

# Buddha's Brain:

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## *Natural Enlightenment and Unshakable Peace*

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**Rick Hanson, Ph.D.**

The Wellspring Institute for Neuroscience and Contemplative Wisdom

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

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

[drh@comcast.net](mailto:drh@comcast.net)

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# Topics

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- **Perspectives**
- **The power of mindfulness**
- **Self-directed neuroplasticity**
- **Being on your own side**
- **The evolving brain**
- **The negativity bias**
- **Threat reactivity**
- **Taking in the good**
- **Clearing old pain**
- **What is equanimity?**
- **Equanimity in the brain**
- **Liking and wanting**
- **The first and second dart**
- **Coming home to happiness**



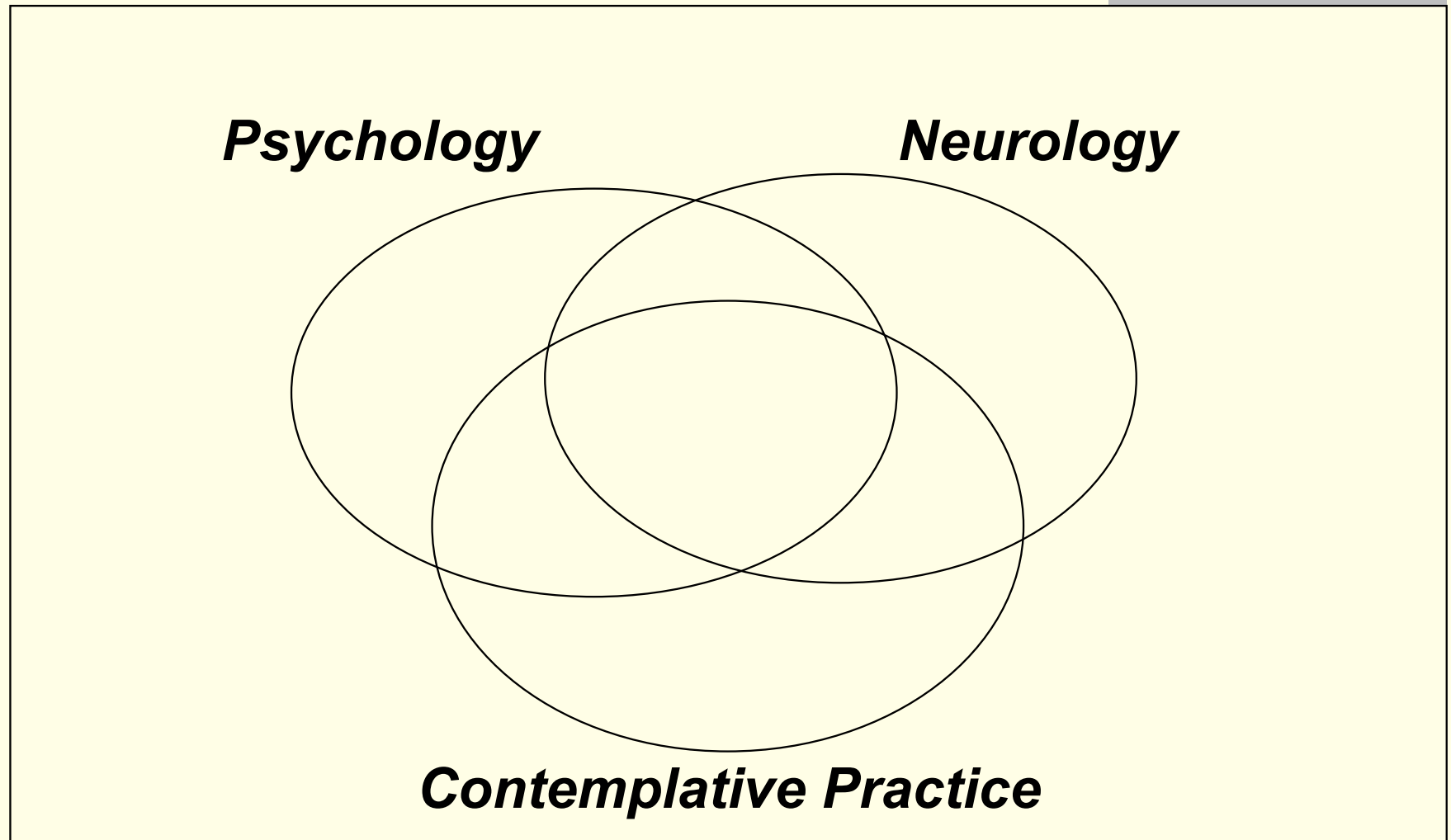
# **Perspectives**

# Domains of Intervention

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- We can intervene in three domains:
  - World (including relationships)
  - Body
  - Mind
- All three are important. And they work together.
- We have limited influence over world and body.
- In the mind:
  - Much more influence
  - Changes are with us wherever we go

# Common - and Fertile - Ground



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*The history of science is rich in the example  
of the fruitfulness of bringing  
two sets of techniques, two sets of ideas,  
developed in separate contexts  
for the pursuit of new truth,  
into touch with one another.*

J. Robert Oppenheimer

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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

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*We ask, "What is a thought?"*

*We don't know,*

*yet we are thinking continually.*

Venerable Tenzin Palmo



# **The Power of Mindfulness**

# 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 the education par excellence.*

William James

# Basics of Meditation

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- 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

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- **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 with, Releasing, Replacing

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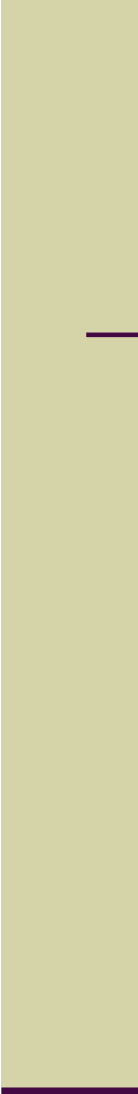
- There are three phases of psychological healing and personal growth (and spiritual practice):
  - Be mindful of, release, replace.
  - Let be, let go, let in.
- Mindfulness is key to the second and third phase, sometimes curative on its own, and always beneficial in strengthening its neural substrates. But often it is not enough by itself.
- And sometimes you need to skip to the third phase to build resources for mindfulness.



*Know the mind.*

*Shape the mind.*

*Free the mind.*

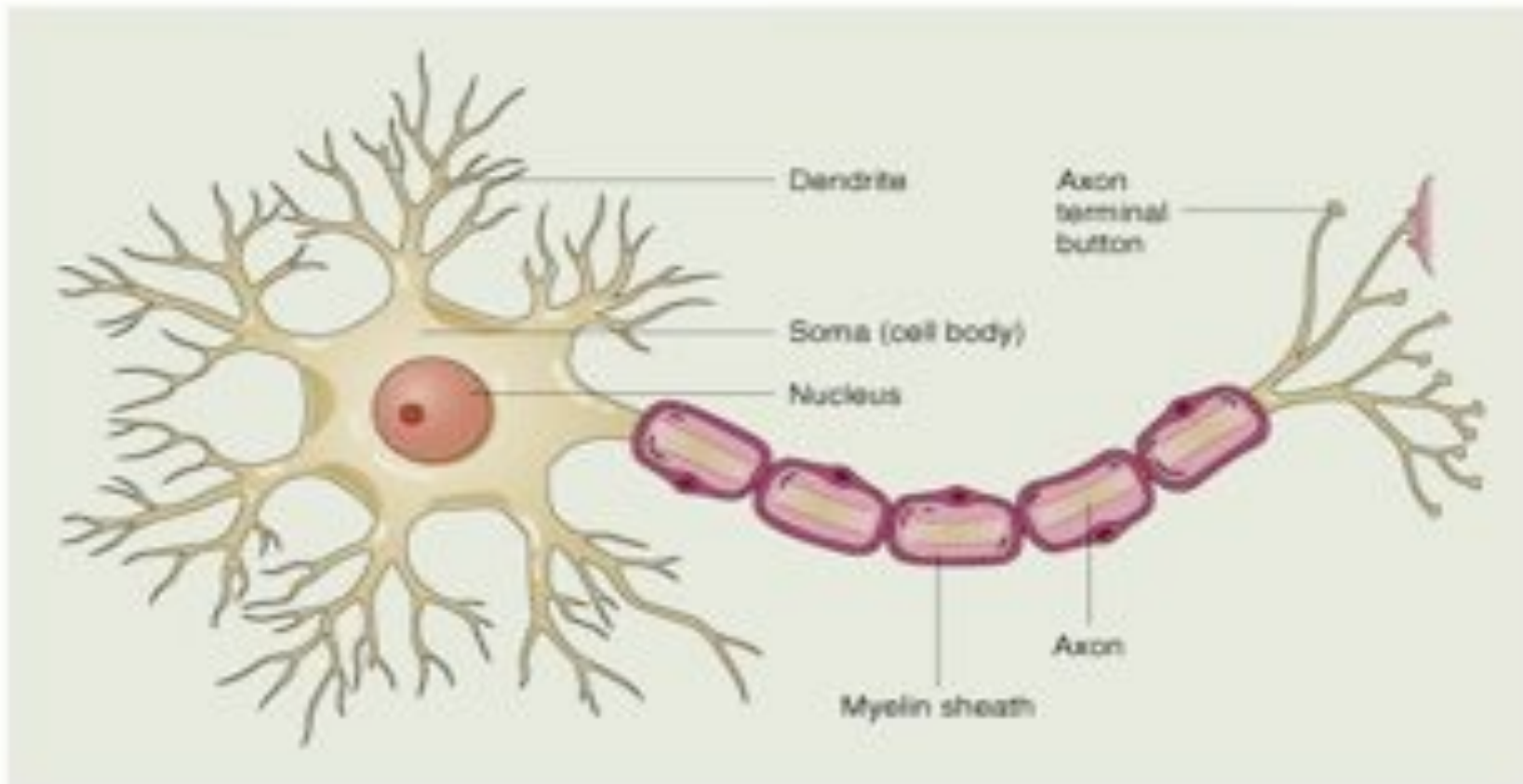




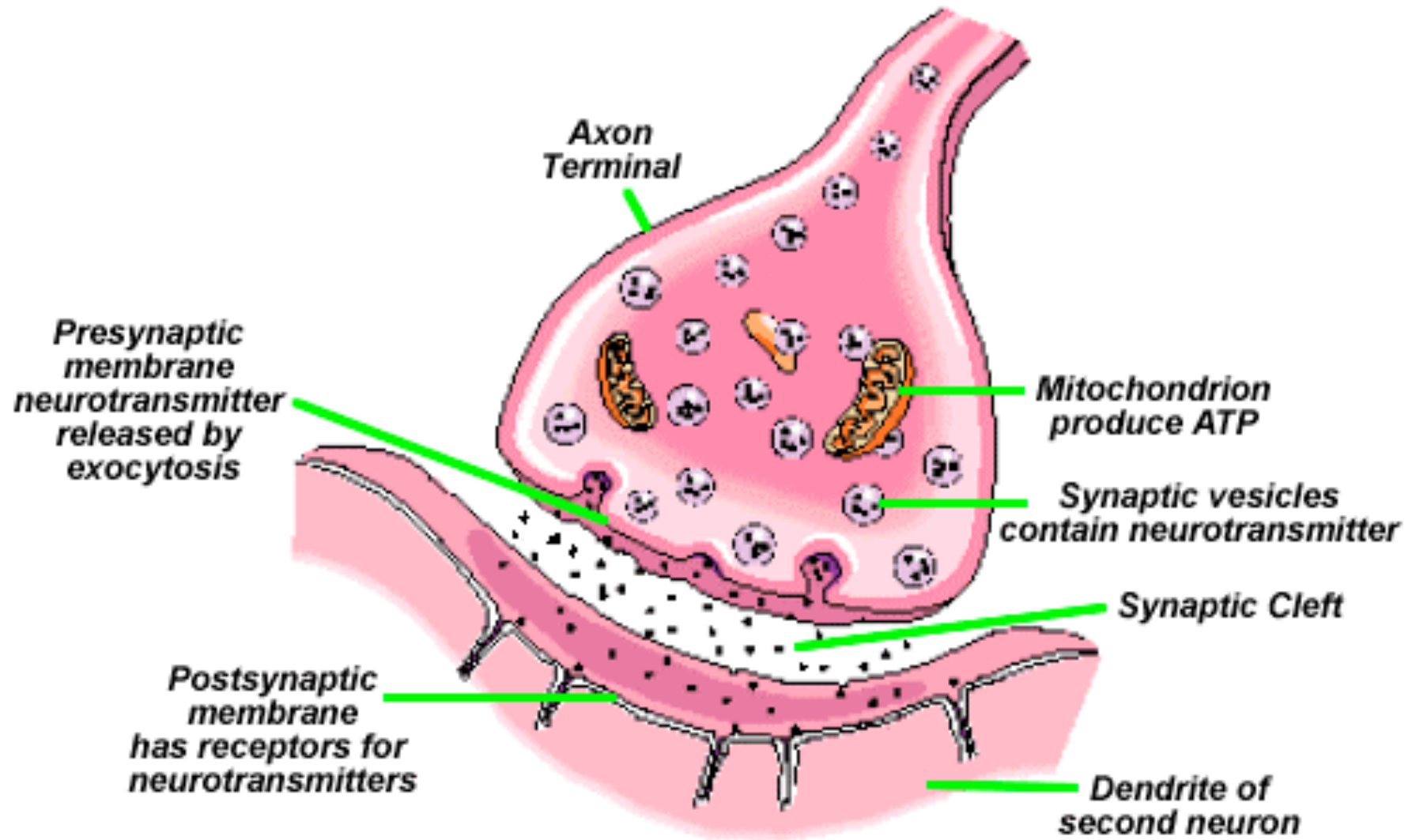
# **Self-Directed Neuroplasticity**



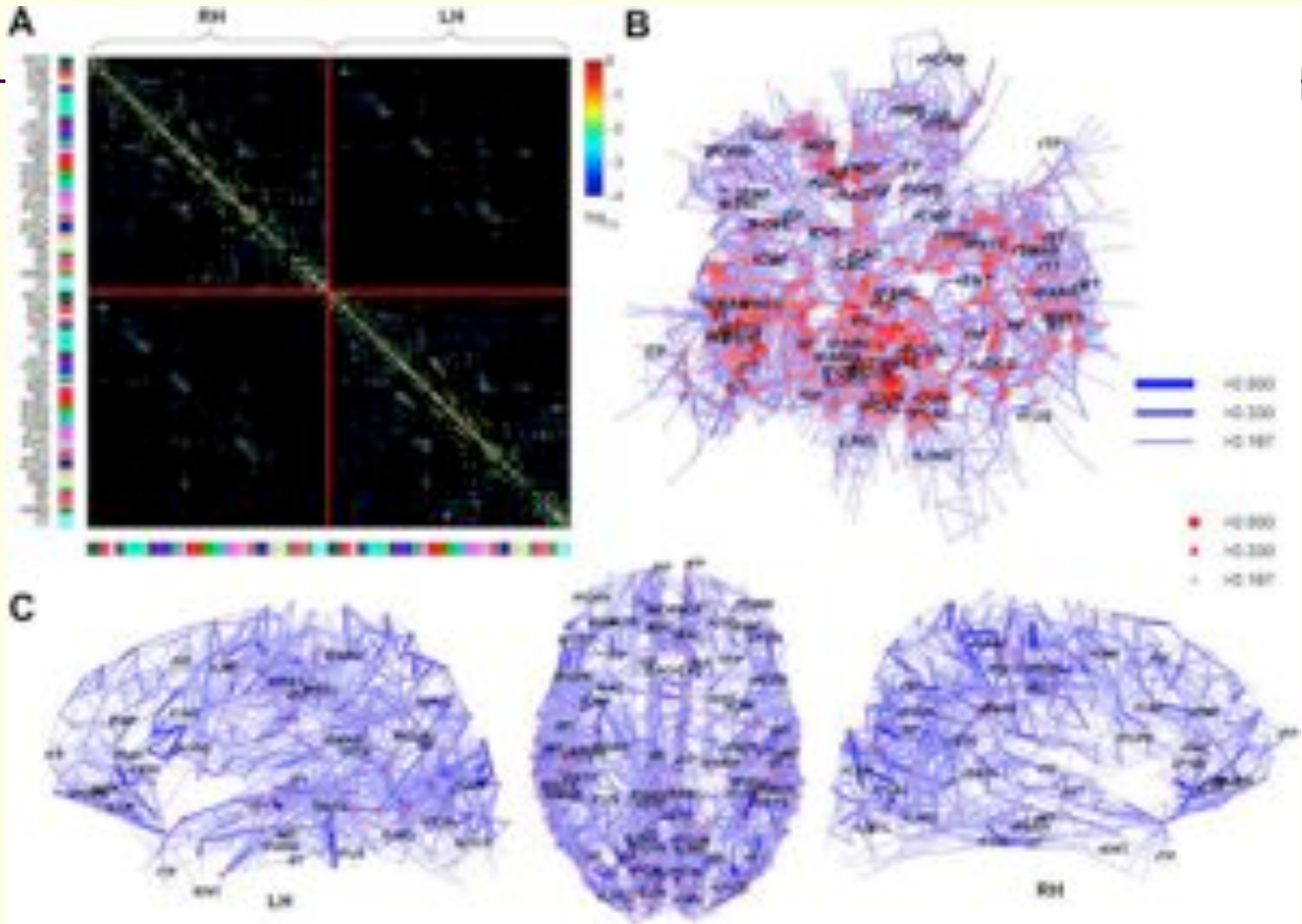
# One Simple Neuron . . .



# A SYNAPSE



# The Connectome - 2



Hagmann, et al., 2008, *PLoS Biology*, 6:1479-1493.

# The Mind/Brain System

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- “Mind” = flow of information within the nervous system:
  - Information is represented by the nervous system.
  - Most mind is unconscious; awareness is an aspect of mind.
  - The headquarters of the nervous system is the brain.
- In essence then, apart from hypothetical transcendental factors, the mind *is* what the brain *does*.
- Brain = necessary, *proximally* sufficient condition for mind:
  - The brain depends on the nervous system, other bodily systems, nature, and culture.
  - As we’ll see, the brain also depends on the mind.
- Therefore, the brain and mind are two aspects of one system, interdependently arising.

# Fact #1

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As your brain changes, your mind changes.



# Ways That Brain Can Change Mind

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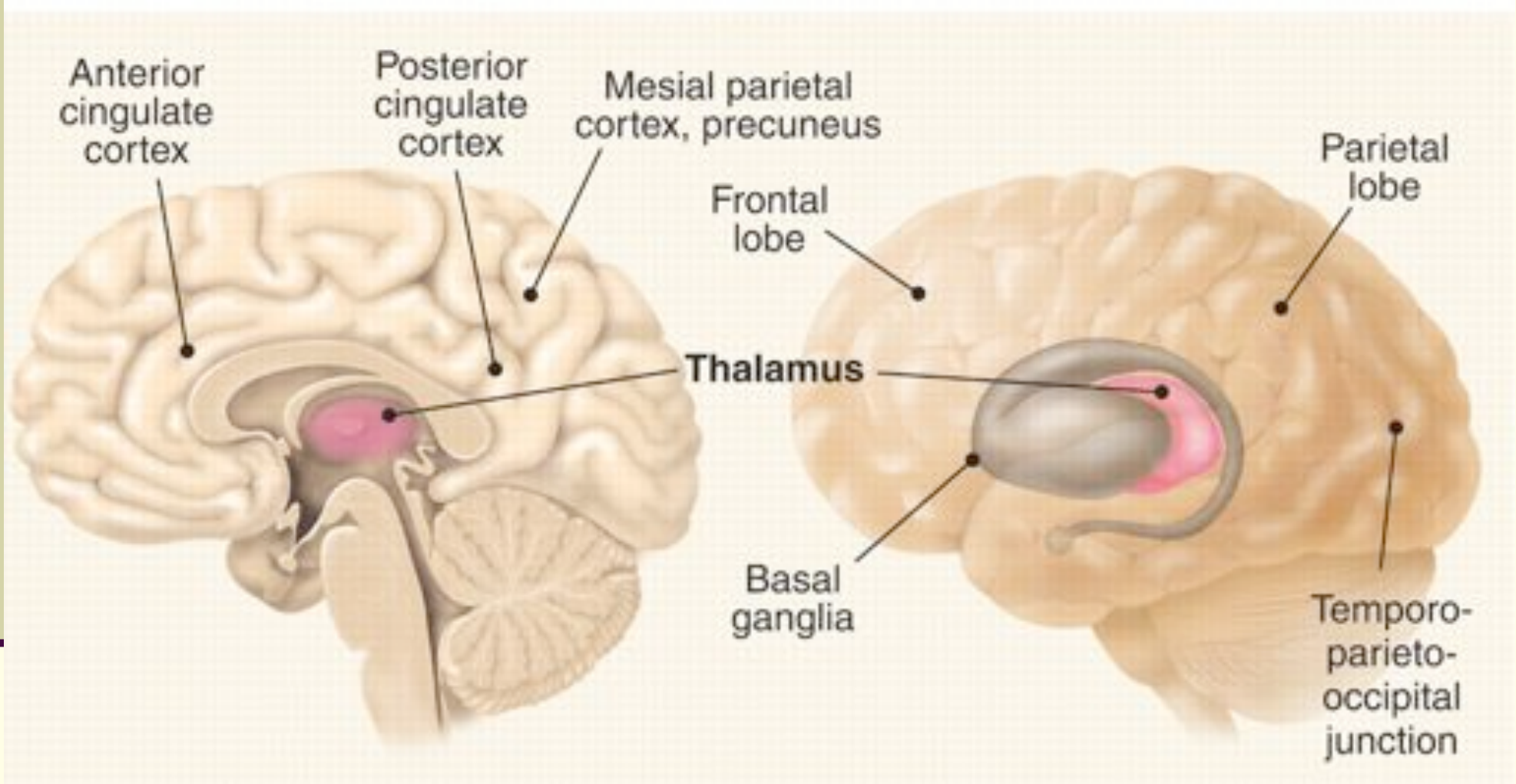
- For better:

- A little caffeine: more alertness
- Thicker insula: more self-awareness, empathy
- More left prefrontal activation: more happiness

- For worse:

- Intoxication; imbalances in neurotransmitters
- Concussion, stroke, tumor, Alzheimer's
- Cortisol-based shrinkage of hippocampus: less capacity for contextual memory

# Key Brain Areas for Consciousness



(adapted from) M. T. Alkire et al., *Science* 322, 876-880 (2008)

# Fact #2

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## As your mind changes, your brain changes.

Immaterial mental activity maps to material neural activity.

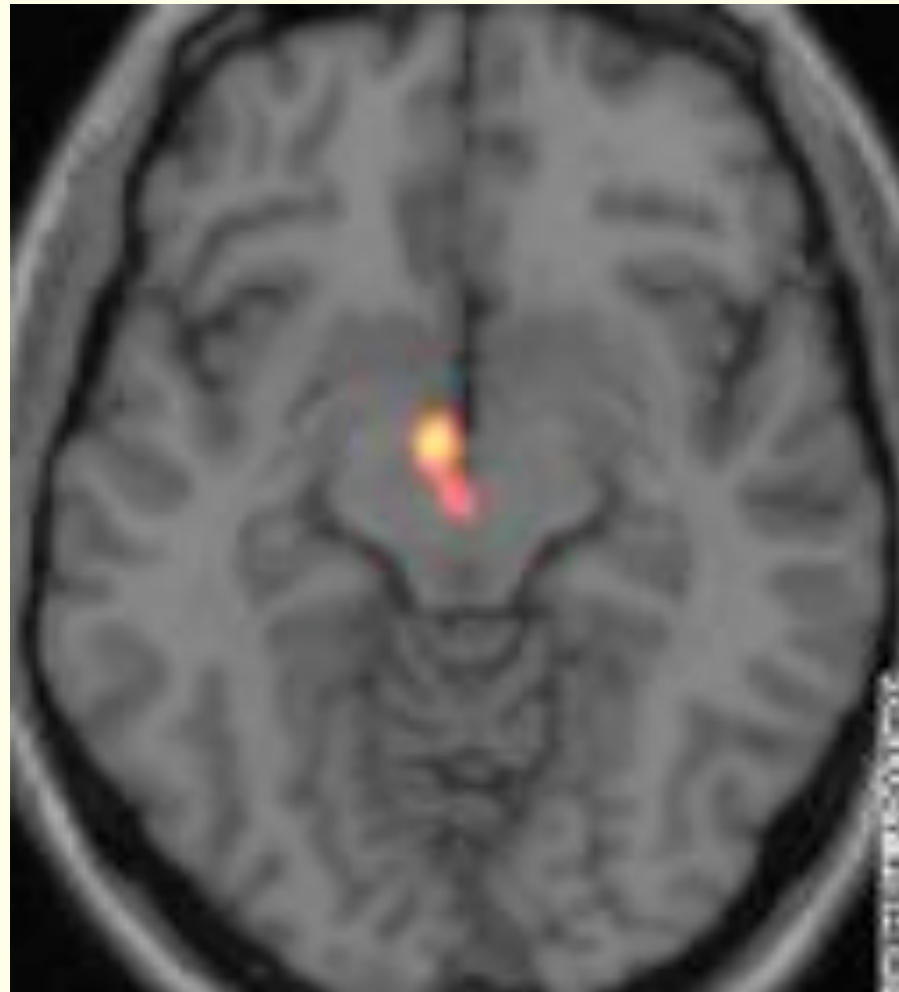
This produces temporary changes in your brain and lasting ones.

*Temporary* changes include:

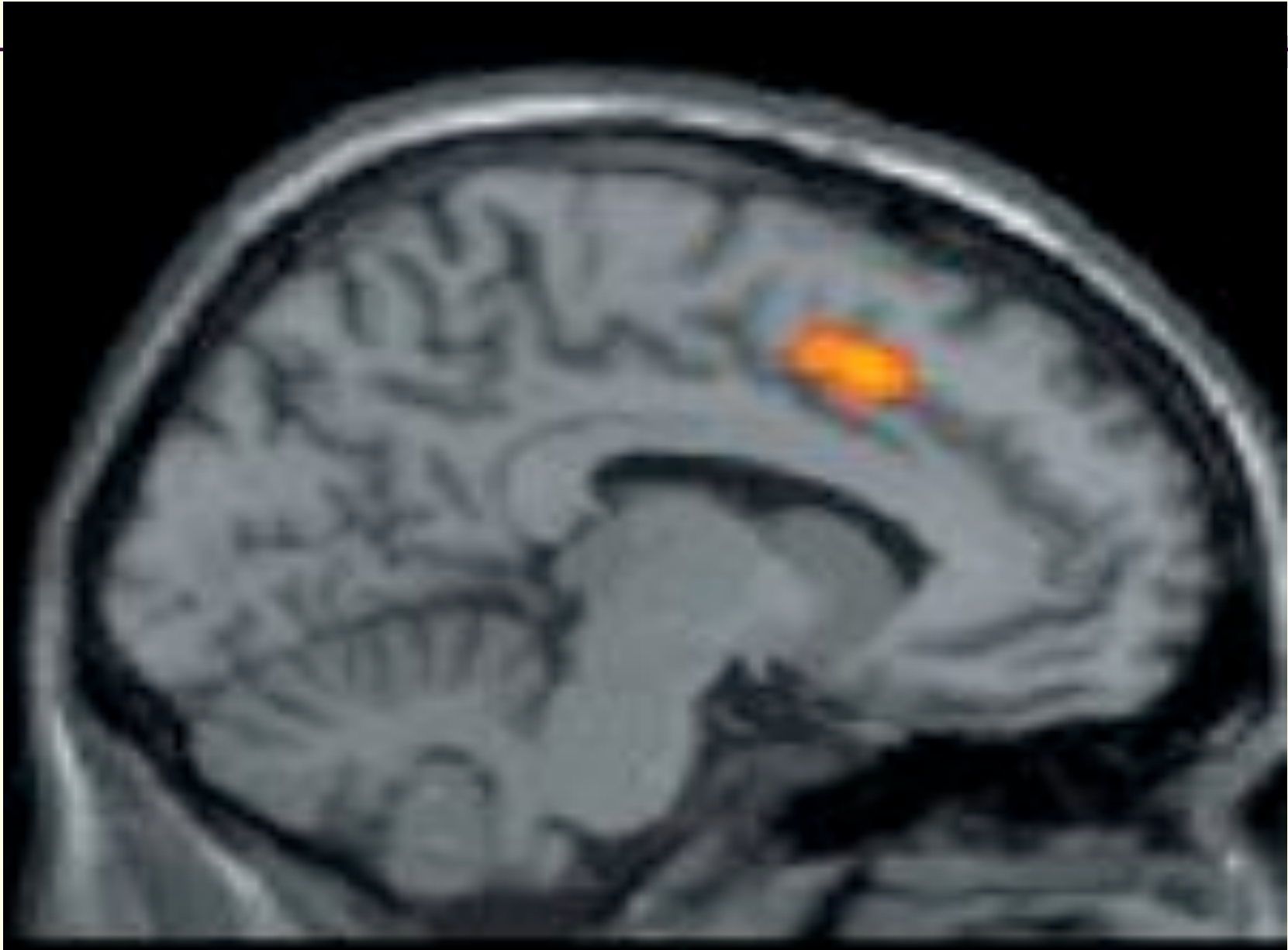
- Alterations in brainwaves (= changes in the firing patterns of synchronized neurons)
- Increased or decreased use of oxygen and glucose
- Ebbs and flows of neurochemicals

# The Rewards of Love

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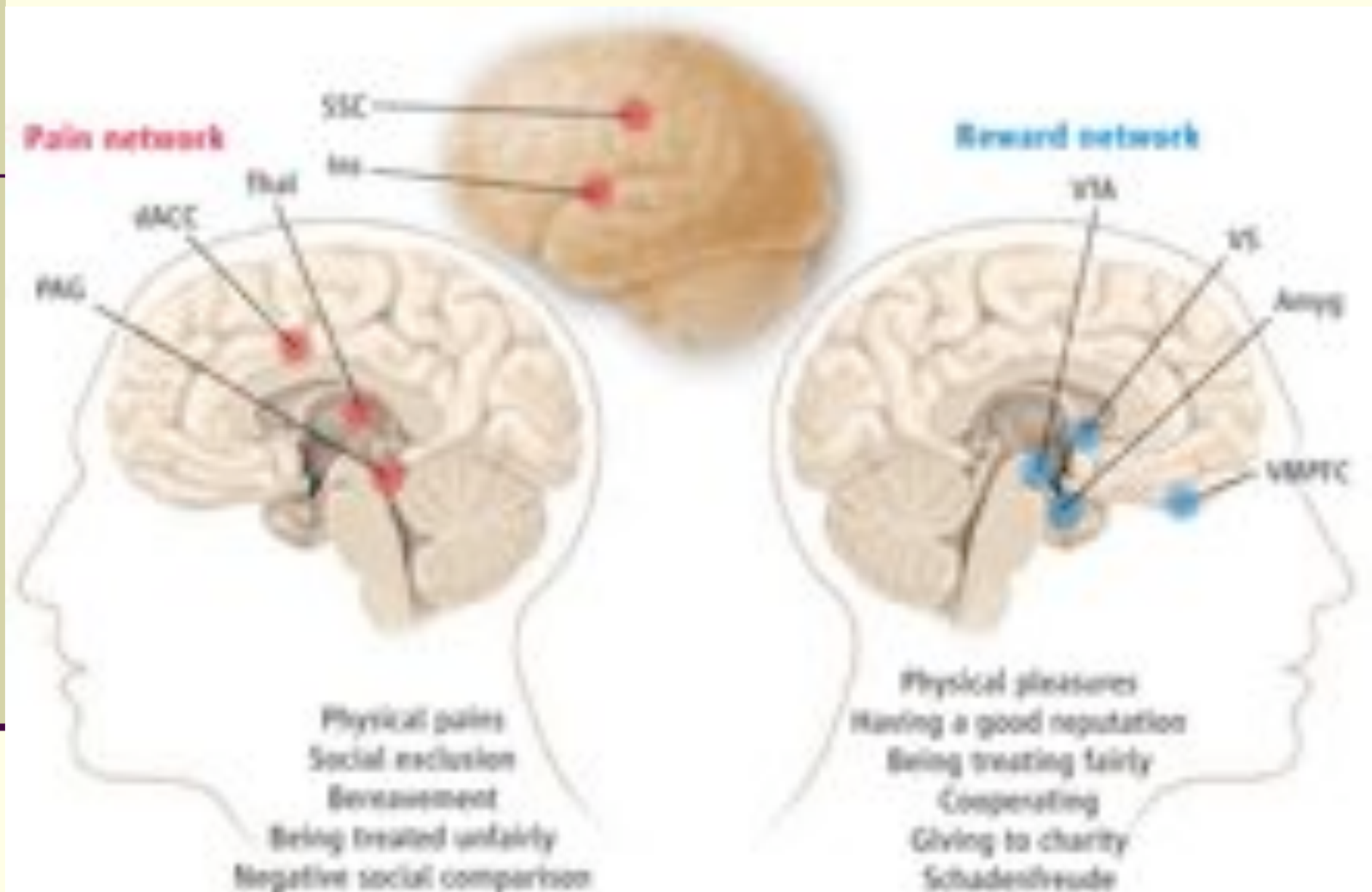
## Tibetan Monk, Boundless Compassion



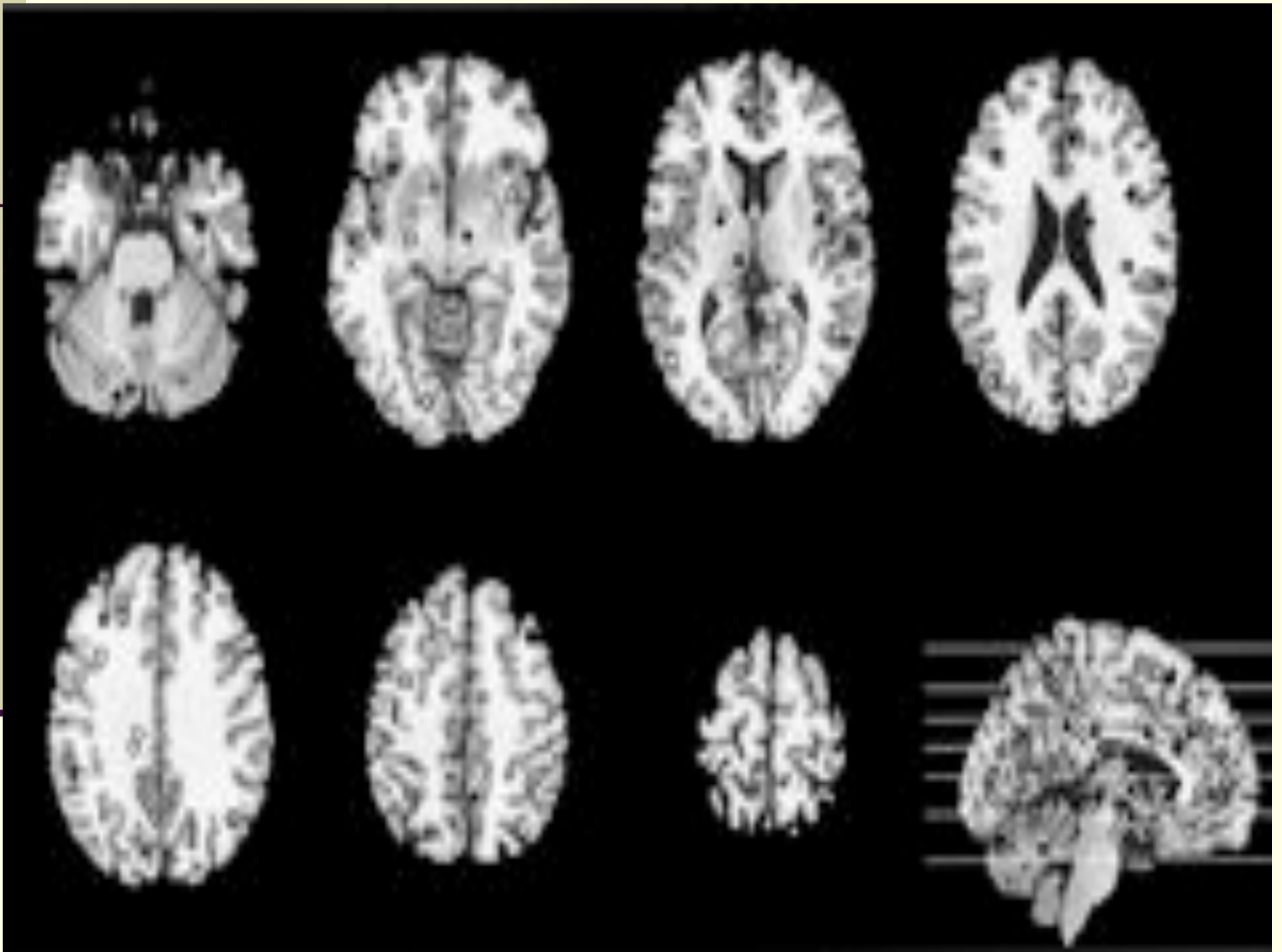
# Christian Nuns, Recalling a Profound Spiritual Experience

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Pain network: Dorsal anterior cingulate cortex (dACC), insula (Ins), somatosensory cortex (SSC), thalamus (Thal), and periaqueductal gray (PAG). Reward network: Ventral tegmental area (VTA), ventral striatum (VS), ventromedial prefrontal cortex (VMPFC), and amygdala (Amyg). K. Sutliff, in Lieberman & Eisenberger, 2009, *Science*, 323:890-891



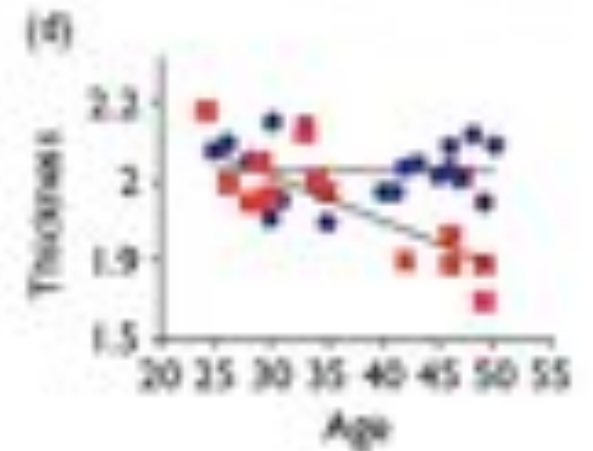
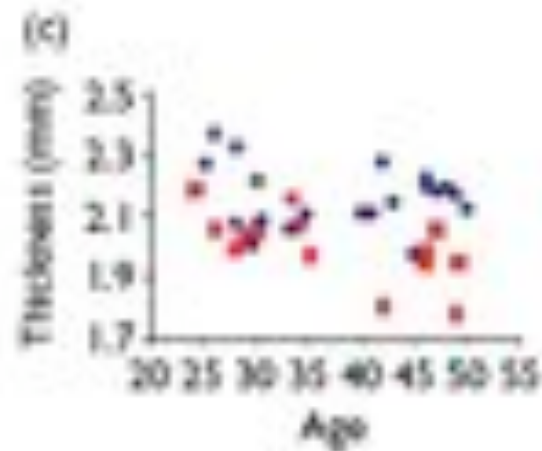
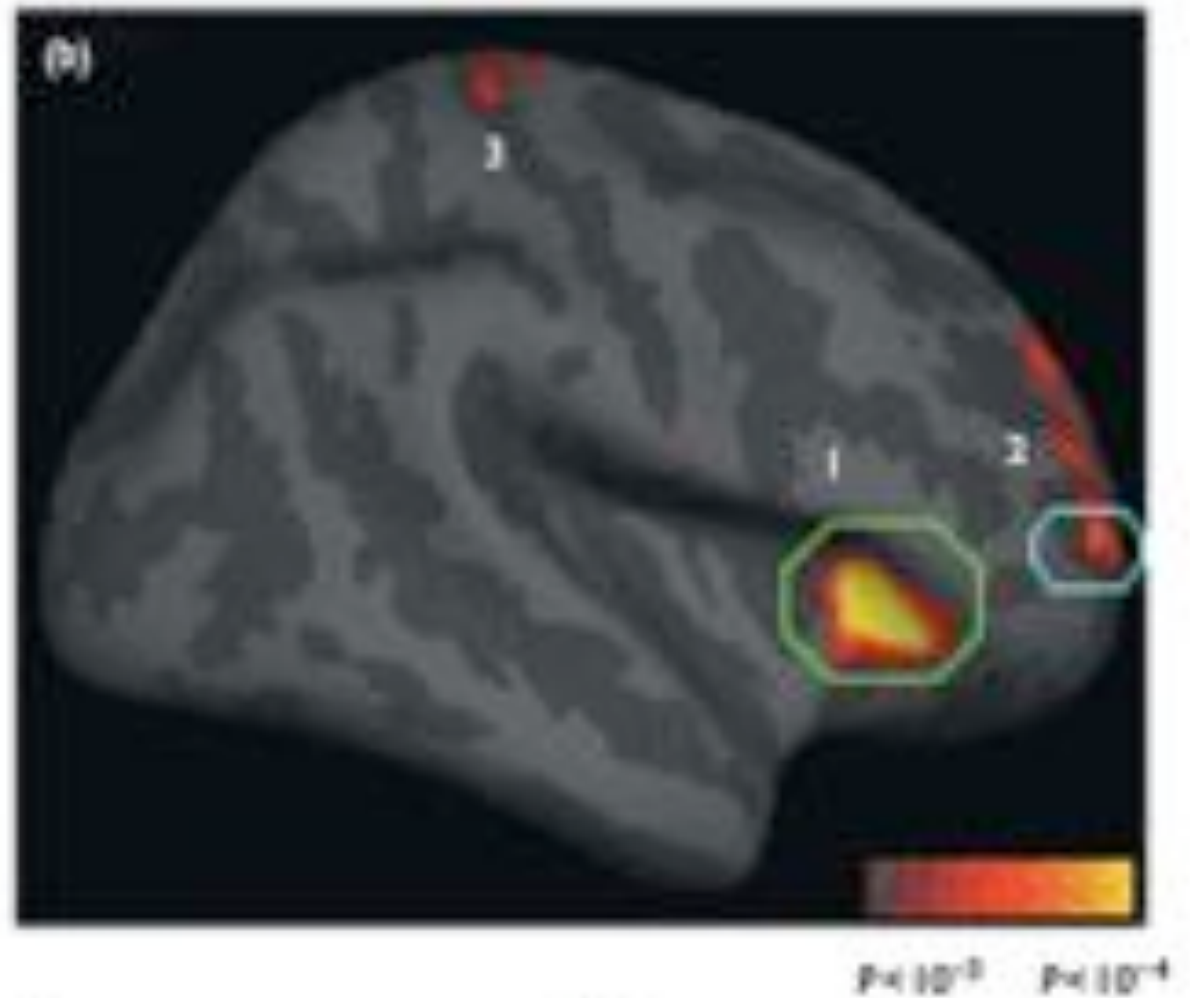
**Brain activations of “selfing” - Gillihan, et al., Psych Bulletin, 1/2005**

# 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.



# Some Physical Effects of Meditation

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- Thickens and strengthens the anterior (frontal) cingulate cortex and the insula. Those regions are involved with controlled attention, empathy, and compassion – and meditation improves those functions.
- Less cortical thinning with aging
- Increases activation of the left frontal regions, which lifts mood
- Increases the power and reach of fast, gamma brainwaves
- Decreases stress-related cortisol
- Stronger immune system



*The principal activities of brains  
are making changes in themselves.*



Marvin L. Minsky

# 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.


# Fact #3

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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?***



# **Being on Your Own Side**

# Self-Goodwill

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- All the great teachers have told us to be compassionate and kind toward all beings. And that whatever we do to the world affects us, and whatever we do to ourselves affects the world.
- You are one of the “all beings!” And kindness to yourself benefits the world, while hurting yourself harms the world.
- It’s a general moral principle that the more power you have over someone, the greater your duty is to use that power wisely. Well, who is the one person in the world you have the greatest power over? It’s your future self. You hold that life in your hands, and what it will be depends on how you care for it.
- Consider yourself as an innocent child, as deserving of care and happiness as any other.

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*If one going down into a river,  
swollen and swiftly flowing,  
is carried away by the current --  
how can one help others across?*

The Buddha

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*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

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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.”

# “Anthem”

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*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



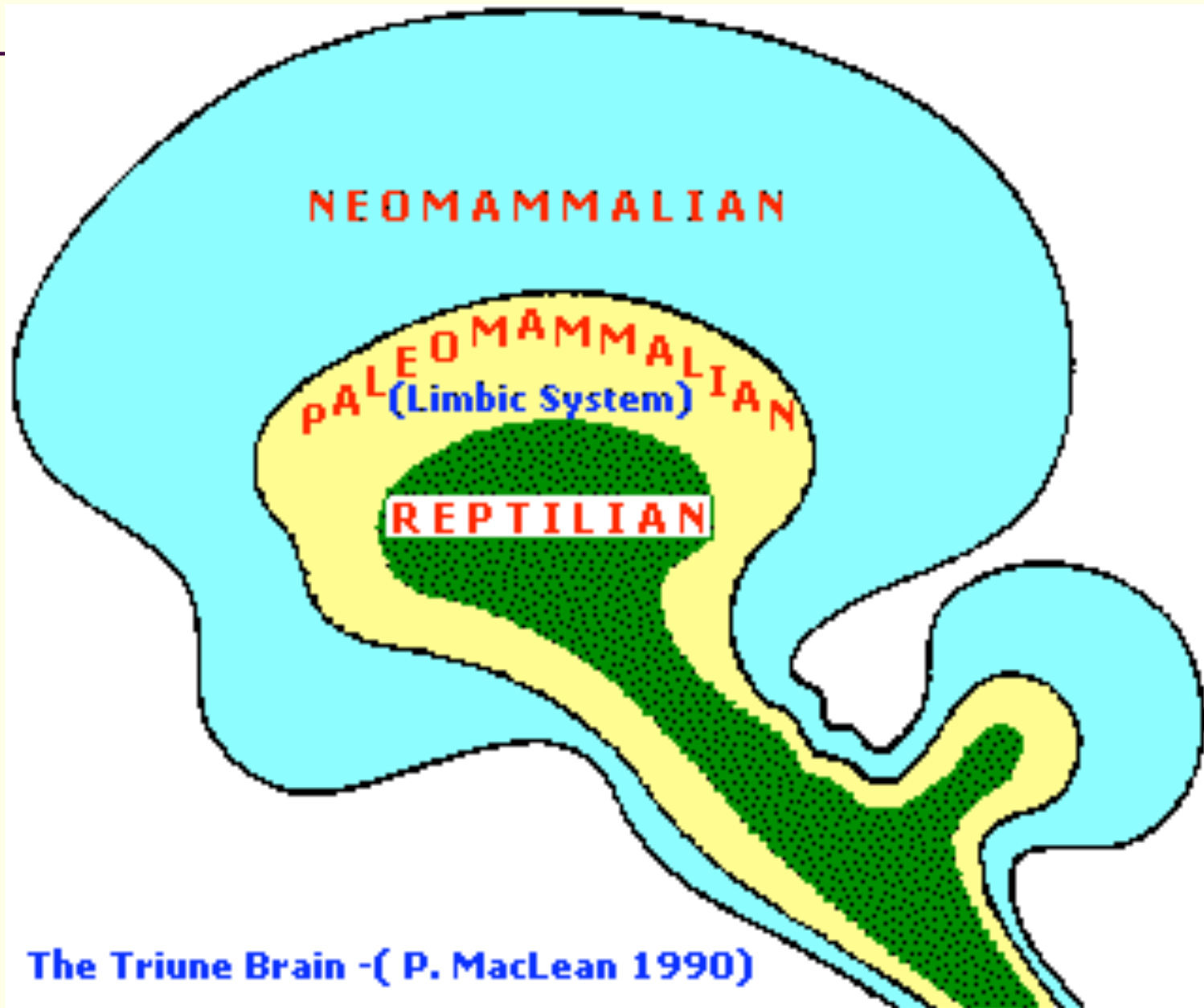
# **The Evolving Brain**

# 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



# 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”

# Grandchildren!

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# **The Negativity Bias**

# The Negativity Bias - Sources and Dynamics

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- In evolution, threats had more impact on survival than opportunities. So sticks are more salient than carrots:
  - The amygdala is primed to label experiences negatively.
  - The amygdala-hippocampus system flags negative experiences prominently in memory.
  - The brain is like velcro for negative experiences and teflon for positive ones.
- Consequently, negative trumps positive:
  - It's easy to create learned helplessness, but hard to undo.
  - People will do more to avoid a loss than get a gain.
  - It takes five positive interactions to undo a negative one.
- Negative experiences create vicious cycles.

# Negativity Bias: Some Consequences

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- Negative stimuli get more attention and processing.
- We generally learn faster from pain than pleasure.
- People work harder to avoid a loss than attain an equal gain (“endowment effect”)
- Easy to create learned helplessness, hard to undo
- Negative interactions: more powerful than positive
- Negative experiences sift into implicit memory.

# Negative Experiences Can Have Benefits

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- A place for negative emotions:
  - Anxiety alerts us to inner and outer threats
  - Sorrow opens the heart
  - Remorse helps us steer a virtuous course
  - Anger highlights mistreatment; energizes to handle it
- Negative experiences can:
  - Increase tolerance for stress, emotional pain
  - Build grit, resilience, confidence
  - Increase compassion and tolerance for others

# 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

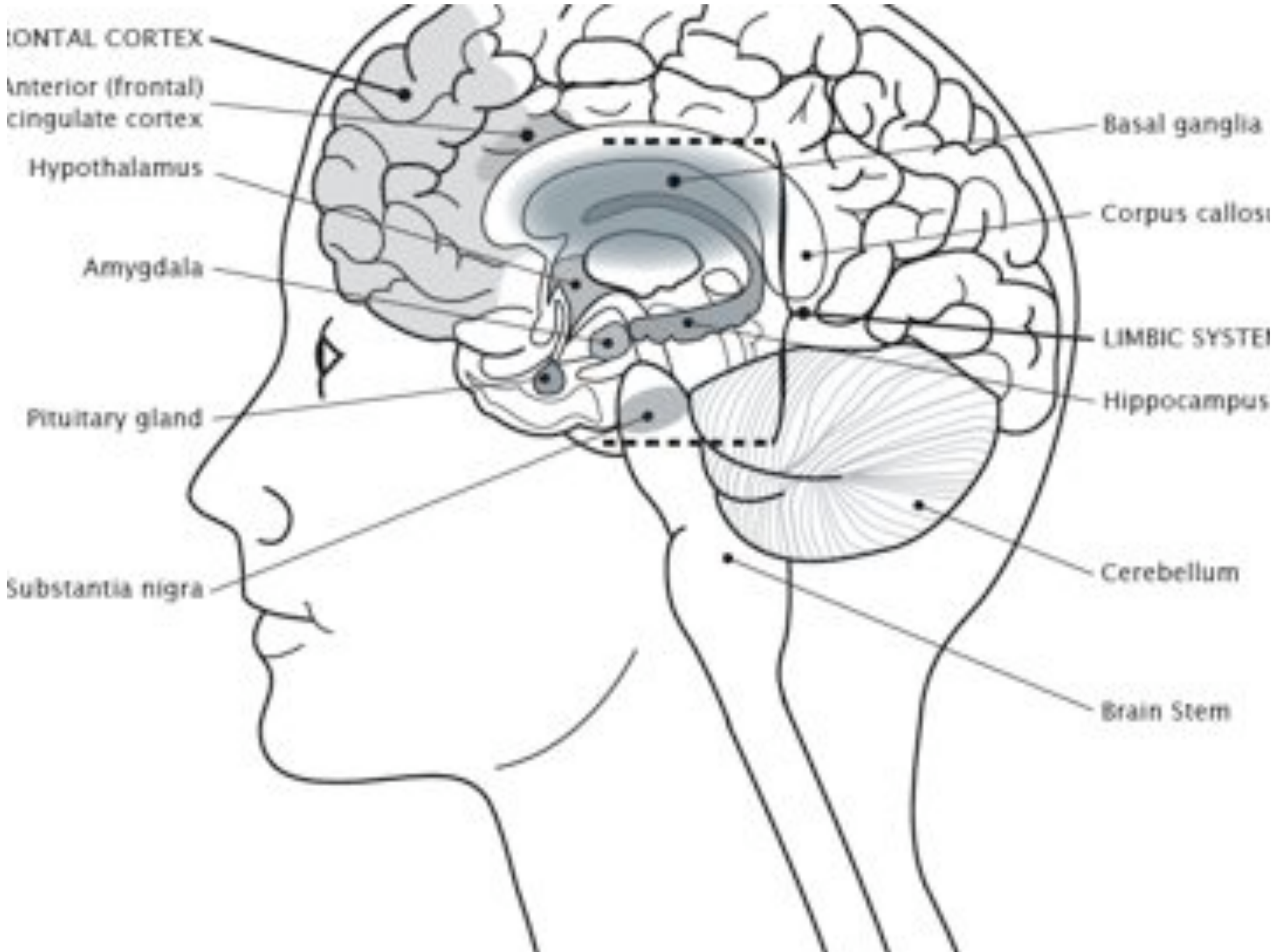
## ■ Mental:

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

# Neural Consequences of Negative Experiences

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- Amygdala initiates stress response (“alarm bell”)
- Hippocampus:
  - Forms and retrieves contextual memories
  - Inhibits the amygdala
  - Inhibits cortisol production
- Cortisol:
  - Stimulates and sensitizes the amygdala
  - Inhibits and can shrink the hippocampus
- Consequently, chronic negative experiences:
  - Sensitize the amygdala alarm bell
  - Weaken the hippocampus: this reduces memory capacities and the inhibition of amygdala and cortisol production
  - Thus creating vicious cycles in the NS, behavior, and mind



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# Threat Reactivity

# A Major Result of the Negativity Bias: Threat Reactivity

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- Two mistakes:
  - Thinking there is a tiger in the bushes when there isn't one.
  - Thinking there is no tiger in the bushes when there is one.
- We evolved to make the first mistake a hundred times to avoid making the second mistake even once.
- This evolutionary tendency is intensified by temperament, personal history, culture, and politics.
- Threat reactivity affects individuals, couples, families, organizations, nations, and the world as a whole.

# Results of Threat Reactivity (Personal, Organizational, National)

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- Our initial appraisals are mistaken:
  - Overestimating threats
  - Underestimating opportunities
  - Underestimating inner and outer resources
- We update these appraisals with information that confirms them; we ignore, devalue, or alter information that doesn't.
- Thus we end up with views of ourselves, others, and the world that are ignorant, selective, and distorted.

# Costs of Threat Reactivity

## (Personal, Organizational, National)

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- Feeling threatened feels bad, and triggers stress consequences.
- We over-invest in threat protection.
- The boy who cried tiger: flooding with paper tigers makes it harder to see the real ones.
- Acting while feeling threatened leads to over-reactions, makes others feel threatened, and creates vicious cycles.
- The Approach system is inhibited, so we don't pursue opportunities, play small, or give up too soon.
- In the Attach system, we bond tighter to "us," with more fear and anger toward "them."

# A Poignant Truth

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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?*


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

# Feeling Stronger and Safer

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- Be mindful of an experience of strength (e.g., physical challenge, standing up for someone).
- Staying grounded in strength, let things come to you without shaking your roots, like a mighty tree in a storm.
- Be mindful of:
  - Protections (e.g., being in a safe place, imagining a shield)
  - People who care about you
  - Resources inside and outside you
- Let yourself feel as safe as you reasonably can:
  - Noticing any anxiety about feeling safer
  - Feeling more relaxed, tranquil, peaceful
  - Releasing bracing, guardedness, vigilance



# **Taking in the Good**

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**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

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1. Look for positive **facts** and let them become positive experiences.
2. Savor the experience:
  - Sustain it.
  - Have it be emotional and sensate.
  - Intensify it.
3. Sense that the positive experience is soaking into your brain and body - registering deeply in emotional memory.

# Targets of TIG

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- Bodily states - healthy arousal; PNS; vitality
- Emotions
- Views - expectations; object relations; perspectives on self, world, past and future
- Behaviors - repertoire; inclinations

# Kinds of “Good” to Take in

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- Things are alright; nothing is wrong; there is no threat
- Feeling safe and strong
- The peace and relief of forgiveness
  
- The small pleasures of ordinary life
- The satisfaction of attaining goals or recognizing accomplishments - especially small, everyday ones
- Feeling grateful, contented, and fulfilled
  
- Being included, valued, liked, respected, loved by others
- The good feelings that come from being kind, fair, generous
- Feeling loving
  
- Recognizing your positive character traits
- Spiritual or existential realizations

# Psychological Antidotes

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## Avoiding Harms

- Strength, efficacy --> Weakness, helplessness, pessimism
- Safety, security --> Alarm, anxiety
- Compassion for oneself and others --> Resentment, anger

## Approaching Rewards

- Satisfaction, fulfillment --> Frustration, disappointment
- Gladness, gratitude --> Sadness, discontentment, “blues”

## Attaching to “Us”

- Attunement, inclusion --> Not seen, rejected, left out
- Recognition, acknowledgement --> Inadequacy, shame
- Friendship, love --> Abandonment, feeling unloved or unlovable

# Why It's Good to Take in the Good

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- Rights an unfair imbalance, given the negativity bias
- Gives oneself today the caring and support one should have received as a child, but perhaps didn't get in full measure; an inherent, implicit benefit
- Increases positive resources, such as:
  - Positive emotions
  - Capacity to manage stress and negative experiences
- Can help bring in missing "supplies" (e.g., love, strength, worth)
- Can help painful, even traumatic experiences

# Benefits of Positive Emotions

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- The benefits of positive emotions are a proxy for many of the benefits of TIG.
- Emotions organize the brain as a whole, so positive ones have far-reaching benefits
- These include:
  - Stronger immune system; less stress-reactive cardiovascular
  - Lift mood; increase optimism, resilience
  - Counteract trauma
  - Promote exploratory, “approach” behaviors
  - Create positive cycles

# Potential Synergies of TIG and MBSR

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- Improved mindfulness from MBSR enhances TIG.
- TIG increases general resources for MBSR (e.g., heighten the PNS activation that promotes stable attention).
- TIG increases specific factors of MBSR (e.g., self-acceptance, self-compassion, tolerance of negative affect)
- TIG heightens internalization of key MBSR experiences:
  - The sense of stable mindfulness itself
  - Confidence that awareness itself is not in pain, upset, etc.
  - Presence of supportive others (e.g., MBSR groups)
  - Peacefulness of realizing that experiences come and go

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*How to use taking in the good  
for healing painful, even traumatic experiences?*



# **Clearing Old Pain**

# Using Memory Mechanisms to Help Heal Painful Experiences

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- The machinery of memory:
  - When explicit or implicit memory is re-activated, it is re-built from schematic elements, not retrieved *in toto*.
  - When attention moves on, elements of the memory get re-consolidated.
- The open processes of memory activation and consolidation create a window of opportunity for shaping your internal world.
- Activated memory tends to associate with other things in awareness (e.g., thoughts, sensations), esp. if they are prominent and lasting.
- When memory goes back into storage, it takes associations with it.
- You can imbue implicit and explicit memory with positive associations.

# The Fourth Step of TIG

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- When you are having a positive experience:
  - Sense the current positive experience sinking down into old pain, and soothing and replacing it.
- When you are having a negative experience:
  - Bring to mind a positive experience that is its antidote.
- In both cases, have the positive experience be big and strong, in the forefront of awareness, while the negative experience is small and in the background.
- You are not resisting negative experiences or getting attached to positive ones. You are being kind to yourself and cultivating wholesomeness of mind.

# TIG4 Capabilities, Resources, Skills

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## ■ Capabilities:

- Dividing attention
- Sustaining awareness of the negative material without getting sucked in (and even retraumatized)

## ■ Resources:

- Self-compassion
- Internalized sense of affiliation (the third fundamental motivational system)

## ■ Skills:

- Internalizing “antidotes”
- Accessing “the tip of the root”

# The Tip of the Root

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- For the fourth step of TIG, try to get at the youngest, most vulnerable layer of painful material.
- The “tip of the root” is commonly in childhood. In general, the brain is most responsive to negative experiences in early childhood.
- Prerequisites
  - Understanding the need to get at younger layers
  - Compassion and support for the inner child
  - Capacity to “presence” young material without flooding

# TIG and Trauma

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- General considerations:
  - People vary in their resources and their traumas.
  - Often the major action is with “failed protectors.”
  - Cautions for awareness of internal states, including positive
  - Respect “yellow lights” and the client’s pace.
- The first three steps of TIG are generally safe. Use them to build resources for tackling the trauma directly.
- As indicated, use the fourth step of TIG to address the peripheral features and themes of the trauma.
- Then, with care, use the fourth step to get at the heart of the trauma.

*First of all, do no harm.*



# **What Is Equanimity?**

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*Equanimity is a perfect, unshakeable balance of mind.*

Nyanaponika Thera

*With equanimity, you can deal with situations with calm and reason while keeping your inner happiness.*

The Dalai Lama

# Balanced, Steady, Present

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- **Balance** - not reacting to fleeting experiences
- **Steadiness** - sustained through all circumstances
- **Presence** - engaged with the world but not troubled by it; guided by values and virtues, not reactions

The ancient circuitry of the brain continually triggers reactions. Equanimity is the circuit breaker that prevents the craving that leads to suffering.

# Eight Worldly Winds

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- Pleasure and pain
- Praise and blame
- Gain and loss
- Fame and ill repute

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*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?*

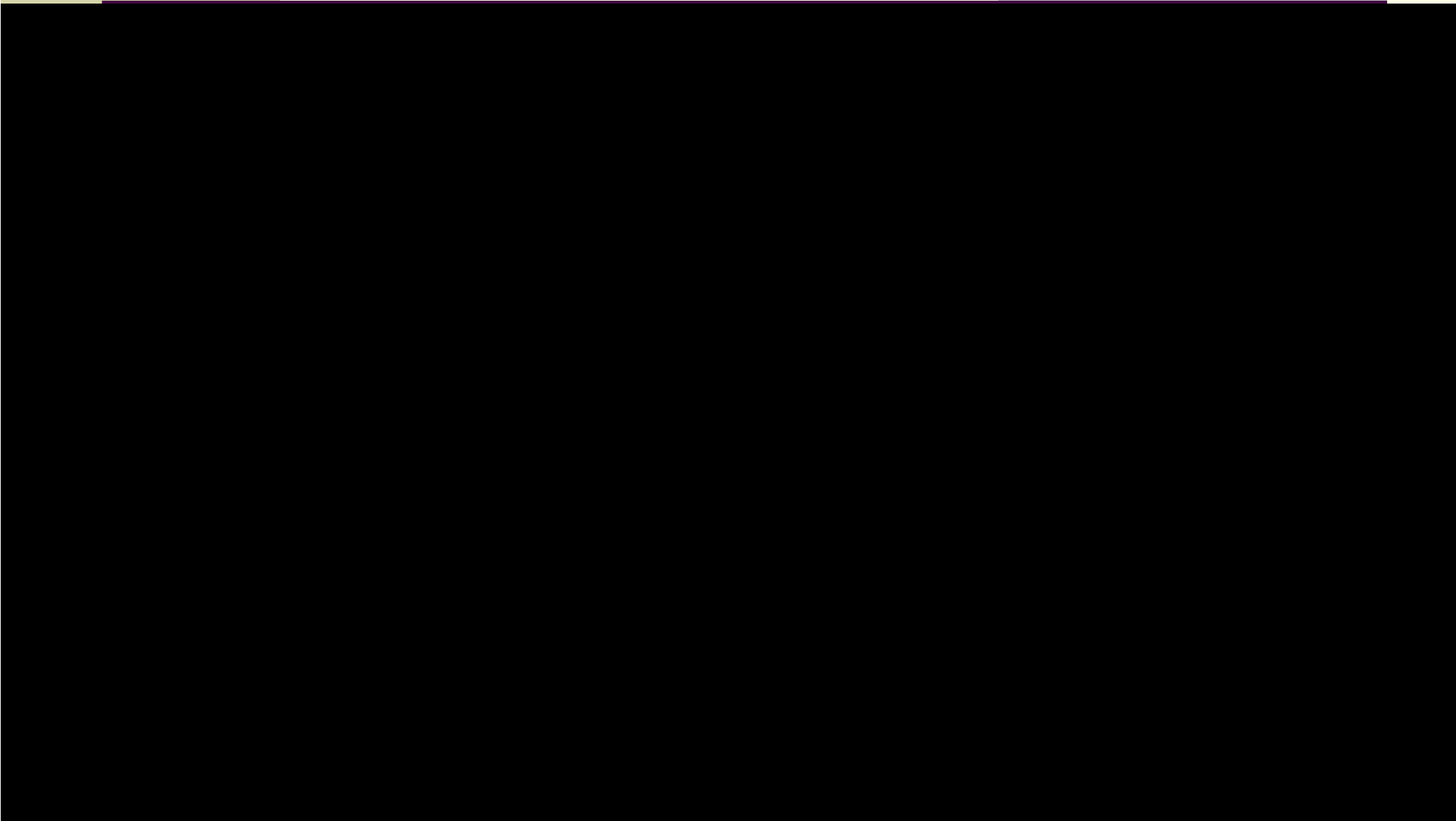
The Buddha, Udāna 4.34

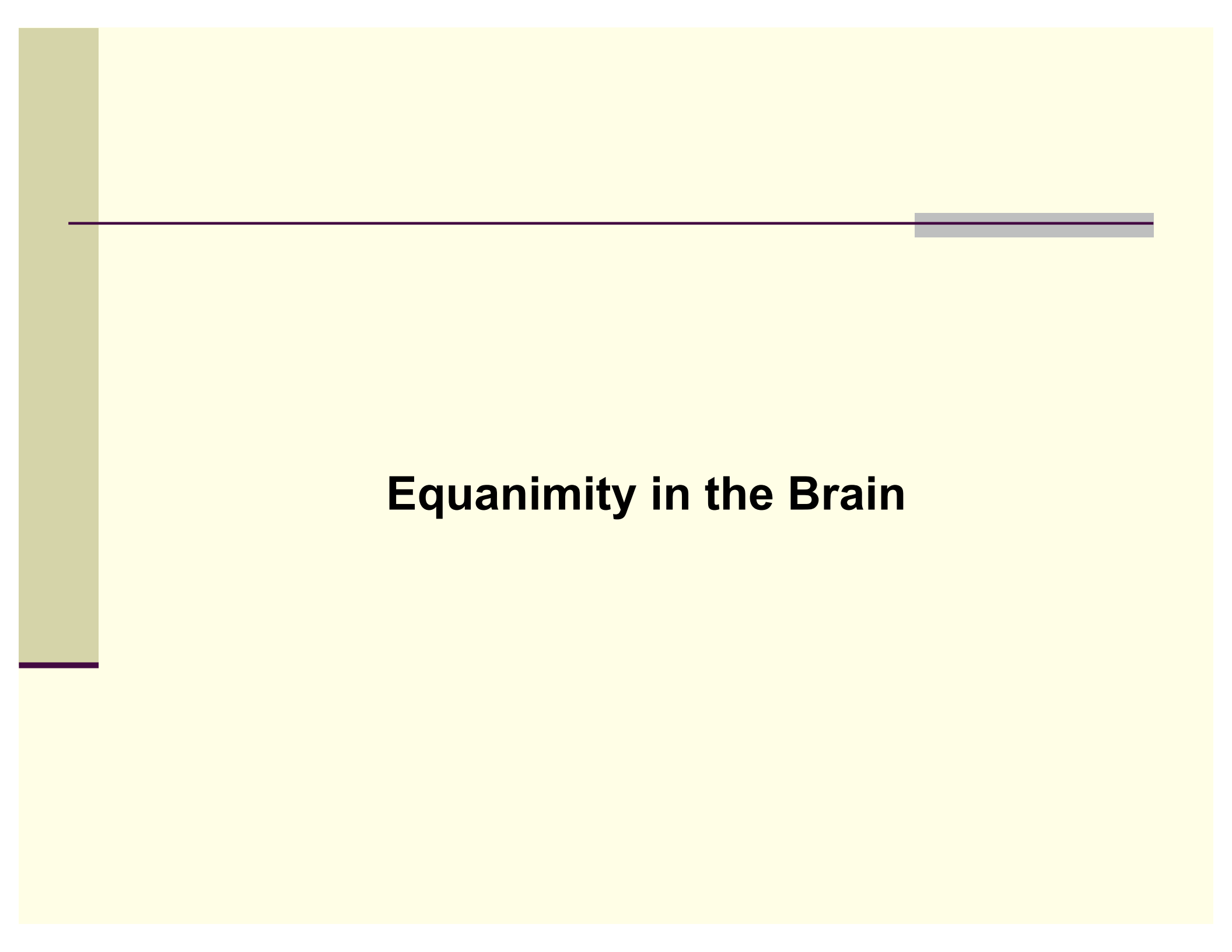
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*Indeed, the sage who's fully quenched  
Rests at ease in every way;  
No sense desire adheres to him or her  
Whose fires have cooled, deprived of fuel.*

*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





# **Equanimity in the Brain**

# Equanimity in the Brain

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- **Steadiness of mind** - Sustained by oversight from the anterior cingulate cortex (ACC); over time, probably becomes a whole-brain stability of attention
- **Understanding and intention** - Conceptual in prefrontal cortex; embodied in prefrontal cortex (action tendencies), parietal cortex (perspective), limbic system (emotion), and brainstem (arousal)
- **Global coherence** - So as not to be caught by anything, experience presents itself as a coherent whole, probably enabled by large-scale gamma wave synchronization.
- **Calm and contentment** - Much parasympathetic activation, inhibiting fight-flight stress reactions; underlying well-being in the core motivational systems (Avoid, Approach, Attach)



# Liking and Wanting

# Liking and Wanting

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- 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.

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*The Great Way is easy.*

*For one with no preferences.*

Third Zen Patriarch

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*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

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*I make myself rich by making my wants few.*

Henry David Thoreau

# Practicing with Wanting

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- Positive wants (e.g., practice, sobriety, love, aspirations) crowd out negative ones.
- Surround pleasant or unpleasant hedonic 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 predicted rewards - simplistic and inflated, from primitive subcortical regions. Explore healthy disenchantment.
- Pick a key want and just don't do it.



# **The First and Second Dart**

# The Chain of Suffering

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- Contact: An external or internal stimulus
- Feeling: The “hedonic tone” of pleasant, unpleasant, or neutral; likes and dislikes
- Craving: Wanting what you like to continue and what you dislike to end; *tanha* - thirst - in Pali
- Clinging: The elaboration of craving
- Suffering: Discomfort related to wanting (e.g., tension, anxiety, pressure, frustration, disappointment, longing, sadness, remorse, anger)

# The First and Second Dart

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- The Buddha referred to unavoidable discomfort - including disease, old age, death, and sorrow at harms befalling others - as the “first dart.”
- Then we add our reactions to that first dart. For example, one could react to a physical pain with anxiety, then anger at oneself for feeling anxious, then sadness linked to not being comforted as a child.
- Sometimes we react with suffering when there is no first dart at all, simply a condition that there is no need to get upset about.
- And sometimes we react with suffering to positive events, such as a compliment or an opportunity.
- The Buddha called these reactions “second darts” - the ones we throw ourselves.

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*When the uninstructed worldling experiences a painful feeling, he or she sorrows, grieves, and laments; he or she weeps beating the breast and becomes distraught. He or she feels two feelings - a bodily one and a mental one.*

*Suppose they were to strike a person with a dart, and then strike him immediately afterward with a second dart, so that the person would feel a feeling caused by two darts.*

*So too, when the uninstructed worldling experiences a painful feeling, the person feels two feelings - a bodily one and a mental one.*

The Buddha, SN 36:6

## **“Bahiya, you should train yourself thus.”**

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*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.*

The Buddha



# **Coming Home to Happiness**

# Reverse Engineering the Brain

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*What's 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.

# But to Cope with Urgent Needs, 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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# Reactive Dysfunctions in Each System

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

# 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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**Calm**

**Contentment**

**Caring**

# Ways to “Take the Fruit as the Path”

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

## Avoid system

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

## 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.

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*Be wisdom itself,  
rather than a person who isn't wise  
trying to become wise.*

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

Ajahn Sumedho

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*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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- Begley, S. 2007. *Train Your Mind, Change Your Brain*. Ballantine.
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# Key Papers - 1

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

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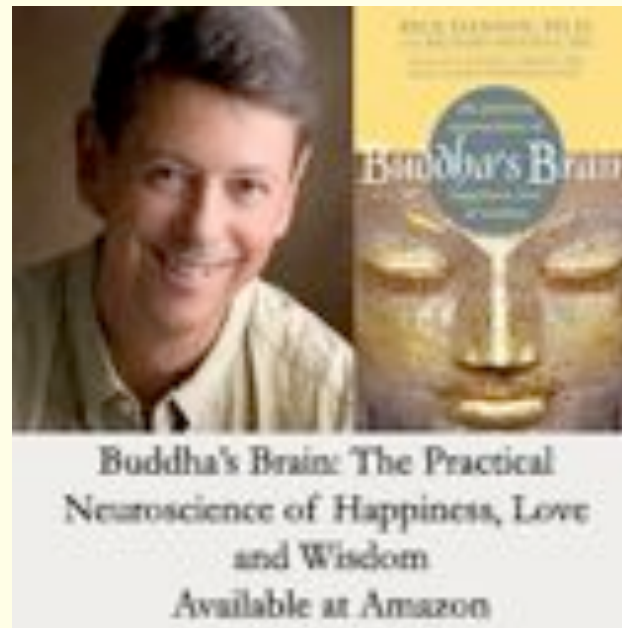
## *Where to Find Rick Hanson Online*

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

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

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