Buddha’s Brain: 
Strengthening the Neural Foundations of 
Mindfulness and Compassion

Compassionate Wellbeing
Derby, United Kingdom
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Topics

- Grounding the mind in life
- Self-directed neuroplasticity
- The power of mindfulness
- Being on your own side
- Networks of spacious awareness
Grounding the Mind in Life
Common - and Fertile - Ground

Neuroscience  Psychology

Contemplative Practice
A Neuron
All cells have specialized functions. Brain cells have particular ways of processing information and communicating with each other. Nerve cells form complete circuits that carry and transform information.

Electrical signaling represents the language of mind, the means whereby nerve cells, the building blocks of the brain, communicate with one another over great distances. Nerve cells generate electricity as a means of producing messages.

All animals have some form of mental life that reflects the architecture of their nervous system.

Eric R. Kandel, 2006
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.
Key Brain Areas for Consciousness

(adapted from) M. T. Alkire et al., Science 322, 876-880 (2008)
We ask, “What is a thought?”

We don’t know,

yet we are thinking continually.

Venerable Tenzin Palmo
Self-Directed Neuroplasticity
Mental activity entails underlying neural activity.
Steadiness of Mind
Repeated mental activity entails repeated neural activity.

Repeated neural activity builds neural structure.
Neurons that fire together, wire together.
Meditation - Neural Benefits

- 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
Self-Directed Neuroplasticity

We can use the mind
To change the brain
To change the mind for the better
To benefit ourselves and other beings.
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
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
Steadying the Mind

- Setting an intention
- Relaxing the body
- Feeling cared about
- Feeling safer
- Encouraging positive emotion
- Taking in the good
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
Being on Your Own Side
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 root of compassion is compassion for oneself.

Pema Chodron
Self-Compassion

- Compassion is the wish that a being not suffer, combined with sympathetic concern. Self-compassion simply applies that to oneself. It is not self-pity, complaining, or wallowing in pain.

- Studies show that self-compassion buffers stress and increases resilience and self-worth.

- But self-compassion is hard for many people, due to feelings of unworthiness, self-criticism, or “internalized oppression.” To encourage the neural substrates of self-compassion:
  - Get the sense of being cared about by someone else.
  - Bring to mind someone you naturally feel compassion for
  - Sink into the experience of compassion in your body
  - Then shift the compassion to yourself, perhaps with phrases like: “May I not suffer. May the pain of this moment pass.”
“Anthem”

Ring the bells that still can ring
Forget your perfect offering
There is a crack in everything
That’s how the light gets in
That’s how the light gets in

Leonard Cohen
Networks of Spacious Awareness
## Dual Modes

<table>
<thead>
<tr>
<th>“Doing”</th>
<th>“Being”</th>
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<tbody>
<tr>
<td>Mainly representational</td>
<td>Mainly sensory</td>
</tr>
<tr>
<td>Much verbal activity</td>
<td>Little verbal activity</td>
</tr>
<tr>
<td>Abstract</td>
<td>Concrete</td>
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<tr>
<td>Future- or past-focused</td>
<td>Now-focused</td>
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<tr>
<td>Goal-directed</td>
<td>Nothing to do, nowhere to go</td>
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<td>Sense of craving</td>
<td>Sense of peace</td>
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<tr>
<td>Personal, self-oriented perspective</td>
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<td>Focal view</td>
<td>Panoramic view</td>
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Increased **Medial** PFC Activation Related to Self-Referencing Thought

Self-Focused (blue) and Open Awareness (red) Conditions (in the novice, pre MT group)

Self-Focused (blue) and Open Awareness (red) Conditions (following 8 weeks of MT)
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Ways to Activate Lateral Networks

- Relax.
- Focus on bare sensations and perceptions.
- Sense the body as a whole.
- Take a panoramic, “bird’s-eye” view.
- Engage “don’t-know mind”; release judgments.
- Don’t try to connect mental contents together.
- Let experience flow, staying here now.
- Relax the sense of “I, me, and mine.”
“Bahiya, you should train yourself thus.”

In reference to the seen, there is only the seen. To the heard, only the heard. To the sensed, only the sensed. To the cognized, only the cognized.

When for you there is only the seen in reference to the seen, only the heard in the heard, only the sensed in the sensed, only the cognized in the cognized, then there’s no you in that.

When there’s no you in that, there’s no you there. When there’s no you there, you are neither here nor yonder nor between the two.

This, just this, is the end of all suffering.

The Buddha
Whole Body Awareness

- Involves insula and middle parietal lobes, which integrate sensory maps of the body, plus right hemisphere, for holistic (gestalt) perception

- Practice
  - Sense the breath in one area (e.g., chest, upper lip)
  - Sense the breath as a whole: one gestalt, percept
  - Sense the body as a whole, a whole body breathing
  - Sense experience as a whole: sensations, sounds, thoughts . . . all arising together as one unified thing

- This sense of the whole may be present for a second or two, then crumble; just open up to it again.
Panoramic Awareness

- Recall a bird’s-eye view (e.g., mountain, airplane).

- Be aware of sounds coming and going in an open space of awareness, without any edges: boundless.

- Open to other contents of mind, coming and going like clouds moving across the sky.

- Pleasant or unpleasant, no matter: just more clouds

- No cloud ever harms or taints the sky.

*Trust in awareness, in being awake, rather than in transient and unstable conditions.*

Ajahn Sumedho
Penetrative insight

joined with calm abiding

utterly eradicates

afflicted states.

Shantideva
Suggested 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


Where to Find Rick Hanson Online

**Hardwiring Happiness: The New Brain Science of Contentment, Calm, and Confidence**

www.rickhanson.net/hardwiringhappiness

Personal website: www.rickhanson.net

Wellspring Institute: www.wisebrain.org

youtube.com/drrhanson  facebook.com/rickhansonphd