Neurodharma:
Practicing with the Brain in Mind

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Grounding the Mind in Life
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.
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
Naturalizing the Dharma

To “naturalize” something is to place it in the frame of the natural world, to operationalize it in natural terms.

Buddhist practice engages the mental causes of suffering and its end. What could be the natural, neurobiological (NB) causes of those causes?

What could be a NB operationalization of dukkha, tanha, sila, samadhi, panna, bhavana, or nirodha?

It is ironic that a practice that is so much about bringing awareness into the body can be reluctant to engage the full implications of embodiment in life.
We ask, “What is a thought?”

We don’t know,

yet we are thinking continually.

Venerable Tenzin Palmo
Experience-Dependent 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.
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 Evolution of Craving
Evolutionary History

The Triune Brain - (P. MacLean 1990)
Three Fundamental Motivational and Self-Regulatory Systems

- **Avoid Harms:**
  - Primary need, tends to trump all others

- **Approach Rewards:**
  - Elaborated via sub-cortex in mammals for emotional valence, sustained pursuit

- **Attach to Others:**
  - Very elaborated via cortex in humans for pair bonding, language, empathy, cooperative planning, compassion, altruism, etc.
The Homeostatic Home Base

When not disturbed by threat, loss, or rejection [no deficit of safety, satisfaction, and connection]

The body defaults to a sustainable equilibrium of refueling, repairing, and pleasant abiding.

The mind defaults to a sustainable equilibrium of:

- **Peace** (the Avoiding system)
- **Contentment** (the Approaching system)
- **Love** (the Attaching system)

This is the brain in its homeostatic **Responsive, minimal craving** mode.
The Responsive Mode

Avoid
Peace
Approach

Wisdom
Contentment

Love
Attach

Happiness
Neurobiological Basis of Craving

When disturbed by threat, loss, or rejection [deficit of safety, satisfaction, or connection]:

The body fires up into the stress response; outputs exceed inputs; long-term building is deferred.

The mind fires up into:
- **Hatred** (the Avoiding system)
- **Greed** (the Approaching system)
- **Heartache** (the Attaching system)

This is the brain in allostatic, *Reactive, craving* mode.
The Reactive Mode

- Avoid
- Hatred
- Greed

- Ignorance
- Suffering
- Heartache
- Attach

Approach
Choices . . .

Or?

Reactive Mode

Responsive Mode
The Negativity Bias
Negativity Bias

- As our ancestors evolved, avoiding “sticks” was more important for survival than getting “carrots.”

- Preferential encoding in implicit memory:
  - We learn faster from pain than pleasure.
  - Negative interactions: more powerful than positive
  - Easy to create learned helplessness, hard to undo
  - Rapid sensitization to negative through cortisol

- **Most good experiences are wasted on the brain:** lowers both the results of practice and motivation
Velcro for Bad, Teflon for Good

The negativity bias

bad experiences

good experiences
Buddhism is a pragmatic study of change. Including in and of oneself. What is it that changes? And how could we help those changes go well?

Changing the mind means changing the brain.

Activated, transient mental states can become installed as enduring neural traits: neurobhavana.
Neurobhavana
Join us for **Cultivating Inner Strength - Monastic Daylong [Dana - No Fee Day]** with Ayya Anandabodhi and Ayya Santacitta on **Sunday, July 8** from 9:30 am - 5 pm.

(Photo by Ed Ritger)
Cultivation in Context

- Three ways to engage the mind:
  - Be with it. Decrease negative. Increase positive.
  - Let be. Let go. Let in.
  - Mindfulness present in all three ways to engage mind

- While “being with” is primary, it’s often isolated in Buddhist, nondual, and mindfulness-based practice.

- Skillful means for decreasing the negative and increasing the positive have developed over 2500 years. Why not use them?
HEAL by Taking in the Good

1. **Have** a positive experience. Notice 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.

**Benefits:** Specific contents internalized. Implicit value of being active and treating yourself like you matter. Gradual sensitization of the brain to the positive.
The Fruit as the Path

Peace

Contentment

Love
Cultivation Undoes Craving

- All life has goals. The brain continually seeks to avoid harms, approach rewards, and attach to others - even that of a Buddha.

- It is wholesome to wish for the happiness, welfare, and awakening of all beings - including the one with your nametag.

- We rest the mind upon positive states so that the brain may gradually take their shape. This disentangles us from craving as we increasingly rest in a peace, happiness, and love that is independent of external conditions.

- With time, even the practice of cultivation falls away - like a raft that is no longer needed once we reach the farther shore.
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
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


Where to Find Rick Hanson Online

http://www.youtube.com/BuddhasBrain
http://www.facebook.com/BuddhasBrain

www.RickHanson.net
www.WiseBrain.org
Neurodharma:
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Buddhist Geeks Conference
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