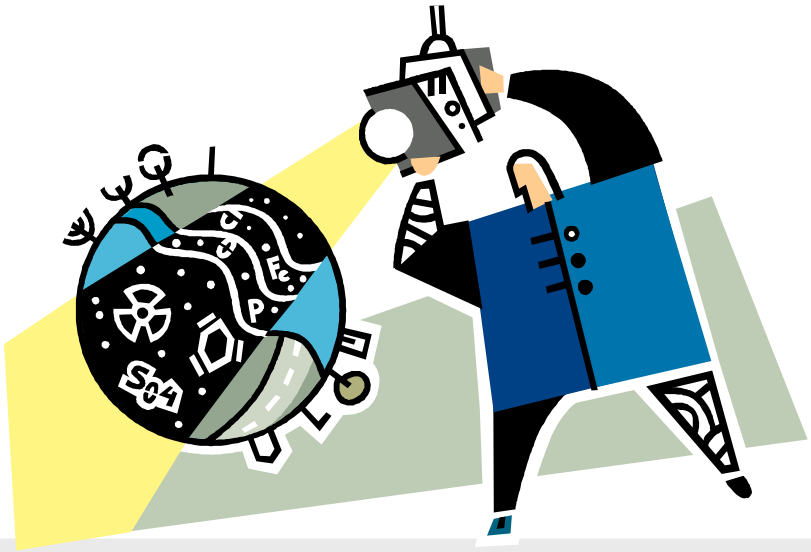
- The faculty of voluntarily bringing back a wandering attention over and over again, is the very root of judgment, character, and will. No one is compos sui if he have it not.
  - William James, Principles of Psychology, 1890

The many facets of mindfulness

- One substance: consciousness (awareness)
- One generic skill: the paying of attention
- Many facets or applications
- Definition depends upon which one is reflected upon

Albert Einstein

- “Any man who can drive safely while kissing a pretty girl is simply not giving the kiss the attention it deserves.”



Applications of mindfulness

- Mental health
  - E.g. depression relapse prevention, anxiety, panic disorder, stress, emotional regulation, addiction
- Neuroscience
  - E.g. structural and functional changes in the brain, neurogenesis, dementia prevention
- Clinical
  - E.g. pain management, symptom control, cancer, metabolic, hormonal, genetic function and repair
- Performance
  - E.g. sport, academic, leadership
- Spiritual
  - E.g. deep peace, insight, oneness

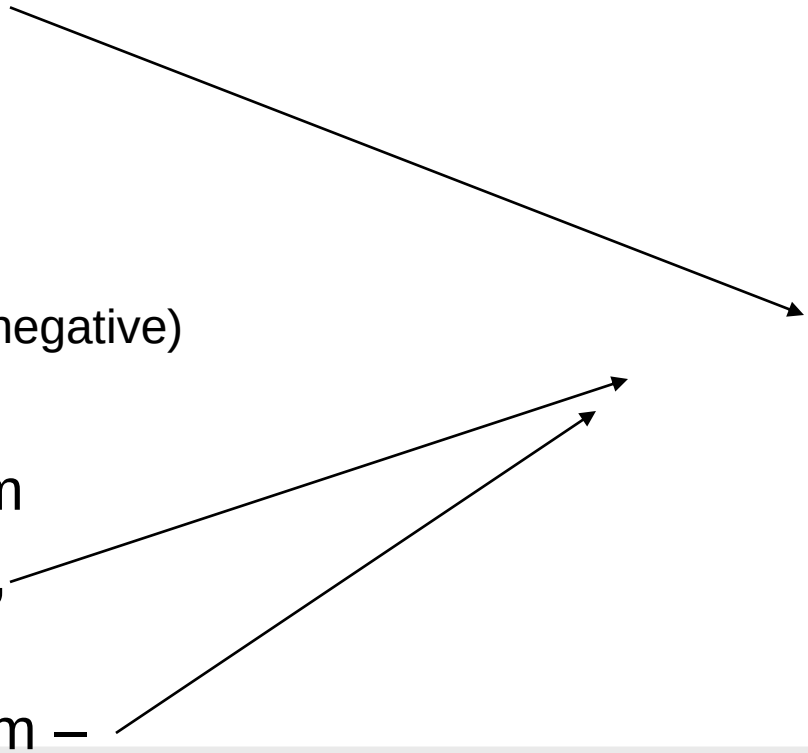
Results suggest that MBSR may help a broad range of individuals to cope with their clinical and non-clinical problems. Grossman P. J Psychosomatic Research. 2004;57(1):35-43.

Mindfulness

- Mindfulness is a mental discipline that involves training attention – it is not a method of distracting ourselves or zoning out
- It is about zoning in – hence people perform better when mindful (in the zone)
- The anxious, stressed or depressed state of mind is the distracted state of mind – hence the negative impact upon performance

Neuroscience and the brain

- Three areas of the brain correspond to Plato's conception
- Frontal lobes – executive functions
  - Higher reasoning
  - Emotional regulation
    - Left (positive) vs. right (negative)
  - Appetite regulation
  - Directs immune system
- Limbic system – emotion, courage and fear
- Mesolimbic reward system – appetites and addictions



Mindfulness and depression

- Mindfulness-Based Cognitive Therapy (MBCT) reduced relapse from 78% to 36% in patients with recurrent episodes of depression
  - Ma SH, Teasdale JD. J Consult Clin Psychol. 2004;72(1):31-40.

Mindfulness, depression and the stress response

- Mindfulness negatively correlates with depressive symptoms and reactivity of the amygdala
  - Way BM., Creswell JD., Eisenberger, NI., Lieberman MD. Dispositional mindfulness and depressive symptomatology: Correlations with limbic and self-referential neural activity during rest. Emotion. Vol 10(1), Feb 2010, 12-24.

Mindfulness, depression and sleep

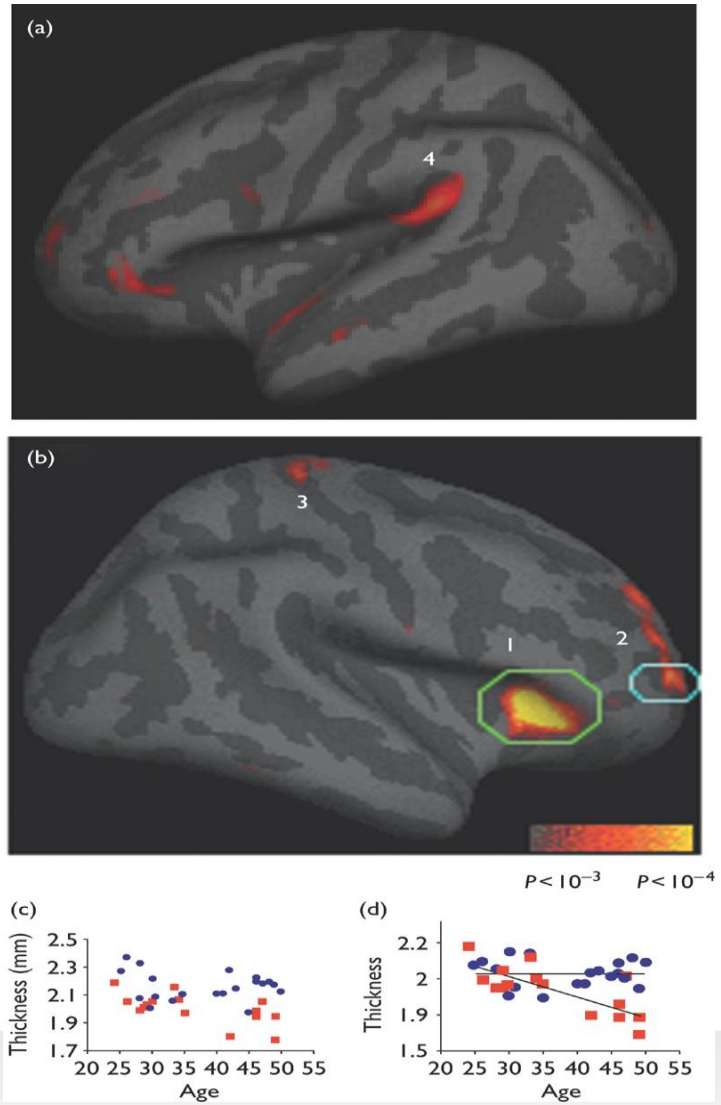
- Individuals partially recovered from depression randomized into 8-week MBCT course or waitlist
- Mindfulness associated with subjectively reported sleep improvement and decreased Beck Depression Inventory scores c/w the control group
  - Britton WB, Haynes PL, Fridel KW, Bootzin RR. Polysomnographic and subjective profiles of sleep continuity before and after mindfulness-based cognitive therapy in partially remitted depression. Psychosom Med. 2010 Jul;72(6):539-48.

Leisure activities and dementia

- Leisure activities
  - Less than average diversity
  - Spending less time on them
  - More passive activities (principally TV)
- Nearly four times as likely to develop dementia over 40-year f/up
  - Friedland RP et al. Proc Nat Acad Sci USA, 10.1073/pnas.061002998
  - Scarmeas N et al. Neurology 2001;57(12):2236-42.

Mindfulness and cortical thickness

- MRI assessed cortical thickness in long-term mindfulness meditators
- Brain regions associated with attention, interoception and sensory processing thicker in meditators than matched controls
  - Including prefrontal cortex
- Might offset age-related cortical thinning and “evidence for … cortical plasticity”
  - Lazar SW, Kerr CE, Wasserman RH, et al. Neuroreport. 2005;16(17):1893-1897.



Doctor health and medical errors

- Study determined prevalence of depression and burnout among residents medical staff in 3 US hospitals
- 20% of residents met criteria for depression
- 74% met the criteria for burnout
- Depressed residents made 6.2 times as many medication errors as residents who were not depressed
  - Fahrenkopf AM, Sectish TC, Barger LK, et al. Rates of medication errors among depressed and burnt out residents: prospective cohort study. BMJ, doi:10.1136/bmj.39469.763218.BE (published 7 February 2008)

Mindfulness and doctor 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.

Mindful practice

- Mindfulness is essential underpinning for self-monitoring
- “Mindful practice is conscious and intentional attentiveness to the present situation – the raw sensations, thoughts, and emotions as well as the interpretations, judgments and heuristics that one applies to a particular situation.”
- Avoids automatic pilot
  - Epstein R, Siegel D, Silberman J. Self-monitoring in clinical practice: a challenge for medical educators. J Cont Educ Health Prof 2008;28(1):5-13.
  - Epstein RM. Mindful practice in action (II): Cultivating habits of mind. Fam Syst Health . 2003;21: 11-17.

Roots of Diagnostic Errors

- "**Cognitive dispositions to respond** that influence the diagnostic process are characterized by a lack of awareness and responsiveness by the individual to his or her own cognitive and affective processes."
- **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. Clinical Mindfulness and Patient Safety. JAMA 2010;304(22):2532-3.

Self monitoring

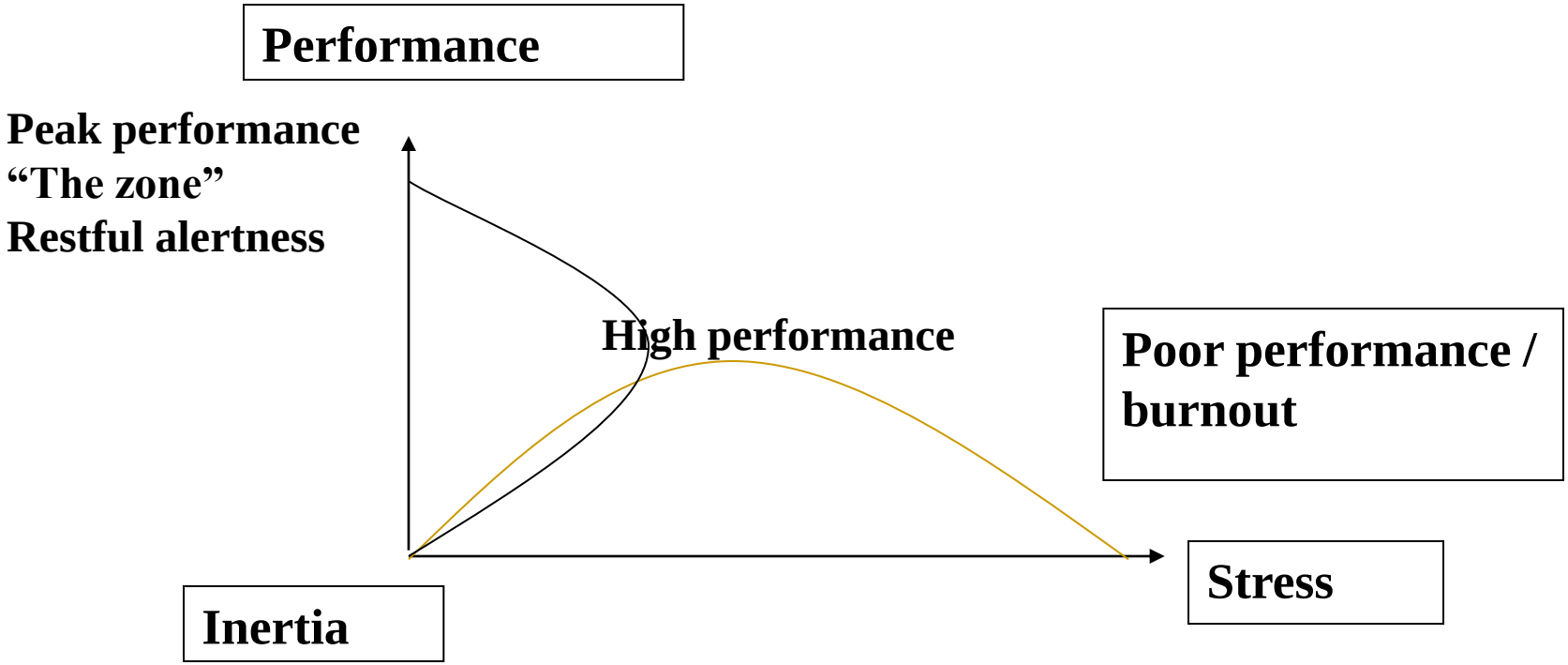
- Moment-to-moment ability / willingness to:

1. Notice our own actions
2. Examine the effects of those actions (curiosity)
3. Use those observations to improve behaviour and thinking

    - Epstein R, Siegel D, Silberman J. Self-monitoring in clinical practice: a challenge for medical educators. J Cont Educ Health Prof 2008;28(1):5-13.

Self-monitoring leads to;

1. Early recognition of cognitive biases
   - E.g. case of Anne Dodge
2. Avoidance of technical errors
   - E.g. drug dosage
3. Awareness of emotional reactions
   - E.g. dislike of a patient
4. Facilitation of self-correction
5. Development of therapeutic relationships
   - Epstein R et al, 2008



The alternate stress-performance curve

Mindfulness and sport

- “Mindfulness is vastly different that the way many athletes conceive it, and it offers many benefits to focusing and athletic performance. Mindfulness teaches athletes to focus on the present rather than dwelling on past mistakes or future results. This present focus enables athletes to be more alert to relevant performance cues and allows them to more easily disregard distracting cues.”
  - Taylor J, Wilson GS. (2005) Applying Sports Psychology

Emotional Intelligence

- 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.

	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**

Meditation and compassion

- Limbic brain regions of brain implicated in empathic response to another's pain
- Activation of empathy greater in expert meditators than novices
- Empathy with stress leads to carer fatigue but empathy with compassion and acceptance does not
  - Lutz A, et al. RJ. PLoS ONE. 2008 Mar 26;3(3):e1897.

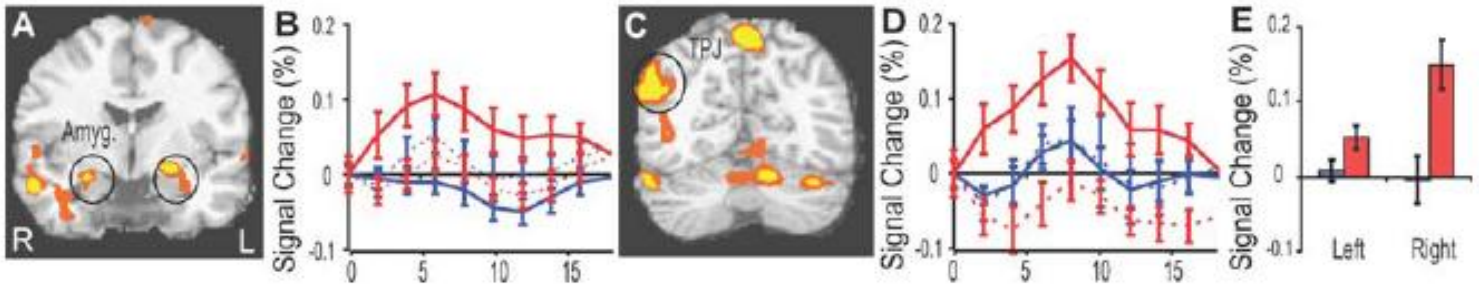


Figure 3. State by Group Interaction: A. (Amyg.) stands for amygdala (y = −5, color codes: orange, p<2.10^-3, yellow, p<5.10^-4). **B.** Impulse response in (Amyg.) for 15 experts (red) and for 15 novices (blue) during rest (dashed line) and compassion (full line). **C–D.** Same as **A–B** in TPJ; y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

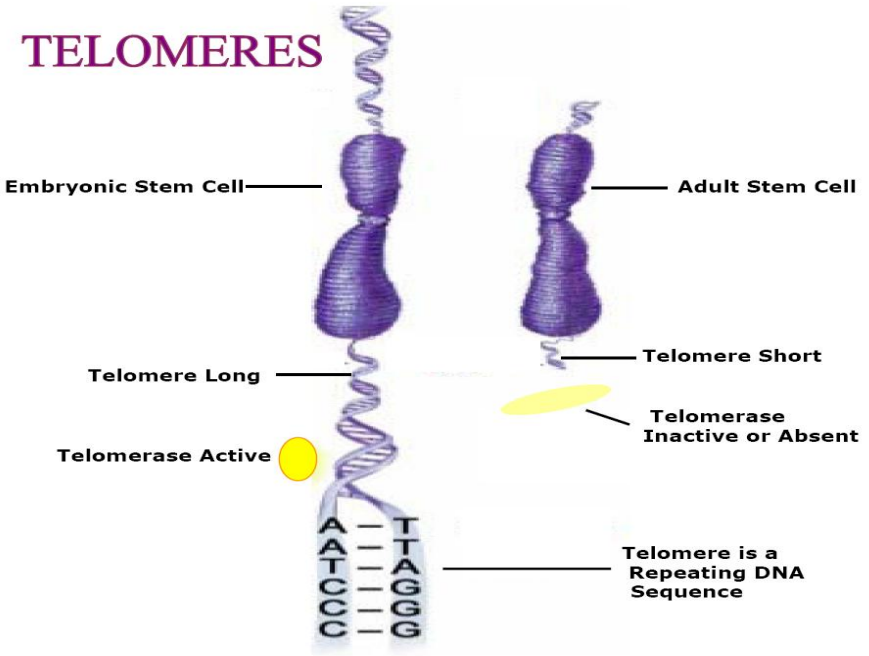
doi:10.1371/journal.pone.0001897.g003

The Relaxation Response and genetics

- “This study provides the first compelling evidence that the RR elicits specific gene expression changes in short-term and long-term practitioners. Our results suggest consistent and constitutive changes in gene expression resulting from RR may relate to long term physiological effects.”
  - Dusek JA, et al. PLoS ONE. 2008 Jul 2;3(7):e2576.

Mindfulness and cellular ageing

- Meditation may slow genetic ageing and enhance genetic repair
  - "...we propose that some forms of meditation may have salutary effects on telomere length by reducing cognitive stress and stress arousal and increasing positive states of mind and hormonal factors that may promote telomere maintenance."
    - Epel E, Daubenmier J, Moskowitz JT, Folkman S, Blackburn E. Can meditation slow rate of cellular aging? Cognitive stress, mindfulness, and telomeres. Ann N Y Acad Sci. 2009 Aug;1172:34-53.



The importance of sleep

- Poor sleep is detrimental for mental and physical health and performance
  - E.g. poor immunity, depression, poor concentration
  - Poor sleep is a common cause of depression and much depression resolves with improved sleep
  - Regular sleep patterns (time of rising and going to bed) highly recommended
  - Avoid screen time close to bed time
  - If sleep is a problem then utilise behavioural approaches rather than medications (e.g. Sleep Better Without Drugs)

Spirituality

The role of meaning

- The lack of meaning in life is a soul sickness whose full extent and full import our age has not yet begun to comprehend.
  - Carl Jung
- Many different ways of exploring and expressing meaning
  - Philosophy, religion, science, altruism, environmentalism, art …

How does one define spirituality?

- **Spirituality**
- Meaning
- Connectedness
- Sense of purpose
- Belief in a ‘higher intelligence’
- Philosophical inquiry

- **“Religious commitment”**
- Overlaps with spirituality
- Membership of religious group
- Attends church
- Religious upbringing

- Can be ‘religious’ without being ‘spiritual’

- Can be ‘spiritual’ without being ‘religious’

Religious commitment and health

- Religious commitment is widely used in the medical and psychological studies
  - Most common interpretation of spirituality / easy to measure
- Protective for:
  - Depression and suicide
  - Substance abuse
  - Physical illness
  - Longer life expectancy
- Links hold even when controlled for other risk factors
  - Arch Fam Med 1998;7:118-24.

Taking a spiritual history

- Four basic considerations should be kept in mind when taking a spiritual history
  - Does the patient use religion or spirituality to help cope with illness or is it a source of stress, and how?
  - Is the patient a member of a supportive spiritual community?
  - Does the patient have any troubling spiritual question or concerns?
  - Does the patient have any spiritual beliefs that might influence medical care?
    - Koenig HG. Espiritualidade no Cuidado com o Paciente. São Paulo: Editora FE; 2005.

Exercise

Exercise levels in Australia

- “In 2004-05, 70% of Australians aged 15 years and over were classified as sedentary or having low exercise levels. Of these, just under half (48%) recorded no or very little exercise in the previous two weeks (sedentary exercise level) and 52% recorded a low level of exercise.”
  - ABS – Australian snapshots

Inactivity and health

- Chronic conditions related to inactivity include:
  - Heart disease
  - Hypertension
  - Type II diabetes
  - Cancer
  - Depression
  - Anxiety
  - Osteoporosis
  - Obesity
  - Poor immunity
  - Dementia
  - Parkinson's disease…

Exercise and mental health

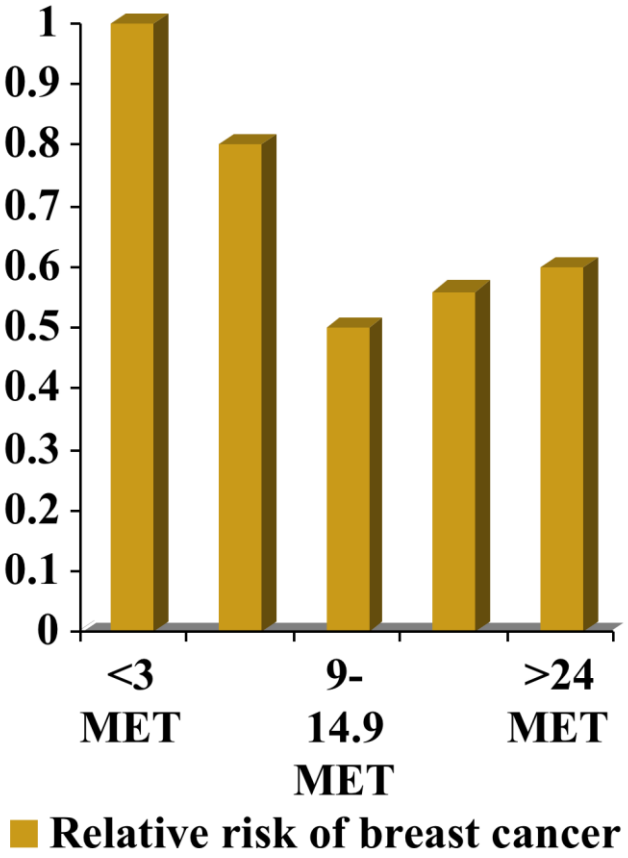
- Elevation of mood seen with aerobically based exercise programs in both the healthy and clinically depressed
  - Antidepressant and anti-anxiety effects
- Also useful in alcohol and substance abuse
- Mechanism of action in depression:
  - Self esteem
  - Therapeutic distraction from worries
  - Improvement in general health
  - Release of pent up hostility
  - Increased serotonin
  - Improves insomnia
    - Byrne A, Byrne DG: J Psychosom Res 1993;13(3):160-170.
    - Chaouloff F: Med Sci Sports Exerc 1997;29(1):58-62.
    - King AC, Oman RF et al. JAMA 1997;277(1):32-37.

Physical activity & academic performance

- High overall sports participation: less likely to participate in a range of risky behaviors
  - Adolescent risk behaviors (eg, truancy, cigarette smoking, sexual intercourse, delinquency), other weekly activities (eg, work, academic performance, sleep), self-esteem.
- Active teens less likely to have low self-esteem and more likely to have higher grades (eg, active in school).
  - Nelson MC, Gordon-Larsen P. Physical activity and sedentary behavior patterns are associated with selected adolescent health risk behaviors. Pediatrics. 2006 Apr;117(4):1281-90.

Physical exercise and cancer survival

- 2987 women with breast cancer followed for up to 18y
  - Risk of death halved for those who engaged in >9 MET-hr/wk (~ walking 3-5 hr/wk)
    - JAMA. 2005;293(20):2479-86.
- 47620 men, ~3000 with prostate cancer, 14y follow-up
  - In men >65 1/3 risk of advanced prostate cancer
    - Arch Int Med 2005;165:1005-10.
- 526 patients with colorectal cancer followed for over 5y
  - Risk of death halved for stage II&III
    - Gut 2006;55:62-67.



Exercise and dementia

- Physical exercise, even if moderate, protective against cognitive decline and stimulates growth of new brain cells (neurogenesis)
- Exercise halves risk of Alzheimer's Disease
- For patients already suffering from dementia, physical exercise, especially when combined with music, is associated with improved cognitive function within weeks
  - Archives of Internal Medicine 2001;161:1703-8.
  - Arch Neurol. 2001;58(3):498-504.
  - Clin Rehabil. 2004;18(3):253-60.
  - Curr Opin Psychiatry. 2006 Mar;19(2):190-3.

Physical activity and Parkinson's Disease

- Individuals with regular participation in moderate to vigorous activity had approximately a 40% lower risk than those who were inactive
  - Study on physical activity in relation to Parkinson's Disease among 213,701 participants
    - Physical activity over 4 periods (ages 15-18, 19-29, and 35-39, and in the past 10 years) noted for future diagnosis of PD
  - Higher levels of physical activity at ages 35-39 or in the past 10 years associated with lower PD occurrence – dose-response relationship
  - Odds ratio (OR) between the highest vs the lowest levels were 0.62 for ages 35-39 and 0.65 for exercise in the past 10 years
    - Xu Q, Park Y, Huang X, et al. Physical activities and future risk of Parkinson disease. Neurology. 2010 Jul 27;75(4):341-8.

Exercise, stress and telomeres

- Study on healthy post-menopausal women underwent Telomere Length analysis and measures of physical activity and stress
- Participants categorized into sedentary and active groups
- The likelihood of having short vs long telomeres calculated as a function of stress and exercise group
  - Controlled for age, BMI and education
- For non-exercisers a one unit increase in the PSS related to a 15-fold increase in the odds of having short telomeres whereas in exercisers, perceived stress appears to be unrelated to TL
    - Puterman E, Lin J, Blackburn E, et al. The power of exercise: buffering the effect of chronic stress on telomere length. PLoS One. 2010 May 26;5(5):e10837.

Nutrition

Nutrition and depression

- Omega-3 fatty acids, folate, vitamin E, vitamin B6, vitamin D, S-adenosyl methionine, phenyalanine and dark chocolate
- Reducing or avoiding alcohol, sugar and caffeine
  - Medical Journal of Australia 2002;176:S84-96.
  - Lipids Health Dis. 2007 Sep 18;6(1):21.
  - British Journal of Psychiatry 2007

Nutrition and mental health

- Study of 7114 adolescents aged 10-14 years: Healthy and unhealthy diet quality scores compared with incidence of depression
  - Adjusted for age, gender, socioeconomic status, parental education, parental work status, family conflict, poor family management, dieting behaviours, body mass index, physical activity, and smoking
- Compared to the lowest quintile, the adjusted OR for symptomatic depression across increasing quintiles of the unhealthy diet score were:
  - Q2 = 1.03, Q3 = 1.22, Q4 = 1.29, Q5 = 1.79
- "Our results demonstrate an association between diet quality and adolescent depression that exists over and above the influence of socioeconomic, family, and other potential confounding factors."

- Jacka FN, Kremer PJ, Leslie ER, et al. Associations between diet quality and depressed mood in adolescents: results from the Australian Healthy Neighbourhoods Study. Aust N Z J Psychiatry. 2010 May;44(5):435-42.

Calorie restriction

- “Caloric (or dietary) restriction (CR) extends lifespan and lowers risk for age associated diseases.” including cancer and heart disease
  - Willcox DC, Biogerontology. 2006 Jun 30; [Epub ahead of print]
- CR is not under-nutrition but having a diet which does not contain calories excess to requirements
  - Most westernised diets are calorie-dense (empty calories with little nutritional value)

Omega-3 f.a. and the heart

- Review of 97 trials on (anti-lipidemic) ‘cholesterol-lowering’ drugs
- Most effective therapy for reducing all-cause and cardiac mortality was omega-3 fatty acids
  - High concentrations in fish and flaxseed oils
- N-3 fatty acids should be the preferred and first-line treatment for high cholesterol (hyperlipidemia)
- Clearly superior for effectiveness, side-effect profile, availability, cost and safety
  - Studer M, Briel M, Leimenstoll B, et al. Effect of different antilipidemic agents and diets on mortality: a systematic review. Arch Intern Med. 2005;165(7):725-30.

Lifestyle and cancer: WCRF

1. **Be as lean as possible without becoming underweight**

2. **Be physically active for at least 30 minutes every day**

3. **Calorie restriction: avoid sweet drinks and limit energy-dense foods particularly processed foods high in added sugar, low in fibre, or high in fat**

4. **Eat more of a variety of vegetables, fruits, whole-grains and pulses such as beans**

5. **Limit red meat, e.g. beef, pork and lamb, and avoid processed meat**

6. **Limit alcoholic drinks to 2 for men and 1 for women a day**

7. **Limit consumption of salty foods and food processed with salt**

8. **Don't use supplements to protect against cancer**

http://www.wcrf-uk.org/research_science/recommendations.lasso

Parkinson's disease and nutrition

- Neuro-damaging / associated with increased risk of PD
  - Saturated fats
  - Diabetogenic diet
- Neuro-protective / associated with a reduced risk or slower progression of PD
  - 'Mediterranean diet' (high in fruits, vegetables, fish, unsaturated oils)
  - High omega-3 fatty acid intake
  - CoQ10
  - Vitamin E? (non-synthetic)
  - Vitamin D
    - Kones R. Parkinson's Disease: mitochondrial molecular pathology, inflammation, statins and therapeutic neuroprotective nutrition. Nutrition in Clinical Practice 2010;25(4):371-389.

Nutrition and breast cancer

- Women in the highest quarter of intake of vegetables and fruit had 43% reduced risk for a new breast cancer event
  - Rock CL, et al. J Clin Oncol. 2005;23(27):6631-8.
- Low-fat diet associated with a 24% reduction in recurrence and 19% improvement in 5-year survival
  - Chlebowski RT, et al. J Natl Cancer Inst. 2006 Dec 20;98(24):1767-76.

Weight management

- Achievable and sustainable goals
- Positive attitude towards food
- Non-hungry eating
- Being physically active
- Body image
- Slowing down
  - Kausman R. Tips for long term weight management. Aus Fam Phys 2000;29(4):310-3.
  - Kausman R. If not dieting then what?

Connectedness

Social support

- High social support associated with:
  - Better mental health
  - Less heart disease
  - Greater longevity
  - Less substance abuse
  - Better immunity
  - Less dementia
- Quantity and quality both important
- Social isolation associated with poorer health

Bereavement and immunity

- Significant immunosuppression during bereavement
- Six times higher rate of pneumonia in year post-bereavement
  - Bartrop R et al. Lancet 1977;1:834-6.
  - Schleifer S et al. JAMA 1983;250:374-7.
- Even more significant immunosuppression during marital separation
  - Kiecolt-Glaser J et al. Psychosom Med 1987;49:13-34.
  - Kiecolt-Glaser J et al. Psychosom Med 1988;50:213-29

Social isolation and health

- Social isolation associated with double death rates independent of other lifestyle variables
- Social interactions important for both quantity and quality
- Protective are:
  - Marriage
  - Contact with family and friends
  - Religious dimension
  - Group affiliation
    - House JS. et al. Social relationships and health. Science 1988;241(4865):540-5.

Connectedness and adolescent health

- Parent-family connectedness and perceived school connectedness protective against health risk behaviors
- “Family and school contexts as well as individual characteristics are associated with health and risky behaviors in adolescents … diminish risk factors and enhance protective factors for our young people.”
  - Resnick MD, Bearman PS, Blum RW, et al. JAMA. 1997 Sep 10;278(10):823-32.

Marriage and health

- Review of nearly 300 references indicated that marriage, and in particular healthy marriage, is beneficial for good social, mental and physical health
  - Kiecolt-Glaser J, Newton T. Marriage and health: his and hers. Psychological Bulletin 2001;127(4):472-503.
- Marriage protective for both men and women
  - Litwak, E American Sociological Review 1989;54:49–66.
  - Ross C. J Marriage and the Family 1990;52:1059–1078.
  - Hibbard, J. H. Social Science and Medicine 1993;36:217–225.

Environment

Environment

- Environment impacts upon every aspect of mental and physical health
- ‘Environment’ can mean different things
- Ecology: climate, air, water, soil, radiation
  - E.g. living near high voltage power lines or a freeway entrance associated with illness
- Social: home, friends
- Educational: school
- Urban: home, architecture, town planning, safety

Sunlight

- Regular, moderate sun exposure has been found to be beneficial for, or protective against, the following:
  - Coronary Heart Disease
  - Various cancers (even melanoma)
  - Mental Health (e.g. depression)
  - Rickets, osteomalacia and fractures
  - Psoriasis
  - Multiple Sclerosis
  - Diabetes
  - Other

Is heart disease reversible?

- Heart disease is reversible given the right lifestyle
  - Significant improvement possible in both the disease progression and quality of life.
- People with already well established CVD given conventional medical management plus or minus an intervention (comprehensive lifestyle program)
  - Ornish D. et al. Lancet 1990;336:129-133.

The Ornish Program

- People followed angiographically and symptomatically
- The program (intervention) consisted of:
  - group support
  - stress management consisting of meditation and yoga
  - a low fat vegetarian diet
  - moderate exercise
  - stopping smoking
- Stress management was central to being able to improve other lifestyle risk factors

Results

	Intervention	Control
Progression	**82% regressed**	**53% progressed**
Symptom frequency	**91 ⇓**	**165⇑**
Duration	**42 ⇓**	**95⇑**
Severity	**28 ⇓**	**39⇑**

Reduction in healthcare costs

- $3,900 for the Ornish program
- C/w $40,000 for bypass surgery
- Average cost savings were $US58,000 per patient after 3 year follow-up
  - BMJ. 1993;307:465.

Ornish program for cancer

- 92 men with early prostate cancer who chose to watch and wait
- Randomised to lifestyle (experimental) group vs. usual treatment (control) group
  - Ornish D. Weidner G. Fair WR. et al. Journal of Urology. 2005;174(3):1065-9.

Ornish lifestyle intervention

- Vegan diet
  - Fruits, vegetables, whole grains, legumes and soy
  - 10% calories from fat
  - Supplemented by soy (tofu), fish oil (3gm daily), vitamin E (400IU daily), selenium (200mcg daily), vitamin C (2gm daily)
- Exercise
  - Walking 30min 6 times weekly
- Stress management
  - Gentle yoga, meditation, breathing and PMR
- Support group 1 hour weekly
  - Ornish et al. Journal of Urology 2005;174:1065-70.

Ornish lifestyle intervention

- 2-year follow-up
  - 27% (13/49) patients in control group have gone on to require cancer treatment because of disease progression but only 5% (2/43) patients in lifestyle group
    - Frattaroli J, et al. Urology 2008 July 2 Epub ahead of print.
- Ornish program down-regulated prostate cancer gene expression
    - Ornish D, et al. PNAS 2008;105(24):8369-74.
- Comprehensive lifestyle change increased genetic repair (telomerase activity)
    - Ornish D, et al. Lancet Oncology 2008 Sept 15 Epub