Mindfulness
And Neuroplasticity

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Topics

- Grounding the mind in life
- Self-directed neuroplasticity
- The power of mindfulness
- Taking in the good
- Neural factors of mindfulness
Grounding the Mind in Life
Common - and Fertile - Ground

Neuroscience

Psychology

Contemplative Practice
The Natural Mind

Apart from the hypothetical influence of a transcendental X factor . . .

Awareness and unconsciousness, mindfulness and delusion, and happiness and suffering must be natural processes.

Mind is grounded in life.
“We ask, 'What is a thought?'

We don’t know,

yet we are thinking continually.”

Venerable Ani Tenzin Palmo
Self-Directed Neuroplasticity
Mental activity entails underlying neural activity.
Ardent, Diligent, Resolute, and Mindful
Repeated mental activity entails repeated neural activity.

Repeated neural activity builds neural structure.
Neurons that fire together,
wire together.
Effects of Meditation on the Brain

- Increased gray matter in the:
  - **Insula** - interoception; self-awareness; empathy for emotions
  - **Hippocampus** - visual-spatial memory; establishing context; inhibiting amygdala and cortisol
  - **Prefrontal cortex** (PFC) - executive functions; attention control

- Reduced cortical thinning with aging in insula and PFC

- Increased activation of left frontal regions, which lifts mood

- Increased gamma-range brainwaves - may be associated with integration, “coming to singleness,” “unitary awareness”

- Preserved telomere length
The Opportunity

We can use the mind

To change the brain

To change the mind for the better

To benefit ourselves and other beings.
The good life, as I conceive it, is a happy life. I do not mean that if you are good you will be happy; I mean that if you are happy you will be good.

Bertrand Russell
The Power of Mindfulness
Mindful Attention

- **Attention** is like a spotlight, lighting what it rests upon.

- Because neuroplasticity is heightened for what’s in the field of focused awareness, attention is also like a vacuum cleaner, pulling its contents into the brain.

- Directing attention skillfully is therefore a fundamental way to shape the brain - and one’s life over time.

- One of the many benefits of mindfulness training is the development of skillful attention.
The education of attention would be the education *par excellence*.

William James
Research on Benefits of Mindfulness

- **Dispositional mindfulness**: better mood; less amygdala reactivity

- **MBSR and related trainings**:
  - Psychological: less stress, anxiety, panic, or OCD; more empathy; greater well-being, responsibility, self-actualization, and self-directedness; less depression relapse
  - Physical: reduced pain, fibromyalgia, psoriasis, and insomnia; for cancer, reduced distress and physical suffering; for type 2 diabetes, improved glycemic control

- **Meditation**:
  - Psychological: improved attention and compassion
  - Physical: decreased cortisol; strengthened immune system; reduced symptoms of cardiovascular disease, asthma, type II diabetes, PMS, and chronic pain
Taking in the Good
Just *having* positive experiences is not enough.

They pass through the brain like water through a sieve, while negative experiences are caught.

We need to engage positive experiences actively to weave them into the brain.
Learning to Take in the Good
HEAL by Taking in the Good

1. **Have** a positive experience. Notice it or create it.

2. **Enrich** the experience through duration, intensity, multimodality, novelty, personal relevance

3. **Absorb** the experience by intending and sensing that it is sinking into you as you sink into it.

4. **Link** positive and negative material. [optional]
Let’s Try It

- **Notice** the experience already present in awareness that you are alright right now
  - Have the experience
  - Enrich it
  - Absorb it

- **Create** the experience of compassion
  - Have the experience - bring to mind someone you care about . . . Feel caring . . . Wish that he or she not suffer . . . Open to compassion
  - Enrich it
  - Absorb it
Keep a green bough in your heart, and a singing bird will come.

Lao Tsu
Neural Factors of Mindfulness
Basics of Meditation

- Relax; find a posture that is comfortable and alert
- Simple good will toward yourself
- Awareness of your body
- Focus on something to steady your attention
- Accepting whatever passes through awareness, not resisting it or chasing it
- Gently settling into peaceful well-being
Neural Basis of Mindfulness Factors

- Setting an intention - “top-down” frontal, “bottom-up” limbic
- Relaxing the body - parasympathetic nervous system
- Feeling cared about - social engagement system
- Feeling safer - inhibits amygdala/hippocampus alarms
- Encouraging positive emotion - dopamine, norepinephrine
- Absorbing the benefits - positive implicit memories
Think not lightly of good, saying, "It will not come to me."

Drop by drop is the water pot filled.

Likewise, the wise one, gathering it little by little, fills oneself with good.

Dhammapada 9.122
Thank you
Great Books

See www.RickHanson.net for other great books.

Key Papers - 1

See www.RickHanson.net for other scientific papers.


Key Papers - 2


- Hanson, R. 2008. Seven facts about the brain that incline the mind to joy. In *Measuring the immeasurable: The scientific case for spirituality*. Sounds True.
Key Papers - 3


Key Papers - 4


