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*Indeed, the sage who's fully quenched  
Rests at ease in every way;  
No sense desire adheres to him or her  
Whose fires have cooled, deprived of fuel.*

*All attachments have been severed,  
The heart's been led away from pain;  
Tranquil, he or she rests with utmost ease.  
The mind has found its way to peace.*

The Buddha

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# ***Natural Contentment***

**Spirit Rock Meditation Center**

March, 2011

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# Topics

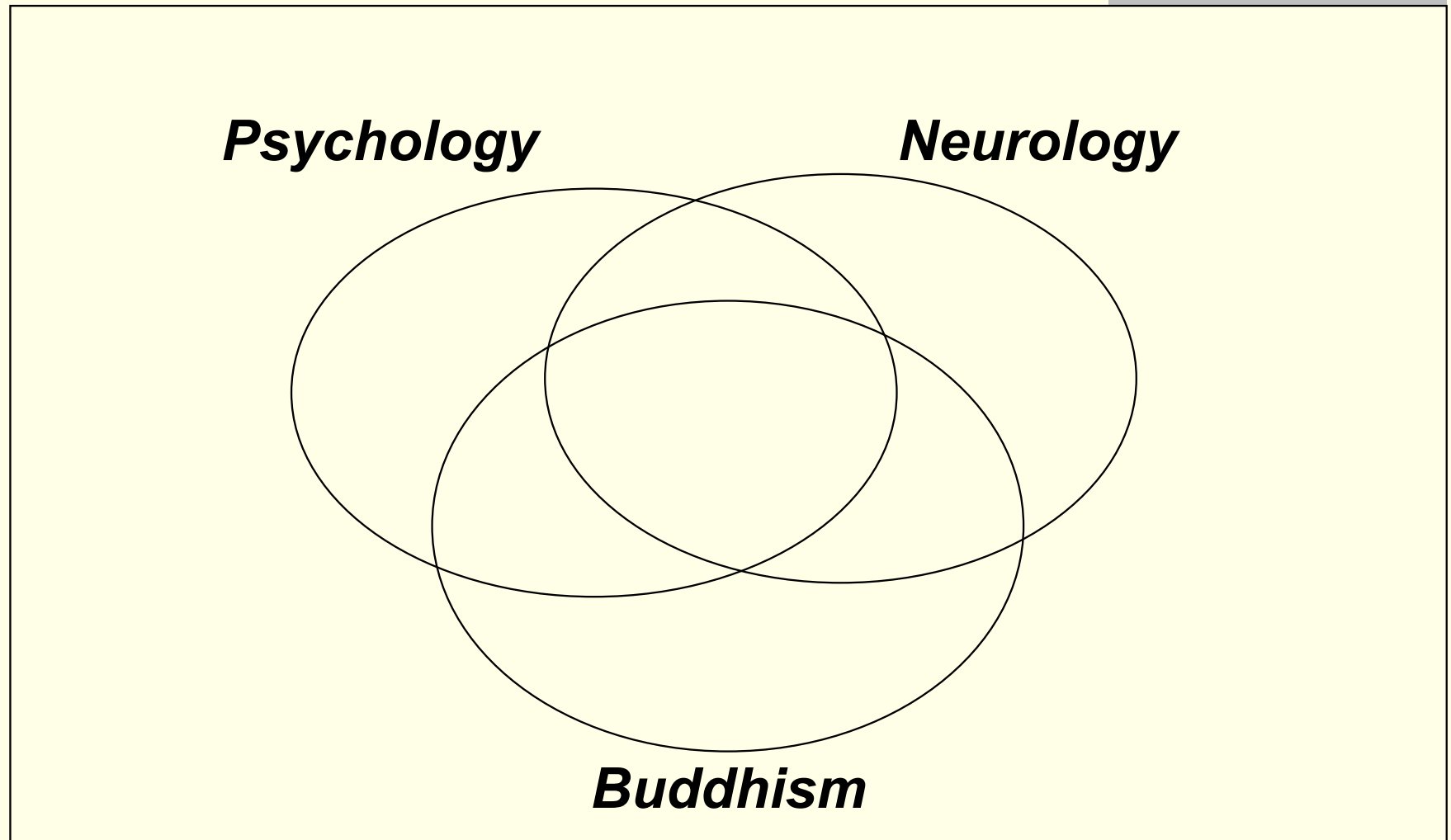
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- **Self-directed neuroplasticity**
- **The evolving brain**
- **Responsive and reactive modes**
- **Taking the fruit as the path**
  - **Liking and wanting**
  - **Gladness**
  - **Love**
  - **Peace**



# Perspectives

# Common - and Fertile - Ground



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*Do not go by oral tradition, by lineage of teaching, by hearsay, by a collection of texts, by logic, by inferential reasoning, by reasoned cognition, by the acceptance of a view after pondering it, by the seeming competence of a speaker, or because you think, "this . . . is our teacher."*

*But when you know for yourselves, "these things are wholesome, these things are blameless; these things are praised by the wise; these things, if undertaken and practiced, lead to welfare and happiness," then you should engage in them.*

The Buddha

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*When the facts change,  
I change my mind, sir.*

*What do you do?*

John Maynard Keynes

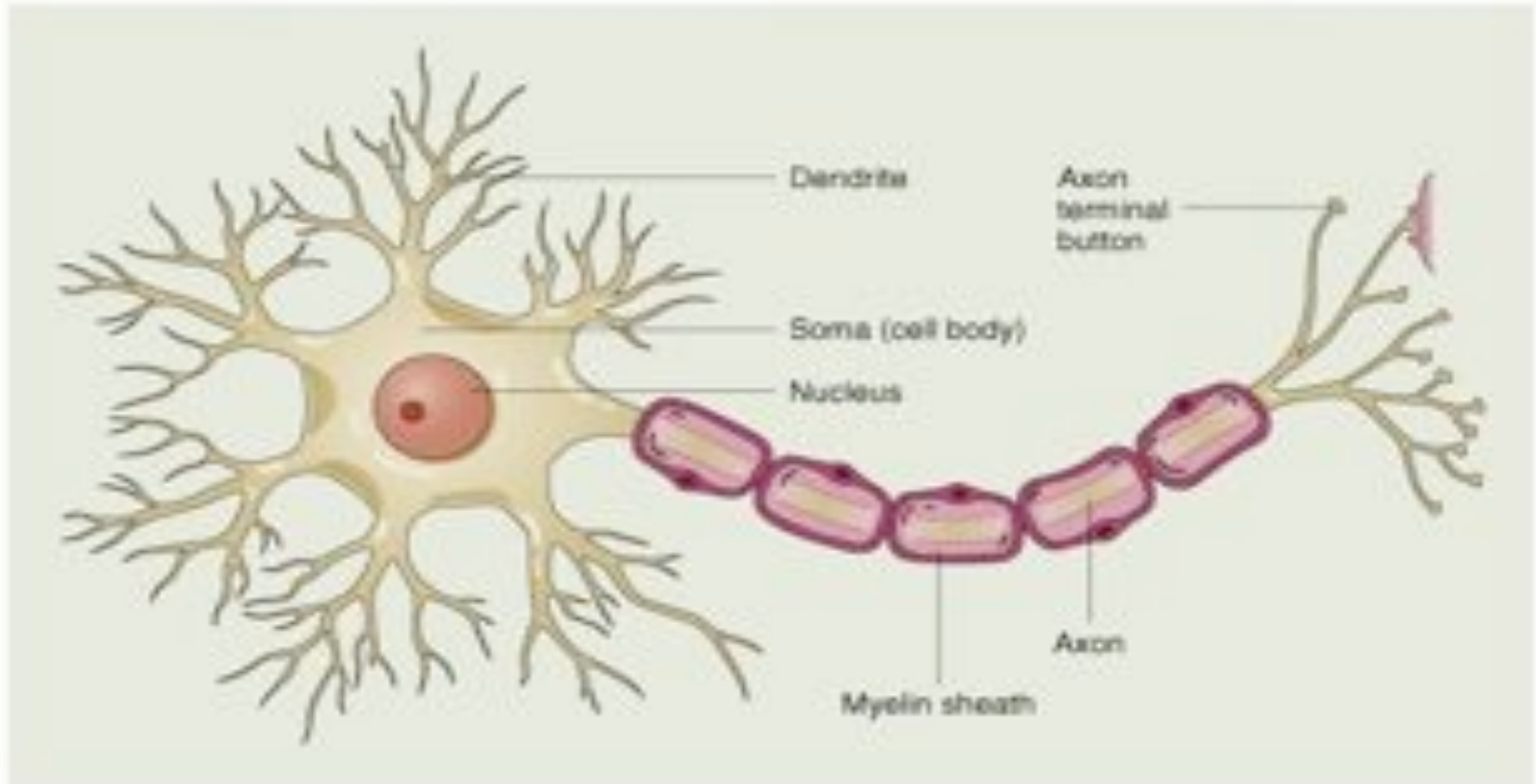


# **Self-Directed Neuroplasticity**





# A Neuron



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## **As your mind changes, your brain changes.**

Immaterial mental activity maps to material neural activity.

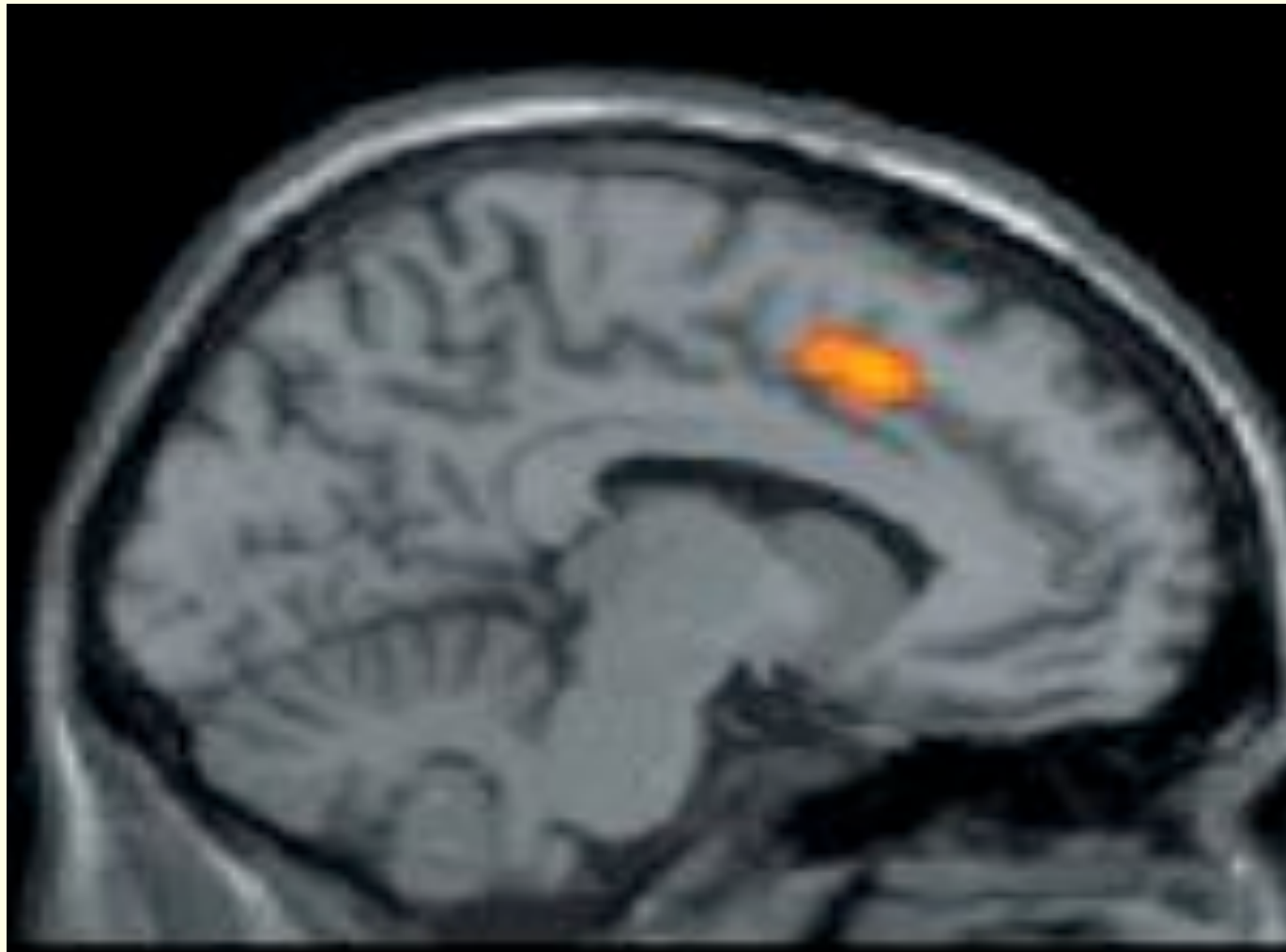
This produces temporary changes in your brain and lasting ones.

*Temporary* changes include:

- Alterations in brainwaves (= changes in the firing patterns of synchronized neurons)
- Increased or decreased use of oxygen and glucose
- Ebbs and flows of neurochemicals

# “Ardent, Diligent, Resolute, and Mindful”

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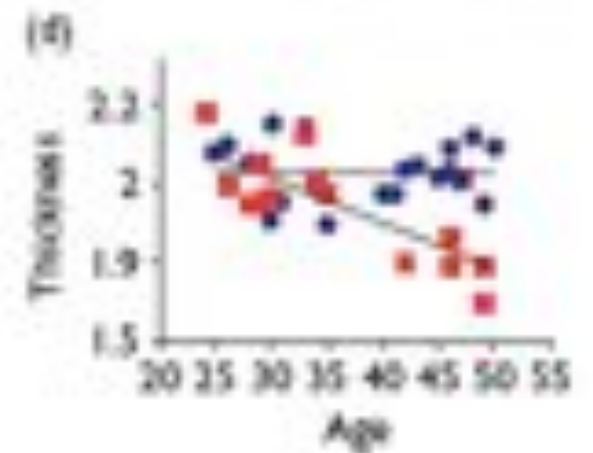
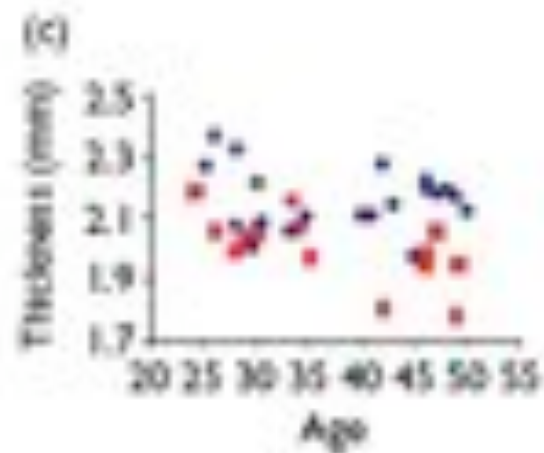
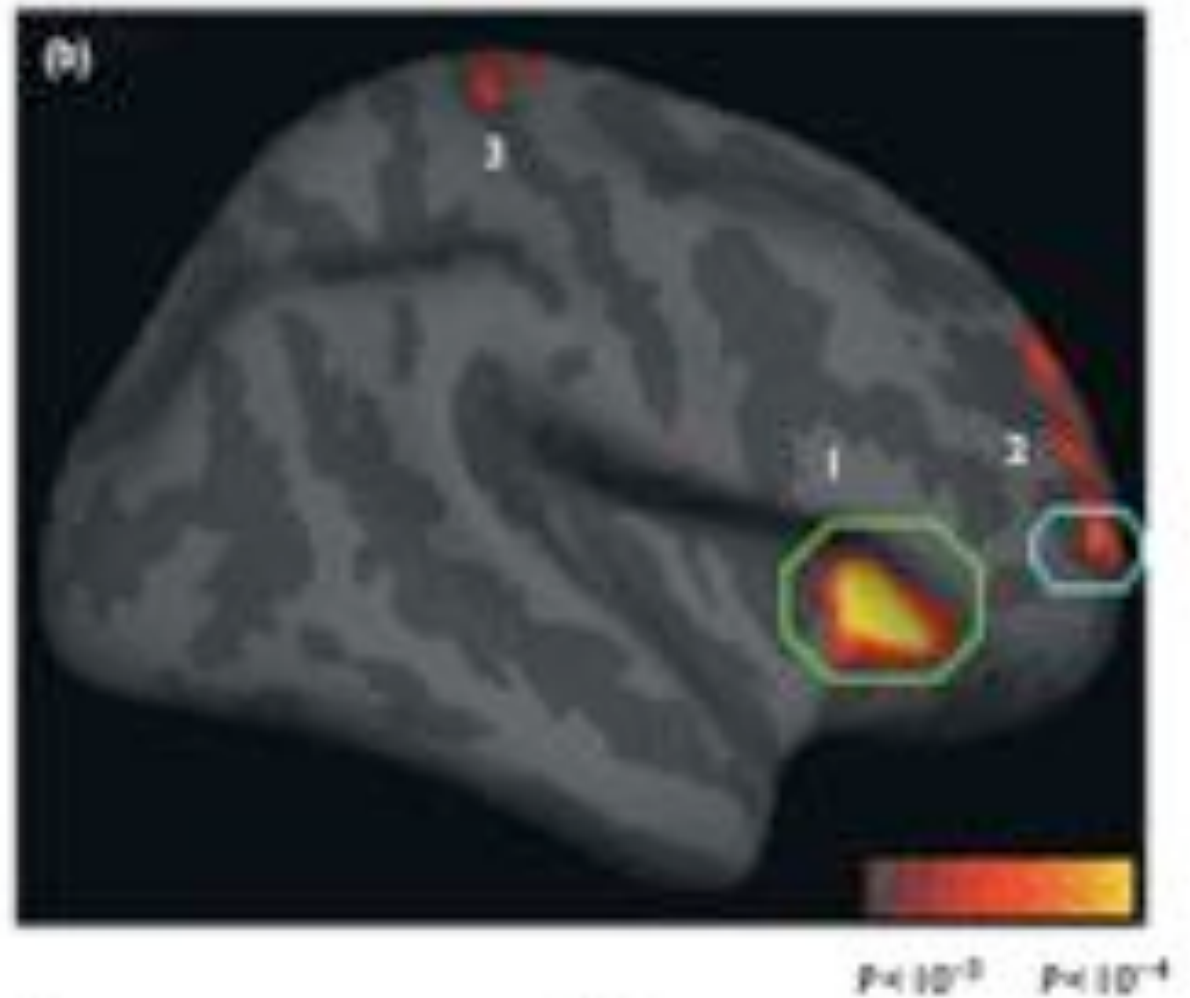


# Mind Changes Brain in Lasting Ways

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- What flows through the mind sculpts your brain. Immaterial experience leaves material traces behind.
- Increased blood/nutrient flow to active regions
- Altered epigenetics (gene expression)
- “Neurons that fire together wire together.”
  - Increasing excitability of active neurons
  - Strengthening existing synapses
  - Building new synapses; thickening cortex
  - Neuronal “pruning” - “use it or lose it”

Lazar, et al. 2005.  
Meditation  
experience is  
associated  
with increased  
cortical thickness.  
*Neuroreport*, 16,  
1893-1897.



# Honoring Experience

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One's experience *matters*.

Both for how it feels in the moment and for the lasting residues it leaves behind, woven into the fabric of a person's brain and being.

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**You can use your mind  
to change your brain  
to change your mind for the better.**

**This is self-directed neuroplasticity.**

***How to do this, in skillful ways?***



# The Power of Mindfulness

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- 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

# Compassion

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*The root of Buddhism is compassion,  
and the root of compassion is compassion for oneself.*

Pema Chodren

# Self-Compassion

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- 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.”



# **The Evolving Brain**

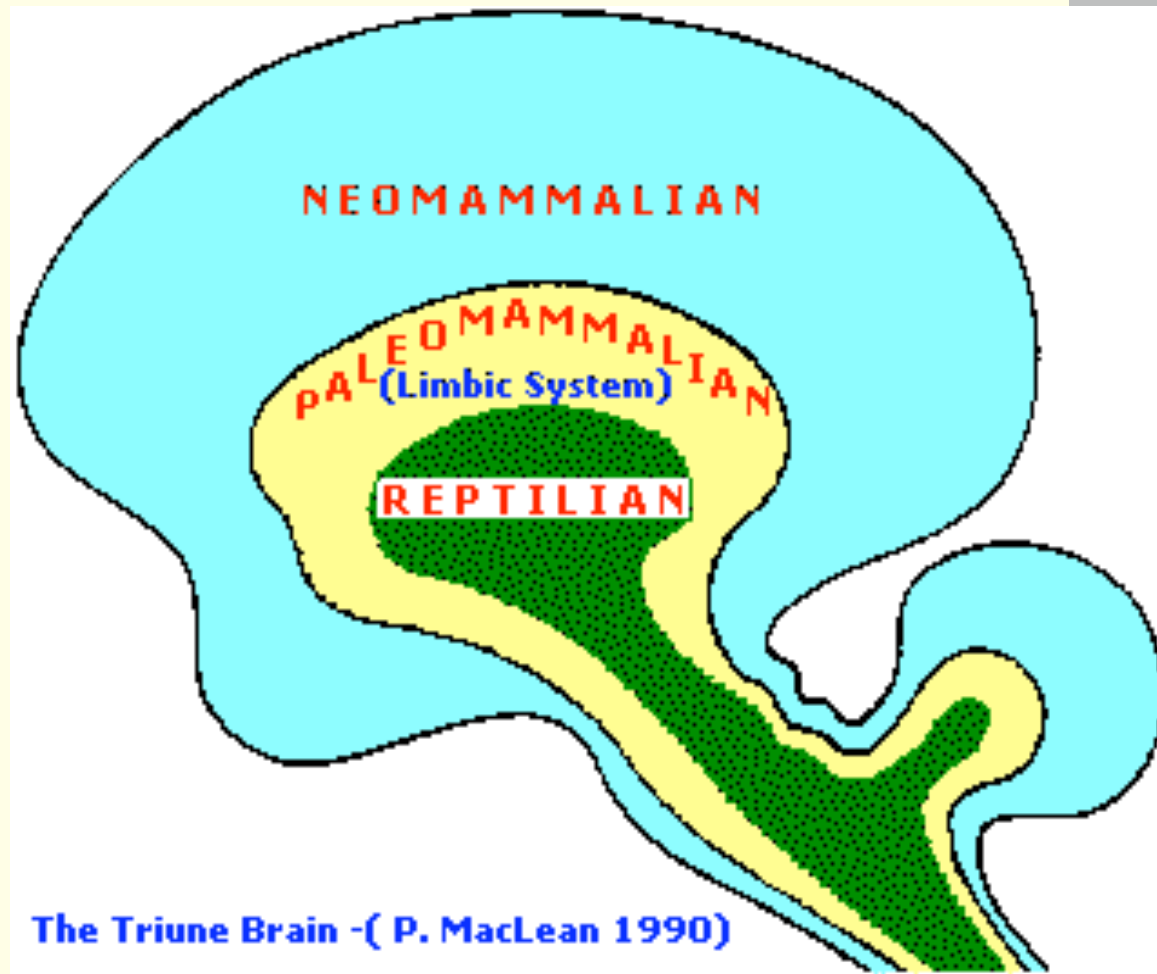
# Evolution

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- ~ 4+ billion years of earth
- 3.5 billion years of life
- 650 million years of multi-celled organisms
- 600 million years of nervous system
- ~ 200 million years of mammals
- ~ 60 million years of primates
- ~ 6 million years ago: last common ancestor with chimpanzees, our closest relative among the “great apes” (gorillas, orangutans, chimpanzees, bonobos, humans)
- 2.5 million years of tool-making (starting with brains 1/3 our size)
- ~ 150,000 years of *homo sapiens*
- ~ 50,000 years of modern humans
- ~ 5000 years of blue, green, hazel eyes

# Evolutionary History

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## The Triune Brain

# Three Stages of Brain Evolution

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## ■ Reptilian:

- Brainstem, cerebellum, hypothalamus
- Reactive and reflexive
- **Avoid** hazards

## ■ Mammalian:

- Limbic system, cingulate, early cortex
- Memory, emotion, social behavior
- **Approach** rewards

## ■ Human:

- Massive cerebral cortex
- Abstract thought, language, cooperative planning, empathy
- **Attach** to “us”

# Love and the Brain

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- Social capabilities have been a primary driver of brain evolution.
- Reptiles and fish avoid and approach. Mammals and birds also *attach* - especially primates and humans. Attaching is a breakthrough, co-evolving with emotion.
- Mammals and birds have bigger brains than reptiles and fish.
- The more social the primate species, the bigger the cortex.
- Since the first hominids began making tools ~ 2.5 million years ago, the brain has roughly tripled in size, much of its build-out devoted to social functions (e.g., cooperative planning, empathy, language). The growing brain needed a longer childhood, which required greater pair bonding and band cohesion.



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*All sentient beings developed through natural selection in such a way that pleasant sensations serve as their guide, and especially the pleasure derived from sociability and from loving our families.*

Charles Darwin







# **Natural Happiness**

# Reverse Engineering the Brain

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*What is the nature of the brain when a person is:*

- In peak states of productivity or “flow?”
- Experiencing inner peace?
- Self-actualizing?
- Enlightened (or close to it)?

# Home Base of the Human Brain

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*When not threatened, ill, in pain, hungry, upset, or chemically disturbed, most people settle into being:*

- **Calm** (the Avoid system)
- **Contented** (the Approach system)
- **Caring** (the Attach system)
- **Creative** - synergy of all three systems

This is the brain in its natural, ***responsive*** mode.

# The Responsive Mode

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# Behind the Obscurations

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Sam sees *“peeping among the cloud-wrack . . . a white star  
twinkle for a while.*

*The beauty of it smote his heart, as he looked up out of the  
forsaken land, and hope returned to him.*

*For like a shaft, clear and cold, the thought pierced him that  
in the end the Shadow was only a small and passing thing:  
there was light and high beauty forever beyond its reach.”*

Tolkein, *The Lord of the Rings*



# Some Benefits of Responsive Mode

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- Recovery from “mobilizations” for survival:
  - Refueling after depleting outpourings
  - Restoring equilibrium to perturbed systems
  - Reinterpreting negative events in a positive frame
  - Reconciling after separations and conflicts
- Promotes prosocial behaviors:
  - Experiencing safety decreases aggression.
  - Experiencing sufficiency decreases envy.
  - Experiencing connection decreases jealousy.
  - We’re more generous when our own cup runneth over.

---

*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

# Benefits of Positive Emotions

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- Emotions organize the brain as a whole, so positive ones have far-reaching benefits.
- These include:
  - Promote exploratory, “approach” behaviors
  - Lift mood; increase optimism, resilience
  - Counteract trauma
  - Strengthen immune and protect cardiovascular systems
  - Overall: “broaden and build”
  - Create positive cycles

# But to Survive, We Leave Home . . .

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- **Avoid:** When we feel threatened or harmed
- **Approach:** When we can't attain important goals
- **Attach:** When we feel isolated, disconnected, unseen, unappreciated, unloved

This is the brain in its *reactive* mode of functioning  
- a kind of inner homelessness.

# The Reactive Mode

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# The Evolution of Suffering

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- Animals survive through three fundamental strategies. When these run into trouble, unpleasant alarm signals pulse through the nervous system.
- But trouble comes constantly: each strategy contains inherent contradictions, as the animal keeps trying:
  - To ***separate what is actually connected*** – in order to create a boundary between itself and the world
  - To ***stabilize what keeps changing*** – in order to maintain its internal systems within tight ranges
  - To ***hold onto fleeting pleasures and escape inevitable pains*** – in order to approach opportunities and avoid threats

# Health Consequences of Chronic Stress

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## ■ Physical:

- Weakened immune system
- Inhibits GI system; reduced nutrient absorption
- Reduced, dysregulated reproductive hormones
- Increased vulnerabilities in cardiovascular system
- Disturbed nervous system

## ■ Mental:

- Lowers mood; increases pessimism
- Increases anxiety and irritability
- Increases learned helplessness (especially if no escape)
- Often reduces approach behaviors (less for women)
- Primes aversion (SNS-HPAA negativity bias)

# Reactive Dysfunctions in Each System

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- **Approach** - Addiction; over-drinking, -eating, -gambling; compulsion; hoarding; driving for goals at great cost; spiritual materialism
- **Avoid** - Anxiety disorders; PTSD; panic, terror; rage; violence
- **Attach** - Borderline, narcissistic, antisocial PD; symbiosis; *folie a deux*; “looking for love in all the wrong places”



# A Poignant Truth

---

Mother Nature is tilted toward producing gene copies.

But tilted against personal quality of life.

And at the societal level, we have caveman/cavewoman brains armed with nuclear weapons.

*What shall we do?*

---

*We can deliberately use the mind  
to change the brain for the better.*

# Choices . . .

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**Reactive Mode**

Or?



**Responsive Mode**

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**How to come home?**

**How to recover the natural, responsive mode  
of the brain?**

# Coming Home . . .

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**Gladness**

**Love**

**Peace**

# Ways to “Take the Fruit as the Path”

---

General factors: See clearly. Have compassion for yourself. Take life less personally. Take in the good. Deepen equanimity.

## Approach system

- Be glad.
- Appreciate your resources.
- Give over to your best purposes.

## Attach system

- Sense the suffering in others.
- Be kind.
- Act with unilateral virtue.

## Avoid system

- Cool the fires.
- Recognize paper tigers.
- Tolerate risking the dreaded experience.

# 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.



# Liking and Wanting



# Liking and Wanting

---

- Distinct neural systems for liking and wanting
- In the brain: feeling tone --> enjoying (liking) --> wanting --> pursuing
  - Wanting without liking is hell.
  - Liking without wanting is heaven.
- The distinction between *chandha* (wholesome wishes and aspirations) and *tanha* (craving)
- But beware: the brain usually wants (craves) and pursues (clings) to what it likes.

---

*The Great Way is easy.*

*For one with no preferences.*

Third Zen Patriarch

---

*Whose mind is like rock, steady, unmoved,  
dispassionate for things that spark passion,  
unangered by things that spark anger:*

*When one's mind is developed like this,  
from where can there come suffering & stress?*

The Buddha, Udāna 4.34

# Practicing with Wanting

---

- *Chandha* crowds out *tanha*: energize wholesome wants (e.g., practice, sobriety, love, aspirations).
- 2nd Foundation of Mindfulness: Surround strongly pleasant or unpleasant feeling tones with spacious awareness - the “shock absorber” - without tipping into craving.
- Regard wants as just more mental content. Investigate them. Watch them come and go. No compulsion, no “must.”
- Be skeptical of the predicted rewards of acting on the feeling tone. They’re usually simplistic and inflated, based on the primitive subcortical regions that produce them. Disenchanted.
- Pick a key want and just don’t do it.

# “Bahiya, you should train yourself thus.”

---

In reference to the seen, there will be 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 will be 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, Bahiya, 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.



**Gladness**

# Things to Be Glad about

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- The pleasures of life (e.g., sunsets, chocolate, hot shower)
- Things accomplished, goals attained, lessons learned
- Good conditions (e.g., alive, nice family, refrigerators, aspirin); bad conditions ended or decreasing (e.g., not in middle school)
- Things you are grateful for
- Recognizing your positive character traits
- Opportunities for spiritual practice
- Perhaps - sense of something transcendental

---

**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.**



# How to Take in the Good

---

1. Look for positive **facts**, and let them become positive experiences.
2. Savor the positive experience:
  - Sustain it for 10-20-30 seconds.
  - Feel it in your body and emotions.
  - Intensify it.
3. Sense and intend that the positive experience is soaking into your brain and body - registering deeply in emotional memory.



**Love**

---

*Ananda approached the Buddha and said, “Venerable sir, this is half of the spiritual life: good friendship, good companionship, good comradeship.”*

*“Not so, Ananda! Not so Ananda!” the Buddha replied.  
“This is the entire spiritual life. When you have a good friend, a good companion, a good comrade, it is to be expected that you will develop and cultivate the Noble Eightfold Path.”*

[adapted from *In the Buddha's Words*, Bhikkhu Bodhi]



# Feeling Cared About

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- As we evolved, we increasingly turned to and relied on others to feel safer and less threatened.
  - Exile from the band was a death sentence in the Serengeti.
  - Attachment behaviors: relying on the secure base
  - The well-documented power of social support to buffer stress and aid recovery from painful experiences
- Methods:
  - Recognize it's kind to others to feel cared about yourself.
  - Look for occasions to feel cared about and take them in.
  - Deliberately bring to mind the experience of being cared about in challenging situations.
  - Be caring yourself.

# The Buddha's Words on Lovingkindness

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*Wishing: In gladness and in safety, may all beings be at ease.*

*Omitting none, whether they are weak or strong, the great or the mighty, medium, short, or small, the seen and the unseen, those living near and far away, those born and to-be-born: May all beings be at ease.*

*Let none through anger or ill-will wish harm upon another. Even as a mother protects with her life her child, her only child, so with a boundless heart should one cherish all living beings; radiating kindness over the entire world: spreading upwards to the skies, and downwards to the depths, outwards and unbounded, freed from hatred and ill-will.*

*One should sustain this recollection.*

*This is said to be the sublime abiding.*

# Benefits of Unilateral Virtue

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- It simplifies things: all you have to do is just live by your own code, and others will do whatever they do.
- It feels good in its own right.
- It minimizes inflammatory triggers, evokes good treatment, empowers you to ask for it.
- It stands you on the moral high ground.

*Remaining virtuous in the face of provocation is a profound expression of non-harming and benevolence.*

# Feeding the Wolf of Love

---

- Focus on similarities between “us” and “them.”
- Consider others as young children.
- Notice good things about neutral or unpleasant people.
- Bring to mind the sense of someone who cares about you.
- Keep extending out the sense of “us” to include everyone.
- Consider others as your mother or dear friend in a past life.
- Sila/restraint about over-identifying with “us”
- Reflect on the suffering of so many people in the world.
- Self-generate feelings of kindness and love.





**Peace**

---

*Indeed, the sage who's fully quenched  
Rests at ease in every way;  
No sense desire adheres to him or her  
Whose fires have cooled, deprived of fuel.*

*All attachments have been severed,  
The heart's been led away from pain;  
Tranquil, he or she rests with utmost ease.  
The mind has found its way to peace.*

The Buddha

# Cooling the Fires

---

- Regard stressful activation as an affliction.
- Lots of methods for stimulating the parasympathetic nervous system to down-regulate the SNS:
  - Big exhalation
  - Relaxing the body
  - Yawning
  - Fiddling the lips
- Get in the habit of rapidly activating a damping cascade when the body activates.
- Regard bodily activation as just another compounded, “meaningless,” and impermanent phenomenon; don’t react to it.

# Feeling as Safe as You Reasonably Can

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- Connecting with others; finding allies; internalizing self-encouraging, -nurturing, -soothing resources
- Feeling strong
- Waking up from Threat Level Orange:
  - Recognizing real threats
  - Not getting alarmed at paper tigers
  - Seeing opportunities clearly
  - Recognizing all your inner and outer resources for dealing with threats and fulfilling opportunities

# Not Harming

---

- The core of morality in Buddhism and other traditions
- Applies to oneself as well as others
- Precepts; Right Speech, Action, Livelihood
- The emphasis on abandoning ill will
- The distinction between moral action in the world and succumbing to anger and ill will
- The reframing of not-doing in active, doing terms

# Practicing with Anger

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- Mindfulness:
  - Views that seed anger
  - Priming (e.g., stress, irritability, feeling wronged)
  - Anger itself
  - Consequences of acting it out
- Self-compassion; calming the body
- Seeing the 10,000 causes upstream
- Taking assertive action
- Compassion for the other

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*There are those who do not realize that  
one day we all must die.*

*But those who do realize this  
settle their quarrels.*

The Buddha

---

*Penetrative insight*

*joined with calm abiding*

*utterly eradicates*

*afflicted states.*

Shantideva



# Great Books

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See [www.RickHanson.net](http://www.RickHanson.net) for other great books.

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See [www.RickHanson.net](http://www.RickHanson.net) for other scientific papers.

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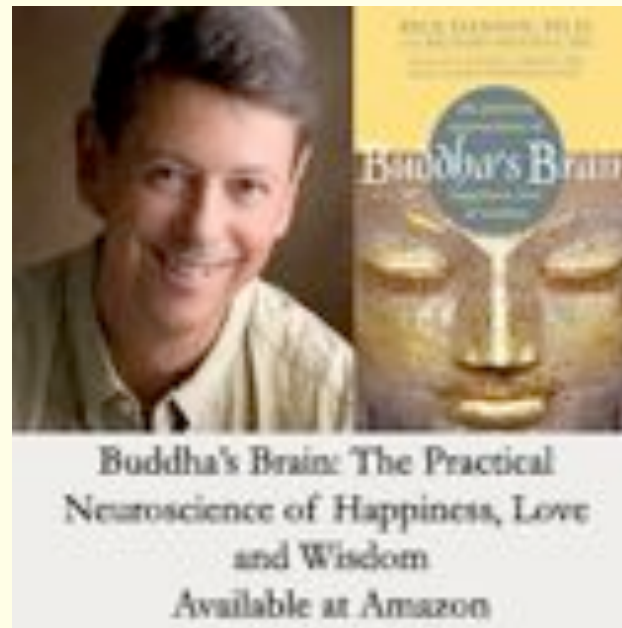
## *Where to Find Rick Hanson Online*

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<http://www.youtube.com/BuddhasBrain>

<http://www.facebook.com/BuddhasBrain>



[www.RickHanson.net](http://www.RickHanson.net)

[www.WiseBrain.org](http://www.WiseBrain.org)