Neural Factors of Mindfulness

Summit for Clinical Excellence
October 29, 2011

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Topics

- The power of mindfulness
- Challenges to a steady mind
- Neural factors of mindfulness
- Lateral networks of spacious awareness
The Power of Mindfulness
The Power of Mindfulness

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

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

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

*The education of attention would be an education par excellence.*

William James
Distinctions . . .

- **Awareness** is the field in which neural activity (mysteriously) becomes conscious experience.

- **Attention** is a heightened focus - a spotlight - on a particular content of awareness.

- **Mindfulness** is sustained attentiveness, typically with a metacognitive awareness of being aware.

- **Concentration** is deep absorption in an object of attention - sometimes to the point of non-ordinary states of consciousness.
Being with, Releasing, Replacing

There are three phases of psychological healing and personal growth (and spiritual practice):
- Be mindful of, release, replace.
- Let be, let go, let in.

Mindfulness is key to the second and third phase, sometimes curative on its own, and always beneficial in strengthening its neural substrates. But often it is not enough by itself.

And sometimes you need to skip to the third phase to build resources for mindfulness.
Challenges to a Steady Mind
Challenges to a Steady Mind

- We evolved continually scanning, shifting, wide focus attention in order to survive: “monkey mind.”

- This general tendency varies due to the adaptive value of neurological diversity in temperament, from “turtles” to “jackrabbits.”

- Life experiences - in particular, painful or traumatic ones - can heighten vigilance and distractibility.

- Modern culture - with its fire hose of information and routine multi-tasking - leads to stimulation-hunger and divided attention.
How the Brain Pays Attention

Key functions:
- Holding onto information
- Updating awareness
- Seeking stimulation

Key mechanisms:
- Dopamine and the gate to awareness
- The basal ganglia stimostat
## Individual Differences in Attention

<table>
<thead>
<tr>
<th>Holding Information</th>
<th>Updating Awareness</th>
<th>Seeking Stimulation</th>
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</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
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<tr>
<td>Obsession</td>
<td>Porous filters</td>
<td>Hyperactive</td>
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<td>Over-focusing</td>
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<td>Thrill-seeking</td>
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<td><strong>Mod</strong></td>
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<td>Concentrates</td>
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<td>Divides attention</td>
<td>Assimilation</td>
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<td></td>
<td>Accommodation</td>
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<td><strong>Low</strong></td>
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<td>Fatigues w/Conc.</td>
<td>Fixed views</td>
<td>Stuck in a rut</td>
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<td>Small WM</td>
<td>Oblivious</td>
<td>Apathetic</td>
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<td></td>
<td>Low learning</td>
<td>Lethargic</td>
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</tbody>
</table>
Thus the importance of training the mind - and thus the brain - over time to become increasingly mindful.
Neural Factors of Mindfulness
Basics of Meditation

- Relax
- 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
Some Neural Factors of Mindfulness

- **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
Lateral Networks of Mindful Awareness
## Dual Modes

### “Doing”
- Mainly representational
- Much verbal activity
- Abstract
- Future- or past-focused
- Goal-directed
- Sense of craving
- Personal, self-oriented perspective
- Focal view
- Firm beliefs
- Evaluative
- Lost in thought, mind wandering
- Reverberation and recursion
- Tightly connected experiences
- Prominent self-as-object
- Prominent self-as-subject

### “Being”
- Mainly sensory
- Little verbal activity
- Concrete
- Now-focused
- Nothing to do, nowhere to go
- Sense of peace
- Impersonal, 3rd person perspective
- Panoramic view
- Uncertainty, not-knowing
- Nonjudgmental
- Mindful presence
- Immediate and transient
- Loosely connected experiences
- Minimal or no self-as-object
- Minimal or no self-as-subject
Increased **Medial** PFC Activation Related to Self-Referencing Thought

Cortical Midline Areas for Self-Referencing Thought

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

A

B

Self-Focused (blue) and Open Awareness (red) Conditions (following 8 weeks of MT)
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”
Whole Body Awareness

- 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
- It’s natural for this sense of the whole to be present for a second or two, then crumble; just open up to it again and 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
Where to Find Rick Hanson Online

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