

Buddha's Brain:

Lighting up the Neural Circuits of Happiness, Love, and Wisdom

Esalen

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Topics 1

- Overview
- Self-directed neuroplasticity
- Self-compassion
- Resource yourself
- How to grow inner strengths
- The negativity bias
- Steadying the mind
- Cultivation
- Positive neuroplasticity: taking in the good
- Getting good at taking in the good

Topics 2

- **The evolving brain**
- **Key resource experiences**
- **Flowers pulling weeds**
- **Being and doing**
- **Your loving nature**
- **A kind heart**
- **Feeding the hungry heart**
- **Equanimity**
- **Strength with heart**
- **Coming home**



Overview

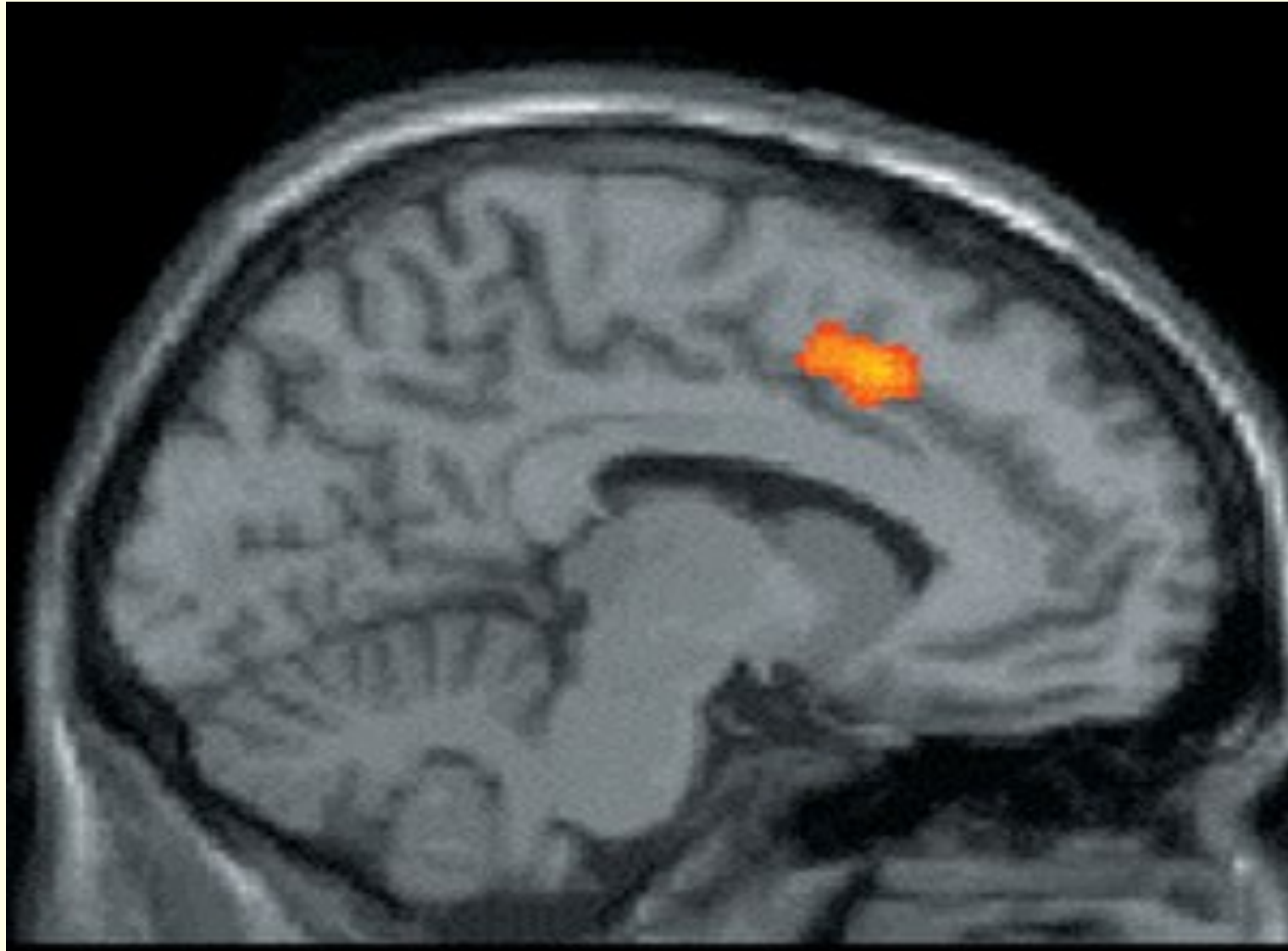


A microscopic image of neurons, showing a central neuron with a glowing green nucleus and numerous yellow, branching axons extending across the field of view. The background is dark, and the overall color palette is dominated by yellow and green.

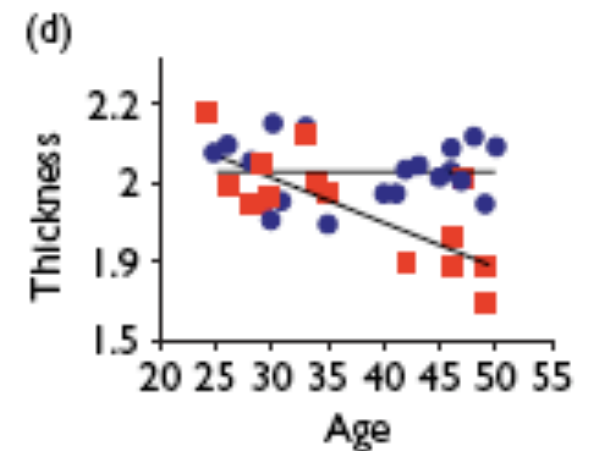
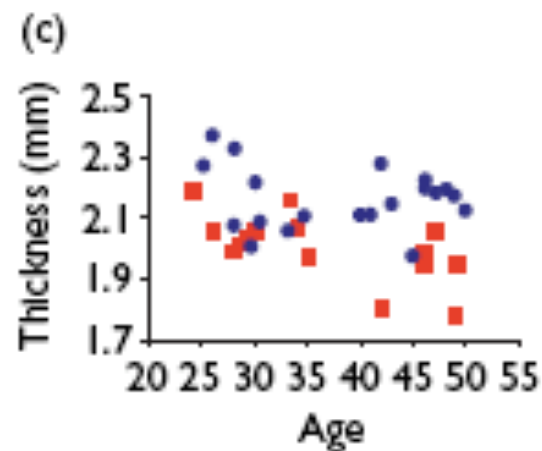
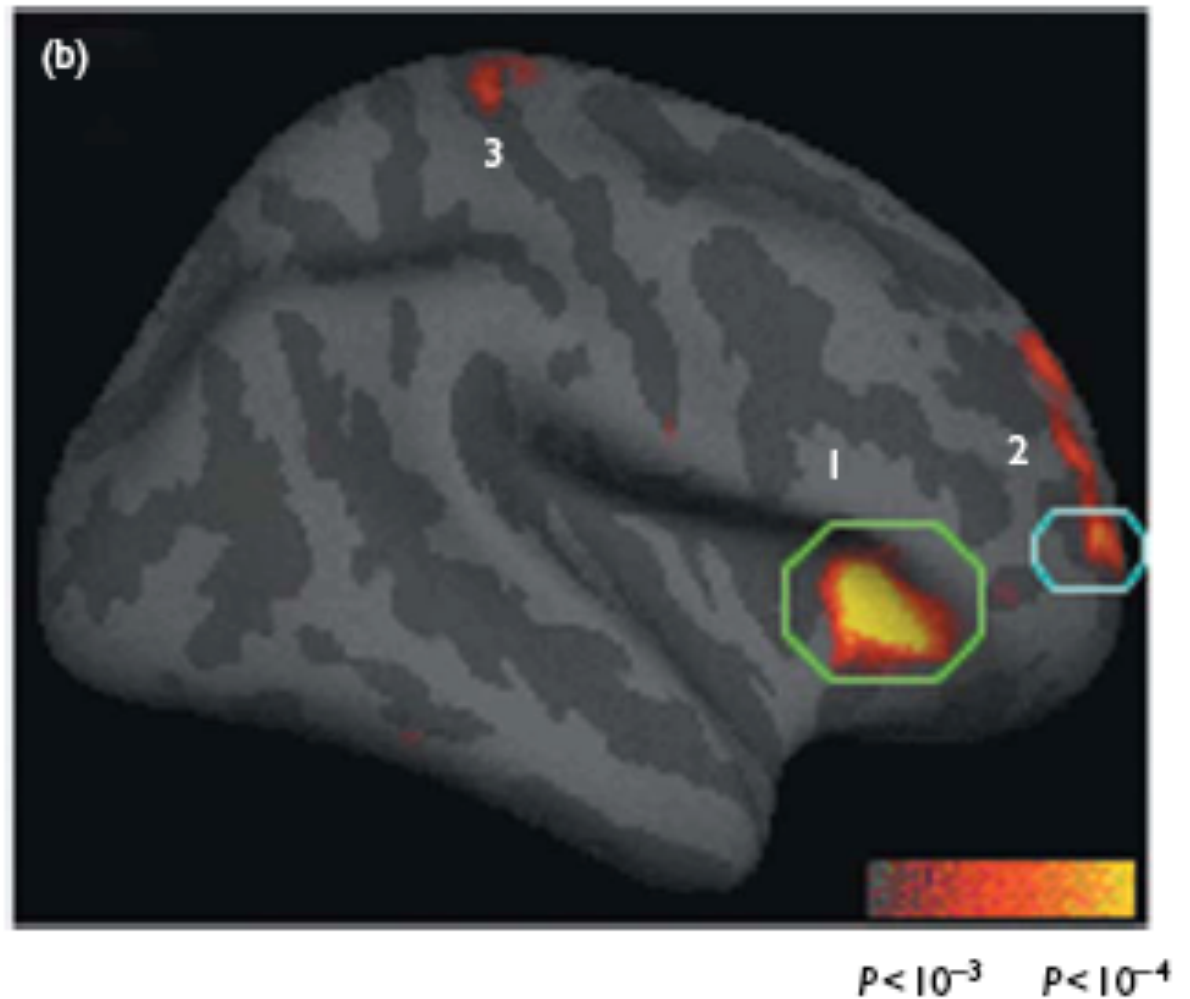
Neurons that fire together,

wire together.

Ardent, Diligent, Resolute, and Mindful



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





Mindfulness of the wholesome

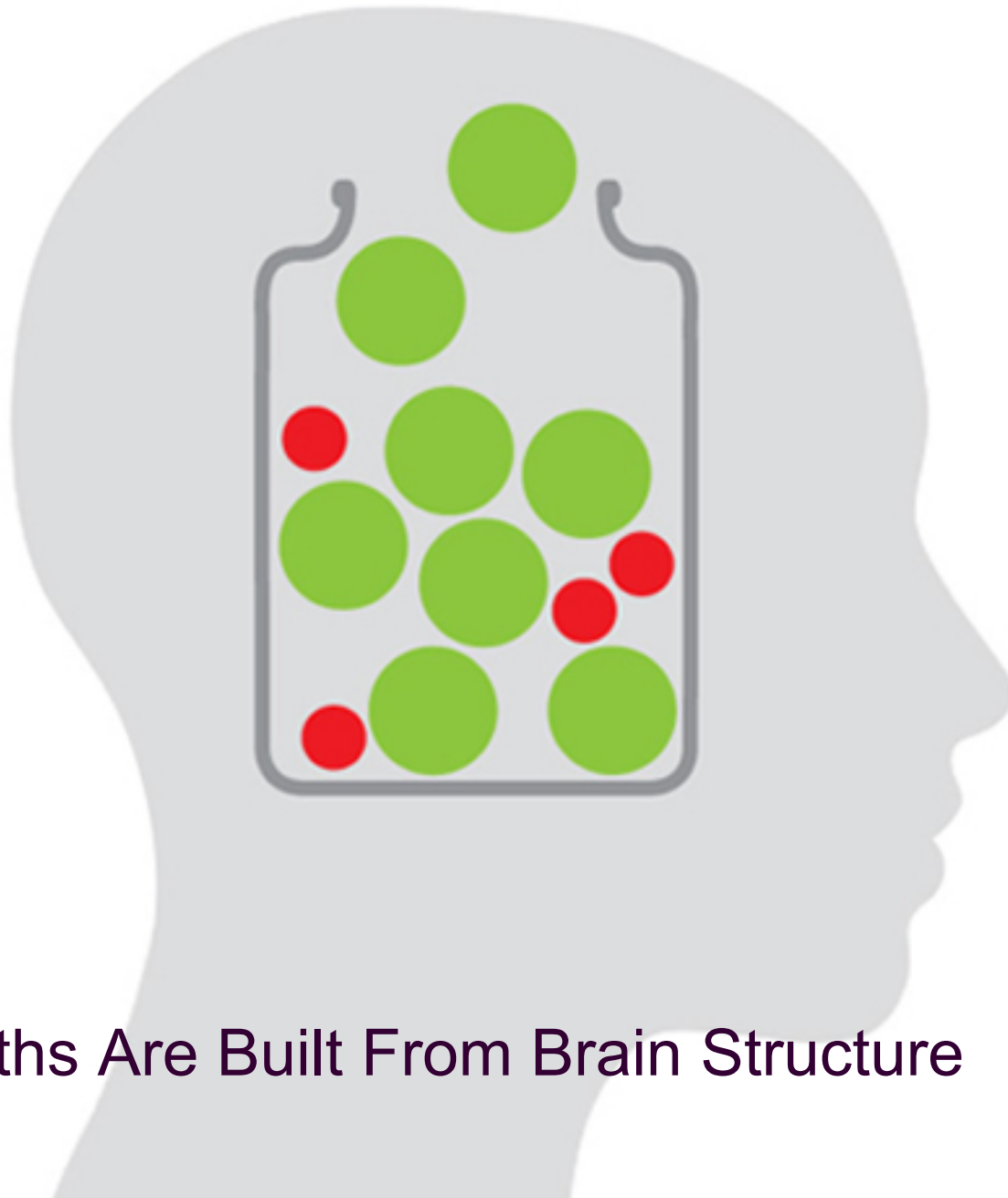
The Neuropsychology of Learning

Learning – changing neural structure and function – proceeds in two stages:

From state to trait

From activation to installation

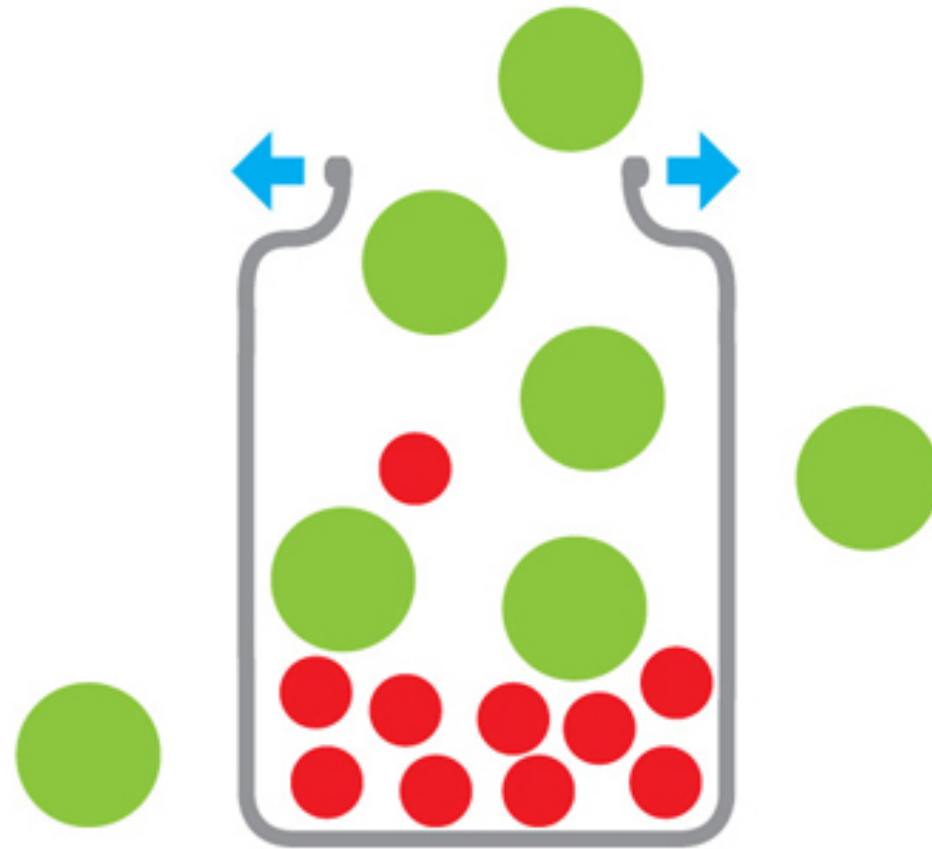
**From short-term memory buffers
to long-term storage**



Inner Strengths Are Built From Brain Structure

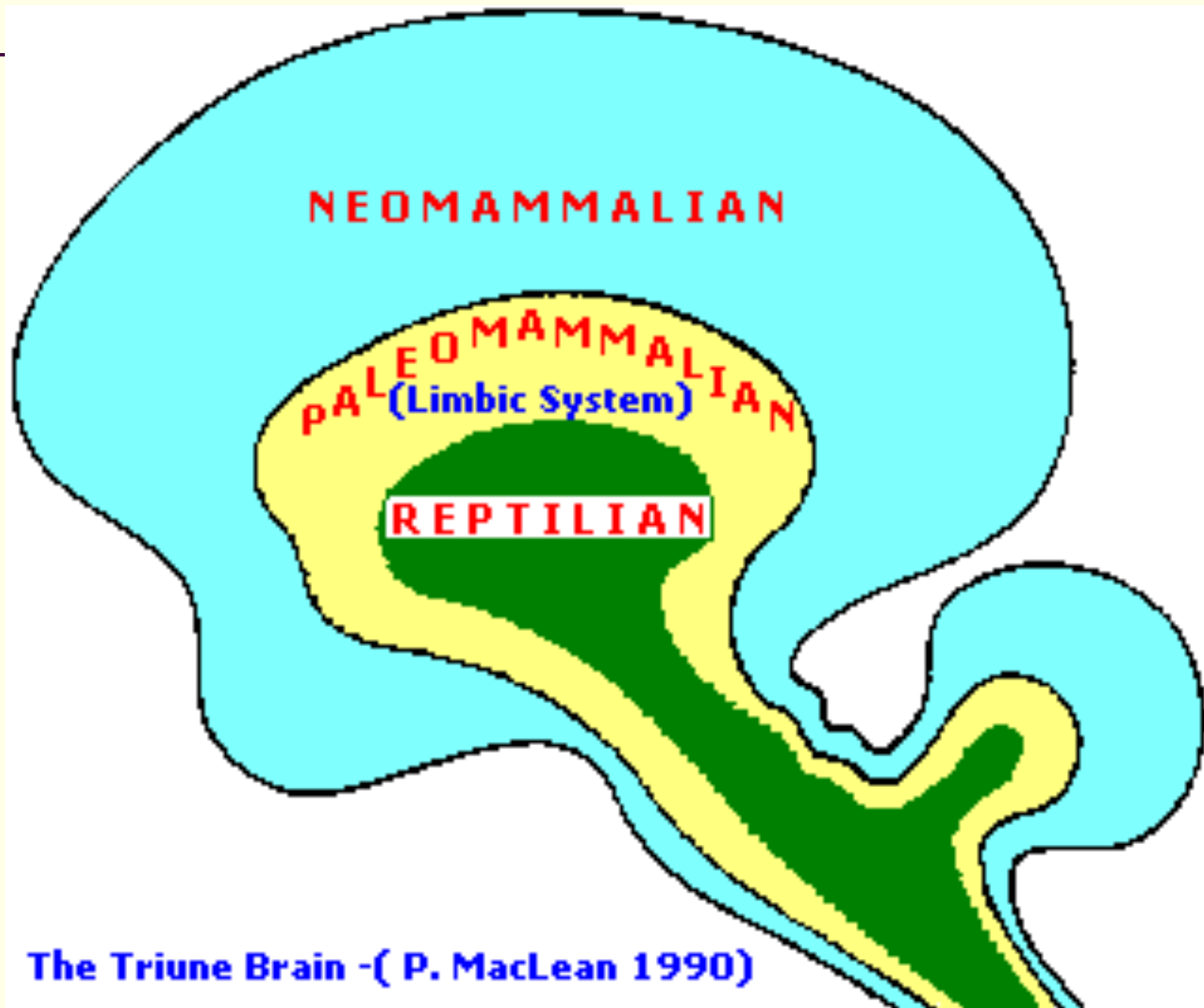
A decorative vertical bar in a muted olive green color runs along the left edge of the slide. A thin, dark purple horizontal line spans the width of the slide, positioned approximately one-third of the way down from the top. On the right side of this line, there is a small rectangular block composed of two stacked horizontal bars: the top bar is dark purple and the bottom bar is a light gray.

Gratitude



Learning to Take in the Good

Evolutionary History



The Triune Brain -(P. MacLean 1990)

Our Three Fundamental Needs

Safety

Satisfaction

Connection

Needs Met by Three Systems

Safety – Avoiding harms

Satisfaction – Approaching rewards

Connection – Attaching to others

Pet the Lizard




Feed the Mouse



Hug the Monkey





Peace

Contentment

Love

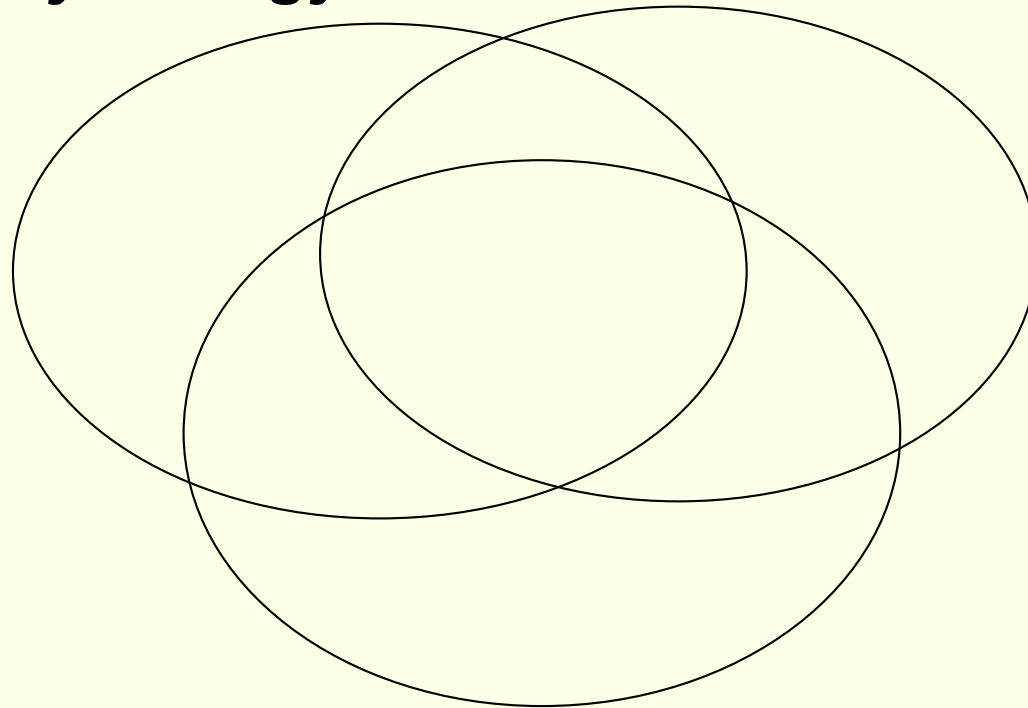


Self-Directed Neuroplasticity

Common - and Fertile - Ground

Psychology

Neurology




Contemplative Practice

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.



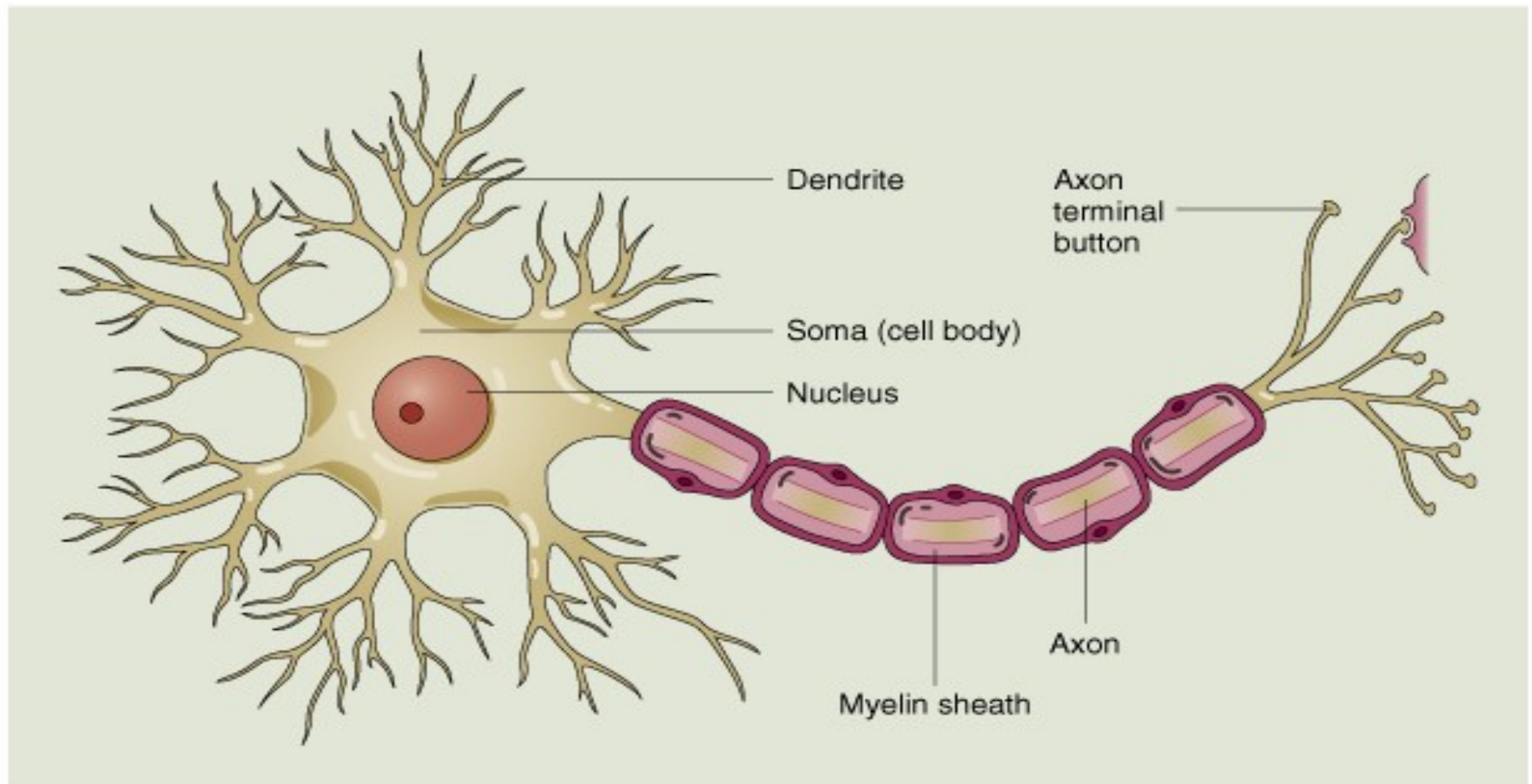
We ask, “What is a thought?”

We don’t know,


yet we are thinking continually.

Venerable Tenzin Palmo

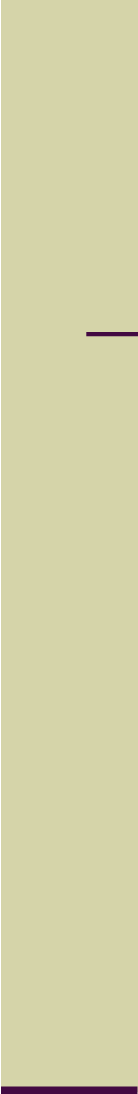
A Neuron

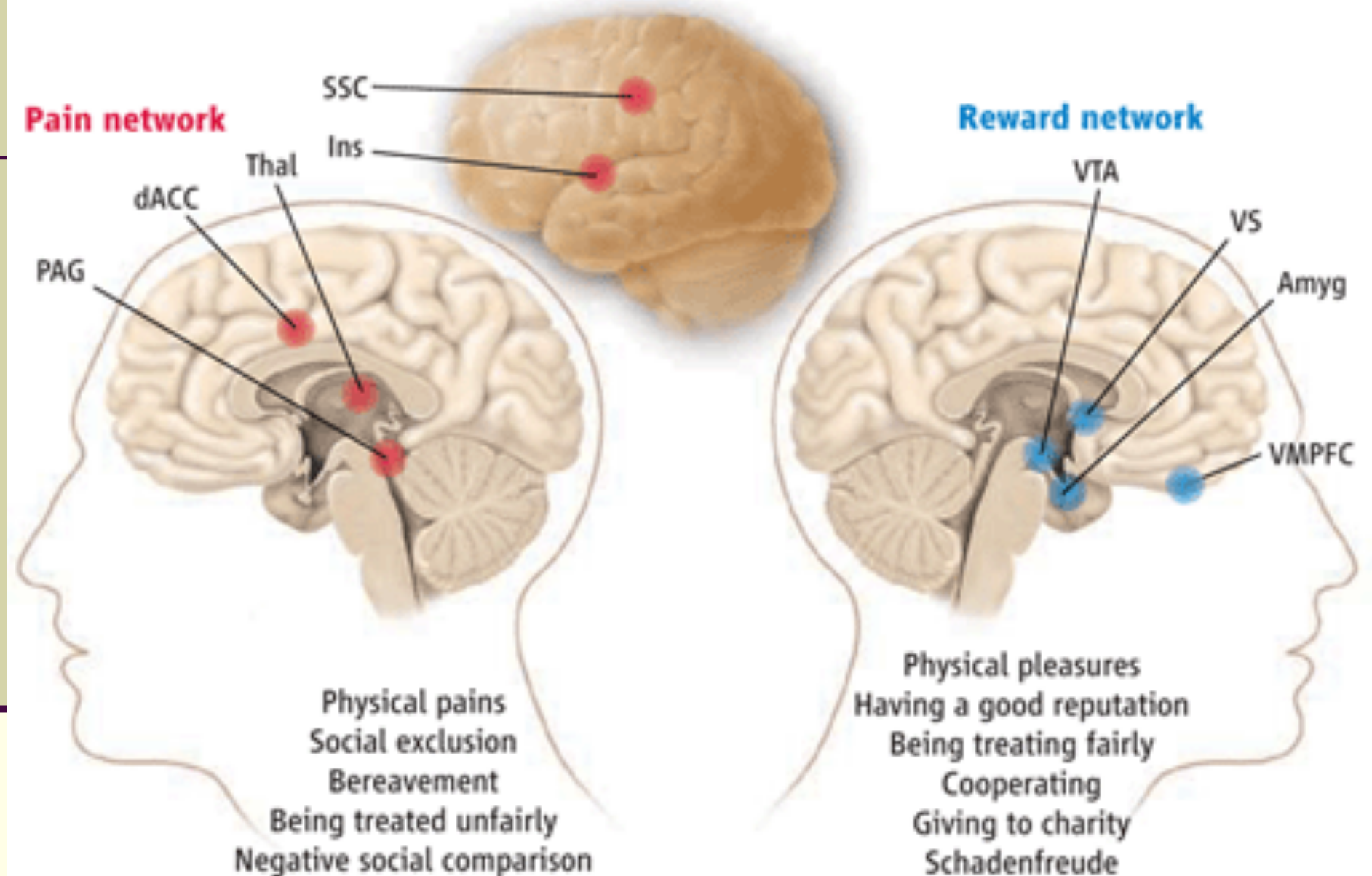


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**Mental activity entails
underlying neural activity.**

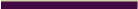




Pain network: Dorsal anterior cingulate cortex (dACC), insula (Ins), somatosensory cortex (SSC), thalamus (Thal), and periaqueductal gray (PAG). Reward network: Ventral tegmental area (VTA), ventral striatum (VS), ventromedial prefrontal cortex (VMPFC), and amygdala (Amyg). K. Sutliff, in Lieberman & Eisenberger, 2009, *Science*, 323:890-891 27



**Repeated mental activity entails
repeated neural activity.**



**Repeated neural activity
builds neural structure.**

The background of the slide is a complex network of glowing yellow neurons. A single neuron in the center is highlighted with a bright green nucleus. The text is overlaid on this image.

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.

Honoring Experience

Your experience *matters*.

**Both for how it feels in the moment
and for the lasting residues it leaves behind,
woven into the fabric of your brain and being.**



Self-Compassion

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

*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



Resource Yourself

What Shapes Your Course in Life?

Challenges

Vulnerabilities

Resources

What Can You Usually Affect the Most?

Resources

Where Are Resources Located?

The World

The Body

The Mind

What Can You Usually Affect the Most?

The Mind

Pick a partner and choose an A and a B (A's go first). Then you'll take turns, with one partner mainly speaking while the other person listens, exploring two questions:

What are some of the resources – inner strengths – inside your own mind?

What are some of the inner strengths that you'd like to develop?

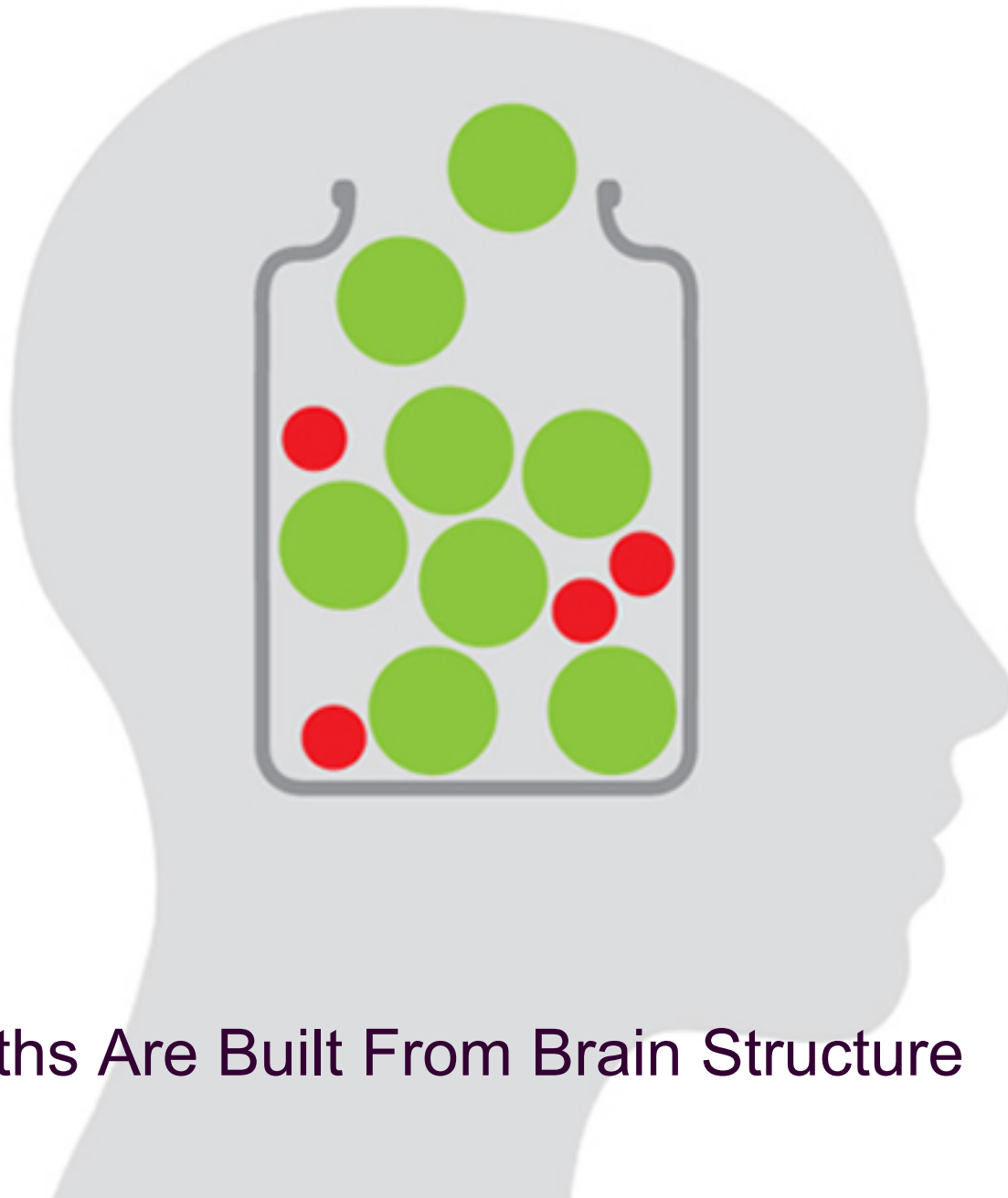


How to Grow Inner Strengths

Two wolves in the heart

Inner Strengths Include

- **Capabilities** (e.g., mindfulness, insight, emotional intelligence, resilience, executive functions, impulse control)
- **Positive emotions** (e.g., gratitude, self-worth, love, self-compassion, secure attachment, gladness, awe, serenity)
- **Attitudes** (e.g., openness, determination, optimism, confidence, approach orientation, tolerance, self-respect)
- **Somatic inclinations** (e.g., vitality, relaxation, grit, helpfulness)
- **Virtues** (e.g., wisdom, patience, energy, generosity, restraint)



Inner Strengths Are Built From Brain Structure



Feeling alright right now




Be mindful of the difference between:

An idea and an experience

Noticing an experience and creating one

Having an experience and internalizing it



**Why are we emphasizing internalization
through enriching and absorbing?**

The Neuropsychology of Learning

Learning – changing neural structure and function – proceeds in two stages:


From state to trait

From activation to installation

**From short-term memory buffers
to long-term storage**

Growing Inner Strengths


Inner strengths are grown from experiences of them or related factors - activated states - that are installed as traits.




**You become more compassionate
by repeatedly installing experiences of compassion.**

**You become more grateful
by repeatedly installing experiences of gratitude.**


**You become more mindful
by repeatedly installing experiences of mindfulness.**



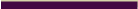
**Most experiences of inner strengths –
resilience, kindness, insight,
mindfulness, self-worth, love, etc. –
are enjoyable.**




**Without this installation,
there is no learning,
no change in the brain.**



**We're good at activation
but bad at installation.**



**This is the fundamental weakness in
most patient education, human resources
training, psychotherapy, coaching,
and mindfulness training.**



*The same research that proves therapy works
shows no improvement in outcomes
over the last 30 or so years.*

Scott Miller



Installation



Installation


Installation



Installation

Installation

Installation



*To see what is in front of one's nose
takes a constant struggle.*

George Orwell

Feeling Safer

- Tuning into bodily signals that you're OK
- Recognizing protections
- Feeling unthreatened
- Releasing needless guarding, vigilance, tension, anxiety



The Negativity Bias

Unpleasant Experiences In Context

- Life contains unavoidable unpleasant experiences. Resisting them just adds to the stress, upset, etc.
- Some inner strengths come only from unpleasant experiences, e.g., knowing you'll do the hard thing.
- But unpleasant experiences have inherent costs, in their discomfort and stress.
- Many inner strengths could have been developed without the costs of unpleasant experiences.
- Most unpleasant experiences are pain with no gain.

The Brain's Negativity Bias

- As our ancestors evolved, avoiding “sticks” was more important for survival than getting “carrots.”
- Negative stimuli:
 - More attention and processing
 - Greater motivational focus: loss aversion
- Preferential encoding in implicit memory:
 - We learn faster from pain than pleasure.
 - Negative interactions: more impactful than positive
 - Easy to create learned helplessness, hard to undo
 - Rapid sensitization to negative through cortisol

Vicious Cycles in the Brain

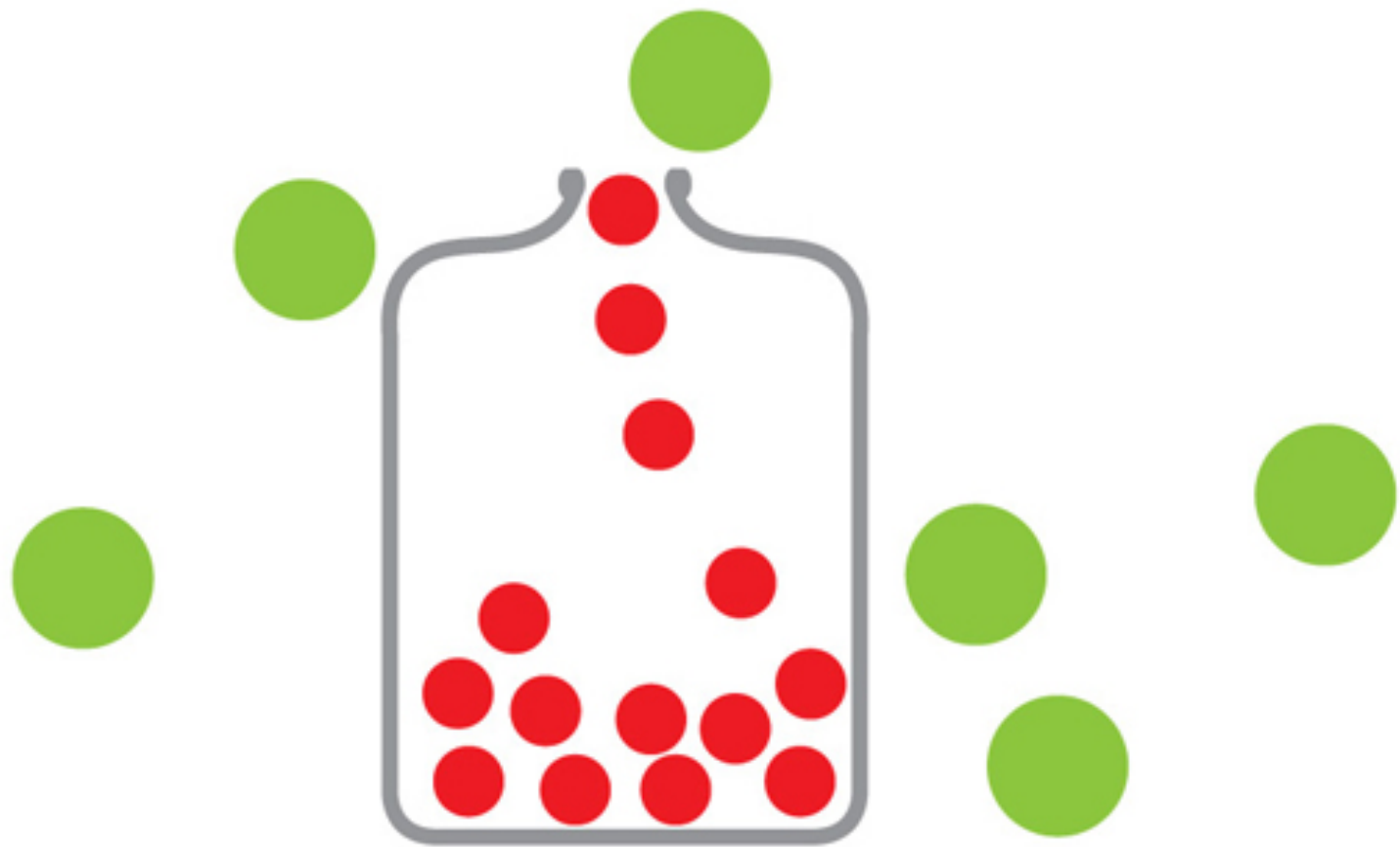
- Amygdala initiates stress response (“alarm bell”)
- Hippocampus:
 - Forms and retrieves contextual memories
 - Inhibits the amygdala
 - Inhibits cortisol production
- Cortisol:
 - Stimulates and sensitizes the amygdala
 - Inhibits and can shrink the hippocampus
- Consequently, chronic negative experiences:
 - 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

Velcro for Bad, Teflon for Good

The negativity bias

bad experiences


good experiences



The Negativity Bias

A composite image showing three Stone Age people in a modern city park. In the foreground, a man with long dark hair and a beard, wearing a loincloth, is crouching in a grassy field. Behind him, two other people are visible: one sitting and another standing. The background features a dense line of green trees and a tall, multi-story apartment building with many windows. The text "Stone age brains in the 21st century" is overlaid in white serif font on a dark green horizontal band across the middle of the image.

Stone age brains in the 21st century



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



Steadying the Mind

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
- Gently settling into peaceful well-being

7 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
- **Panoramic view** - lateral networks
- **Absorbing the benefits** - positive implicit memories



Cultivation

Cultivation in Context

- Three ways to engage the mind:
 - Be with it. Decrease negative. Increase positive.
 - The garden: Observe. Pull weeds. Plant flowers.
 - 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 mindfulness-based practices.
- Skillful means for decreasing the negative and increasing the positive have developed over 2500 years. Why not use them?



SPIRIT ROCK MEDITATION CENTER



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 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.




Know the mind.

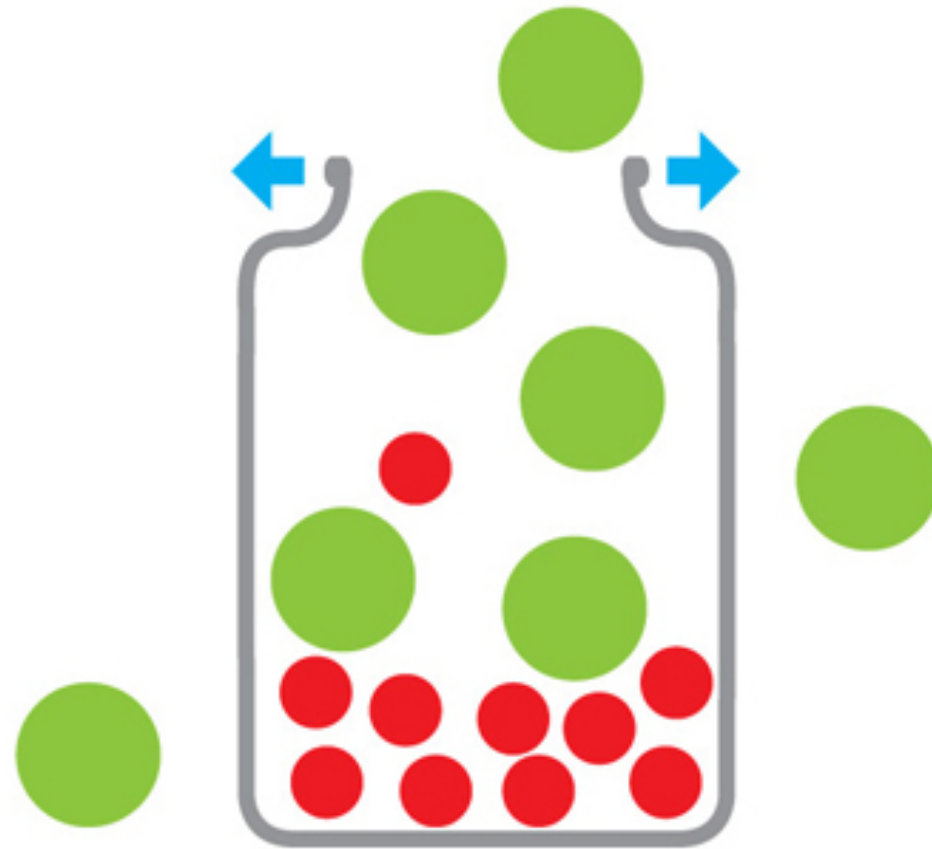
Shape the mind.

Free the mind.

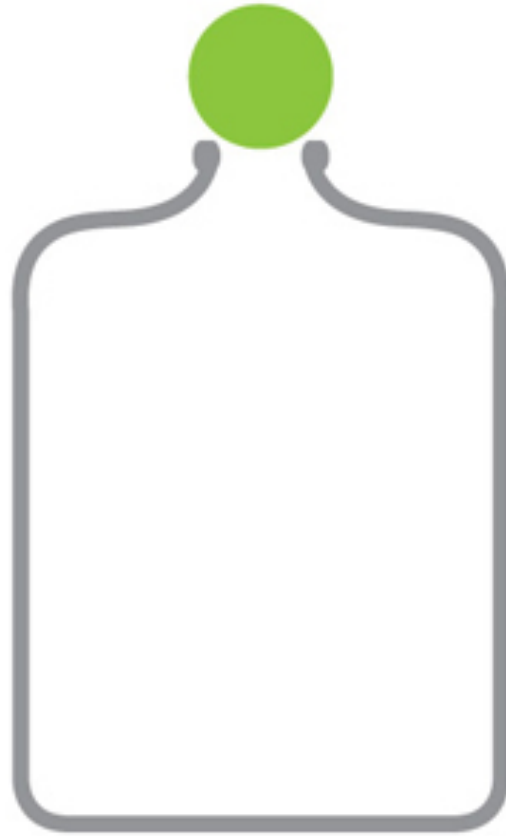




Positive Neuroplasticity: Taking in the Good



Learning to Take in the Good



Have a Good Experience

The Two Ways To Have a Beneficial Experience

Notice one you are already having.

- In the foreground of awareness
- In the background

Create one.

Aspects of Experience

- **Thoughts** – verbal and nonverbal
- **Perceptions** - sensations; relaxation; vitality
- **Emotions** - both feelings and mood
- **Desires** – values; aspirations; passions; wants
- **Behaviors** - repertoire; inclinations
- **Awareness** – wakefulness; “field” of experiences

How to Create A Beneficial Experience

Look for good facts in:

- 1. Immediate situation**
- 2. Current or recent events**
- 3. Stable conditions**
- 4. Your character**
- 5. The past**
- 6. The future**
- 7. Bad situations**
- 8. The lives of others**
- 9. Your imagination**
- 10. Care about others**
- 11. Directly evoke a beneficial experience**
- 12. Produce good facts**
- 13. Share about good facts with others**

Turning a Good Fact Into a Good Experience

- Bring awareness to your body.
- Soften and open yourself.
- Be a little active in your mind, recognizing aspects of the good fact that naturally elicit an experience.
- Imagine how another person might naturally feel in response to the good fact.
- Have kindness for yourself, encouraging yourself to have a beneficial experience.

Reflections So Far

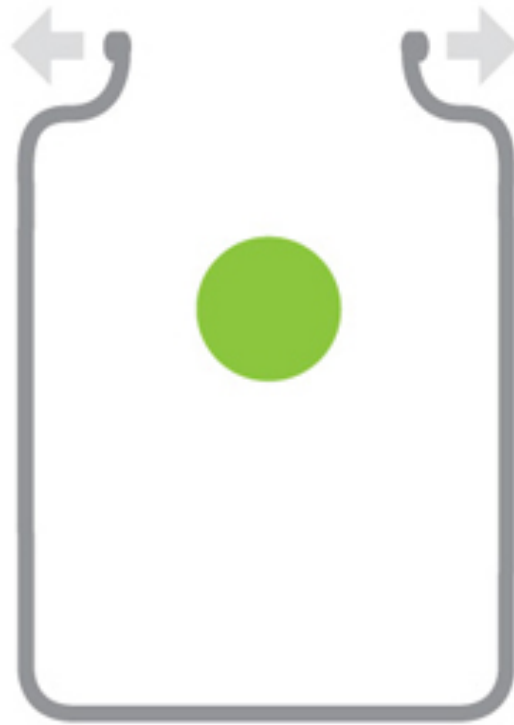
Noticing and creating an experience are different.

There are lots of ways to create experiences.

Beneficial experiences are usually based on facts.

Recognizing good facts does not deny bad ones.

Good facts about yourself are facts like any other.



Enrich It

How to Enrich an Experience

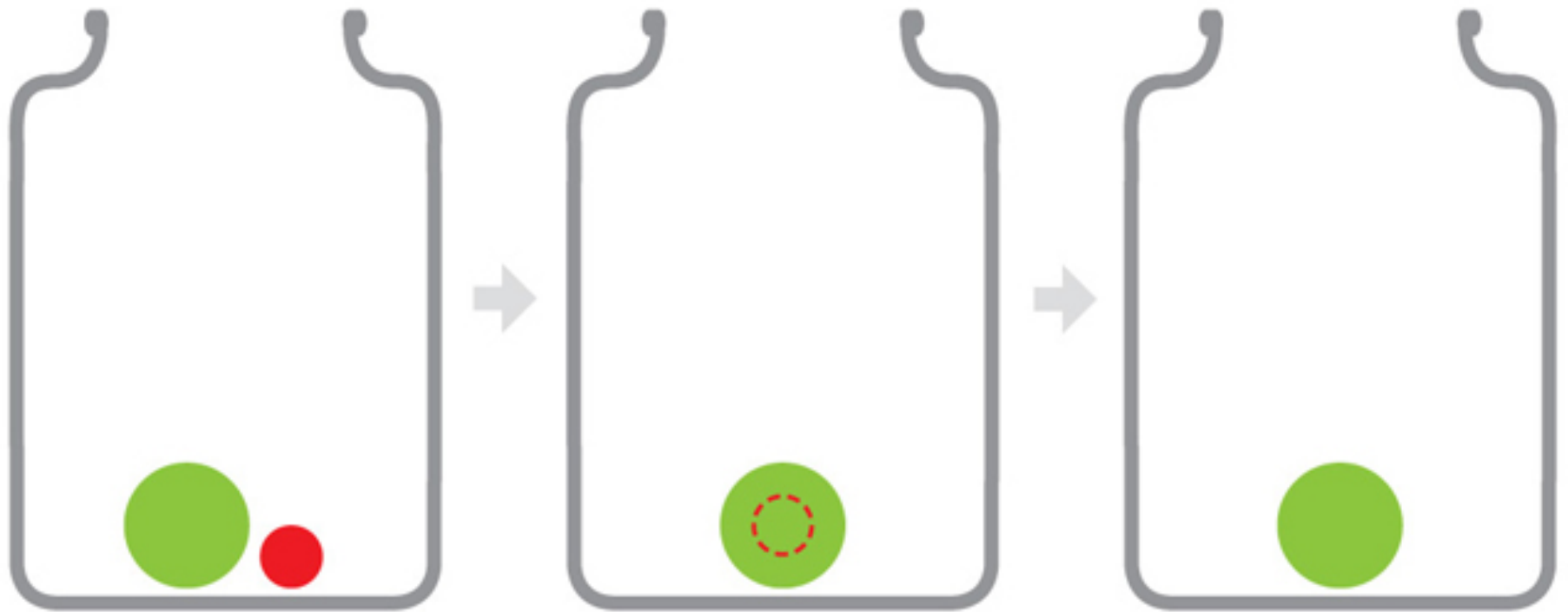
- **Duration** – 5+ seconds; protecting it; keeping it going
- **Intensity** – opening to it in the mind; helping it get big
- **Multimodality** – engaging multiple aspects of experience, especially perception and emotion
- **Novelty** – seeing what is fresh; “don’t know mind”
- **Salience** – seeing why this is personally relevant



Absorb It

How to Absorb an Experience

- Enriching makes the experience more powerful.
Absorbing makes memory systems more receptive by priming and sensitizing them.
- Intend and sense the experience is sinking into you.
 - Imagery – Water into a sponge; golden dust sifting down; a jewel into the treasure chest of the heart
 - Sensation – Warm soothing balm
- Giving over to the experience; letting it change you
- Letting go of resisting, grasping, clinging: “craving”



Link Positive and Negative Material

HEAL by Taking in the Good


1. Have a positive experience. Notice it 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. [optional]



Have It, Enjoy It

It's Good to Take in the Good

- Development of specific inner strengths
 - General - resilience, positive mood, feeling loved
 - Key resources – For challenges, deficits, wounds
- Implicit benefits:
 - Shows that there is still good in the world
 - Being active rather than passive
 - Treating yourself kindly, like you matter
 - Rights an unfair imbalance, given the negativity bias
 - Training of attention and executive functions
- Sensitizes brain to positive: like Velcro for good



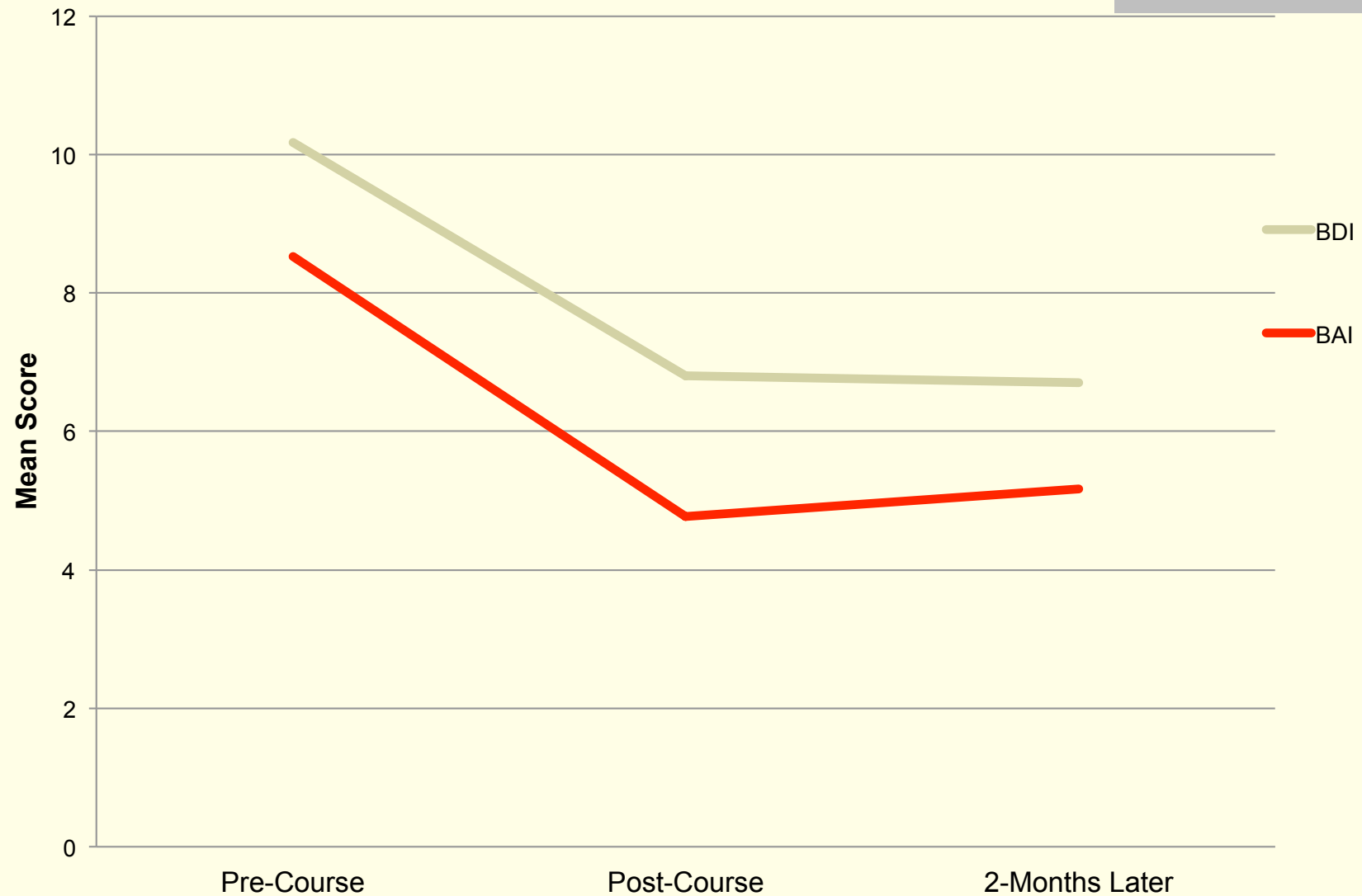
*Keep a green bough in your heart,
and a singing bird will come.*


Lao Tsu

Study on the HEAL Process

- With collaborators from the University of California, a 2013 study on the HEAL course, using a randomized waitlist control group design (46 subjects).
- Course participants, compared to the control group, reported more Contentment, Self-Esteem, Satisfaction with Life, Savoring, and Gratitude.
- After the course and at two month follow-up, pooled participants also reported more Love, Compassion, Self-Compassion, Mindfulness, Self-Control, Positive Rumination, Joy, Amusement, Awe, and Happiness, and less Anxiety and Depression.

Combined Sample: Depression (BDI) & Anxiety (BAI)





Feeling strong



Getting Good at Taking in the Good

Occasions for Taking in the Good

- Explicit training in positive neuroplasticity
- Natural rhythms in the day (e.g., start of class, after a lesson or recess, end of day)
- When working with an individual child
- When dealing with classroom issues

Resources for Taking in the Good

- Intention; willing to feel good
- Identified target experience
- Openness to the experience; embodiment
- Mindfulness of the steps of TG to sustain them
- Working through blocks

Obstructions to Taking in the Good

- General:
 - Distractibility
 - Blocks to self-awareness in general

- Specific:
 - Fears of lowering one's guard
 - Sense of disloyalty to others (e.g., survivor guilt)
 - Culture (e.g., selfish, vain, sinful)
 - Gender style
 - Associations to painful states
 - Secondary gains in feeling bad
 - Not wanting to let someone off the hook

The Four Ways to Offer a Method

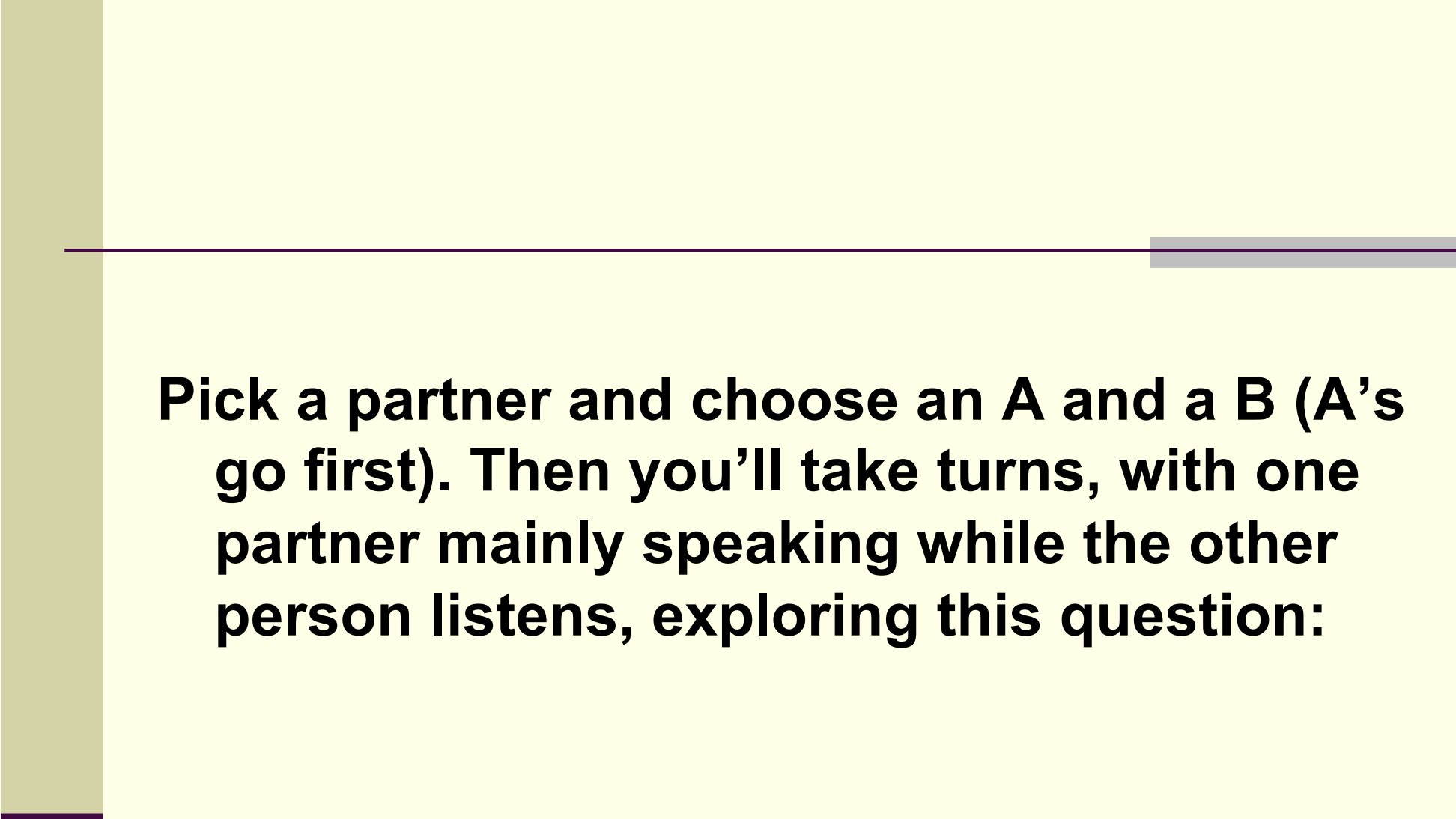
- Doing it implicitly
- Teaching it and then leaving it up to the person
- Doing it explicitly with the person
- Asking the person to do it on his or her own

Adaptations for Children

- All kids benefit from TG. Particular benefits for mistreated, anxious, spirited/ ADHD, or LD children.
- Style:
 - Be matter of fact: this is mental/neural literacy.
 - A little brain talk goes a long way.
 - Be motivating: benefits, “be the boss of your own mind.”
 - Down to earth, naturalistic
 - Scaffold based on executive functions, motivation, and need for autonomy.
 - Brief, concrete

Uses for Children

- Registering curricular skills and other resources
- Motivation for learning; associating rewards
- Seeing the good in the world, others, and oneself – and in the past, present, and future
- Seeing life as opportunity
- Strengthening the sense of being an active learner
- Developing child-specific resources

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Pick a partner and choose an A and a B (A's go first). Then you'll take turns, with one partner mainly speaking while the other person listens, exploring this question:

What are some of the ways you could use positive neuroplasticity with others?

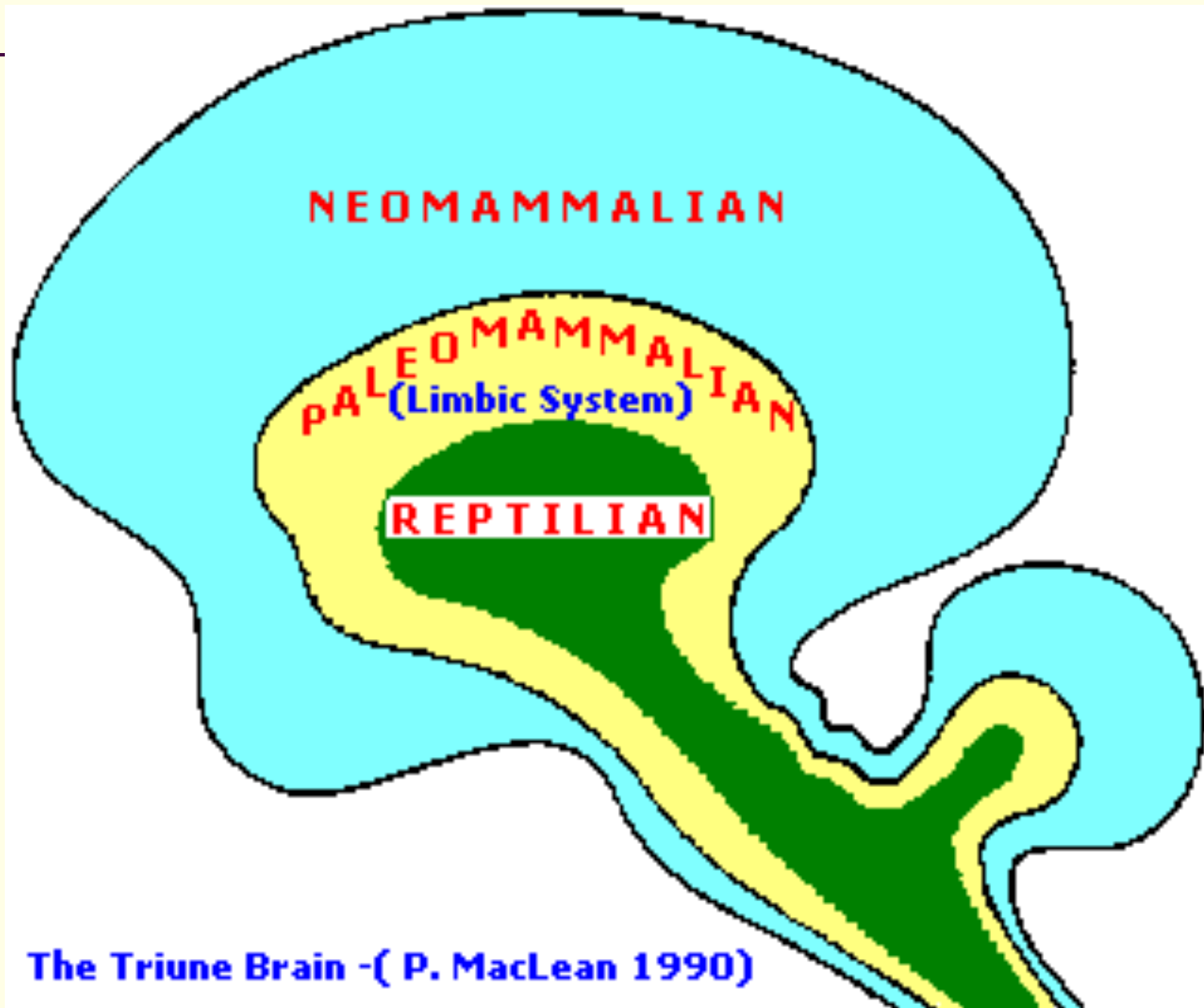


The Evolving Brain

Biological Evolution

- 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: ancestor with chimpanzees
- 2.5 million years of tool-making
- 150,000 years of *homo sapiens*

Evolutionary History



The Triune Brain -(P. MacLean 1990)

Three Stages of Brain Evolution

■ 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”

Our Three Fundamental Needs

Safety

Satisfaction

Connection

Three Fundamental Motivational and Self-Regulatory Systems

■ Avoid Harms:

- Primary need, tends to trump all others
- Functional in first animals, in brainstem

■ Approach Rewards:

- Functional in first animals, in brainstem
- Elaborated via sub-cortex in mammals for emotional valence, sustained pursuit, etc.

■ Attach to Others:

- Functional in mammals and birds, in sub-cortex
- Very elaborated via cortex in humans for pair bonding, language, empathy, cooperative planning, compassion, altruism, etc.



© 2011 Victor Yalom/Psychotherapy.net

"With all due respects, I find your disparaging remarks about the 'reptilian brain' unnecessary"

Reverse Engineering the Brain

What's the state of the brain when a person is:

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

The Homeostatic Home Base

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

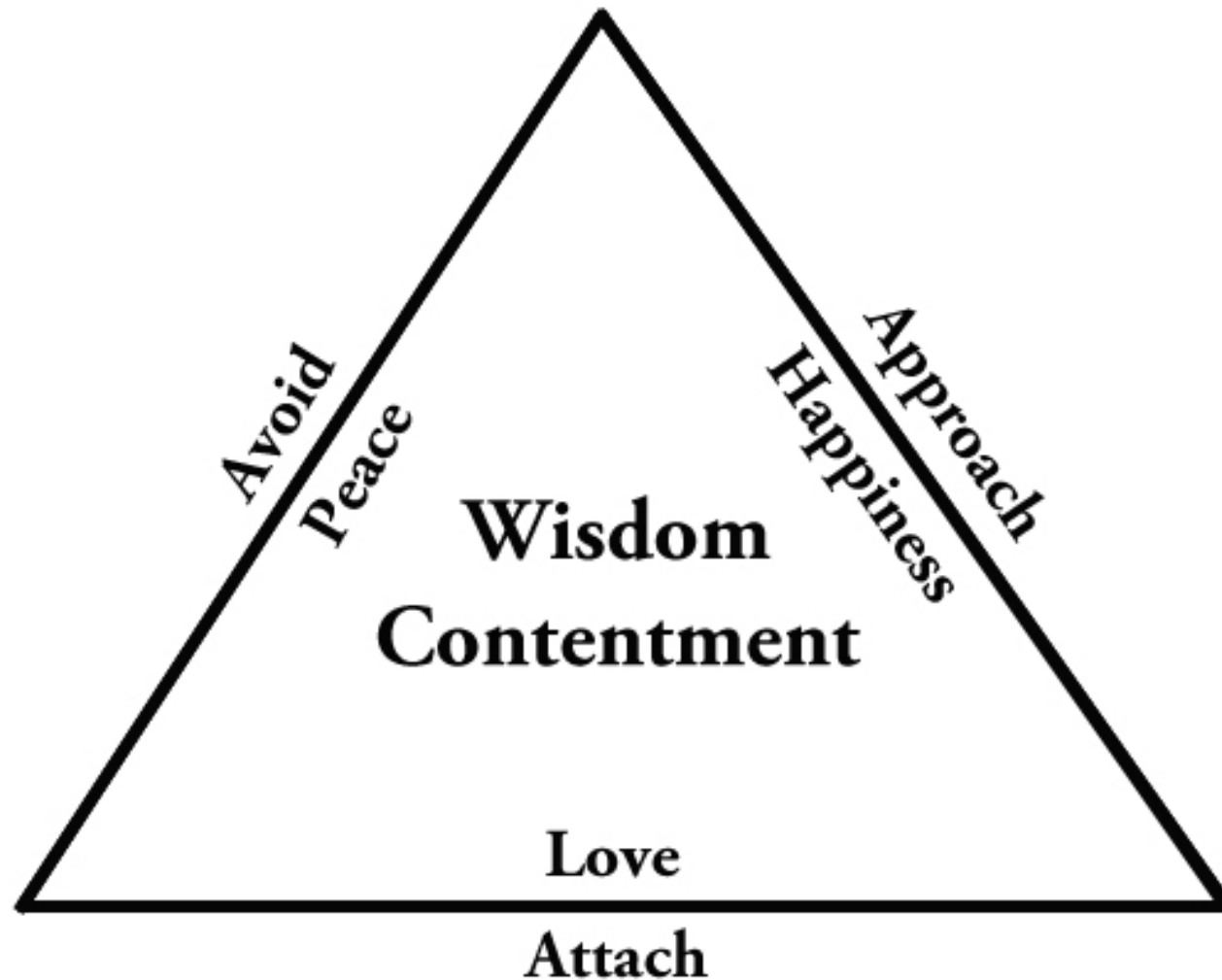
The body defaults to a sustainable equilibrium of refueling, repairing, and pleasant abiding.

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



Behind the Obscurations

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*

But to Cope with Urgent Needs, We Leave Home . . .

When invaded by threat, loss, or rejection [felt deficit or disturbance 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:

- **Fear** (the Avoiding system)
- **Frustration** (the Approaching system)
- **Heartache** (the Attaching system)

This is the brain in allostatic, **Reactive**, *craving* mode.¹¹⁶

Neurobiological Basis of Craving

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

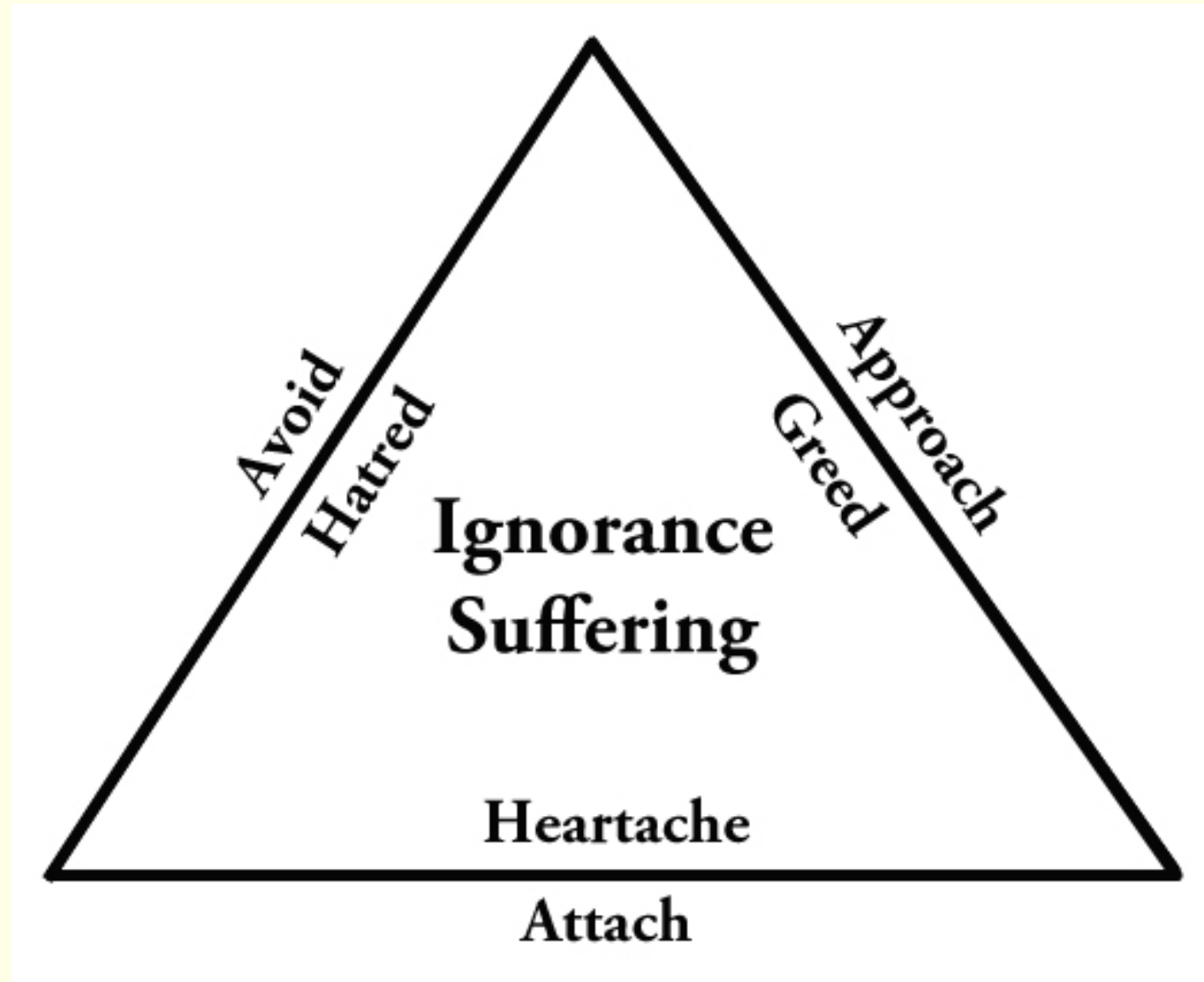
The body fires up into the stress response; outputs exceed inputs; long-term building is deferred.

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

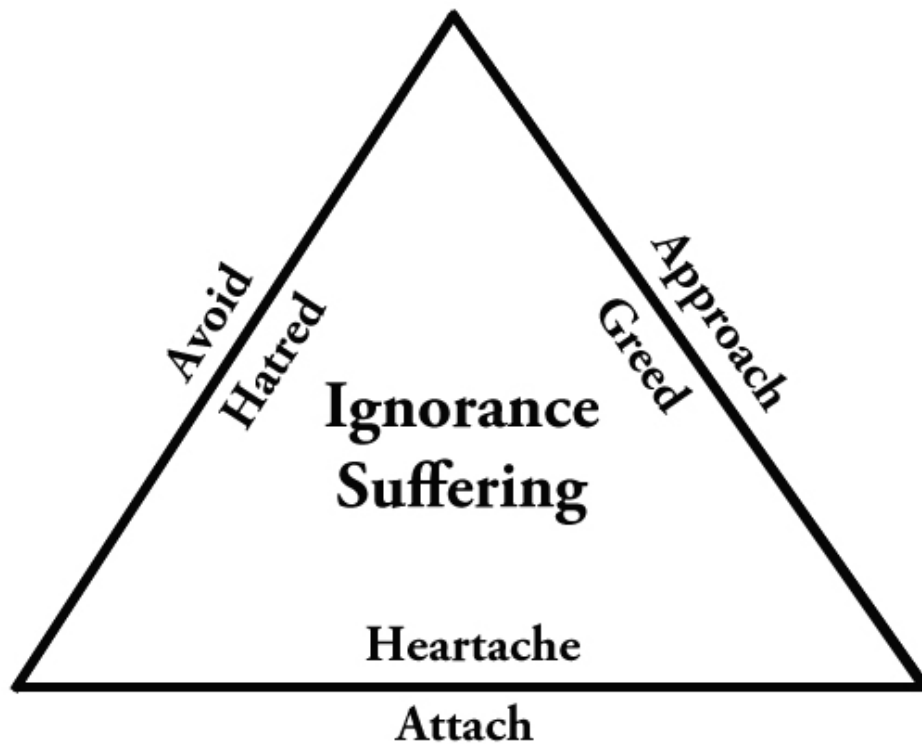


Reactive Dysfunctions in Each System

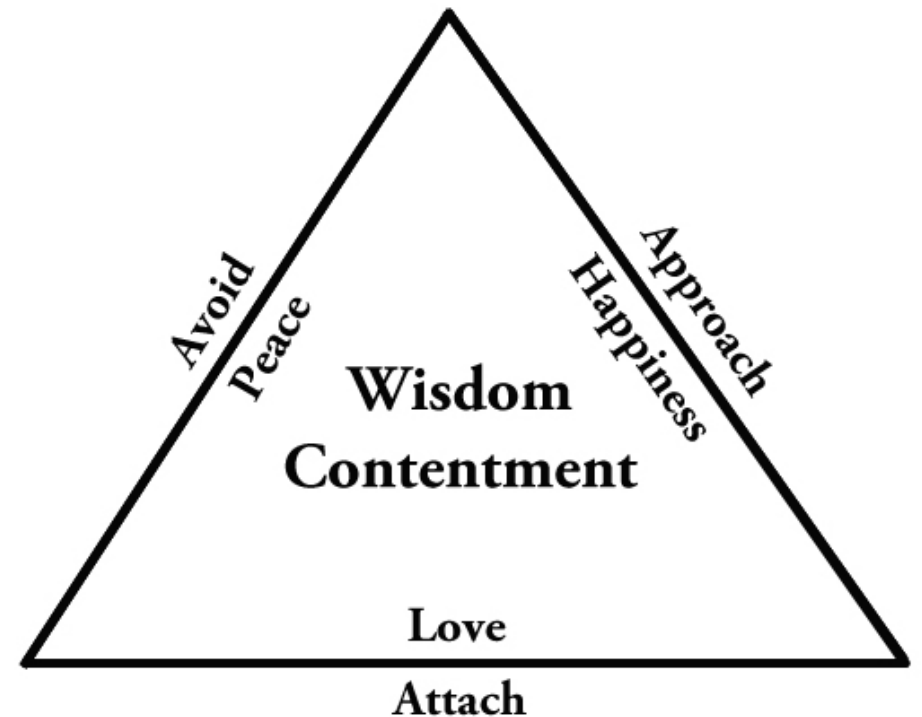
- **Avoid** - Anxiety disorders; PTSD; panic, terror; rage; violence
- **Approach** - Addiction; over-drinking, -eating, -gambling; compulsion; hoarding; driving for goals at great cost; spiritual materialism
- **Attach** - Borderline, narcissistic, antisocial PD; symbiosis; *folie a deux*; “looking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

Choices . . .

Or?



Reactive Mode



Responsive Mode

Coming Home, Staying Home

Positive experiences of core needs met - the felt sense of safety, satisfaction, and connection - activate Responsive mode.

Activated Responsive states can become installed Responsive traits. Responsive traits foster Responsive states.

Responsive states and traits enable us to stay Responsive with challenges.

Coming Home . . .

Peace

Happiness

Love



Key Resource Experiences

Some Types of Resource Experiences

Avoiding Harms

- Feeling basically alright right now
- Feeling protected, strong, safe, at peace
- The sense that awareness itself is untroubled

Approaching Rewards

- Feeling basically full, the enoughness in this moment as it is
- Feeling pleased, glad, grateful, satisfied
- Therapeutic, spiritual, or existential realizations

Attaching to Others

- Feeling basically connected
- Feeling included, seen, liked, appreciated, loved
- Feeling compassionate, kind, generous, loving

Pet the Lizard



Feed the Mouse



Hug the Monkey





Flowers Pulling Weeds

Using Memory Mechanisms to Help Heal Painful Experiences

- The machinery of memory:
 - When explicit or implicit memory is reactivated, it is rebuilt from schematic elements, not retrieved *in toto*.
 - When attention moves on, the memory gets reconsolidated.
- The open processes of memory reactivation and reconsolidation create a window of opportunity for shaping your internal world.
- Reactivated material associates with other things in awareness, especially if they are prominent and lasting.
- When memory returns to storage, it takes associations with it.
- You can imbue memory with positive associations.

The Fourth Step of TIG

- 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 positive resources in your mind.

The Tip of the Root

- 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

Psychological Antidotes

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 Others

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



Being and Doing

Dual Modes

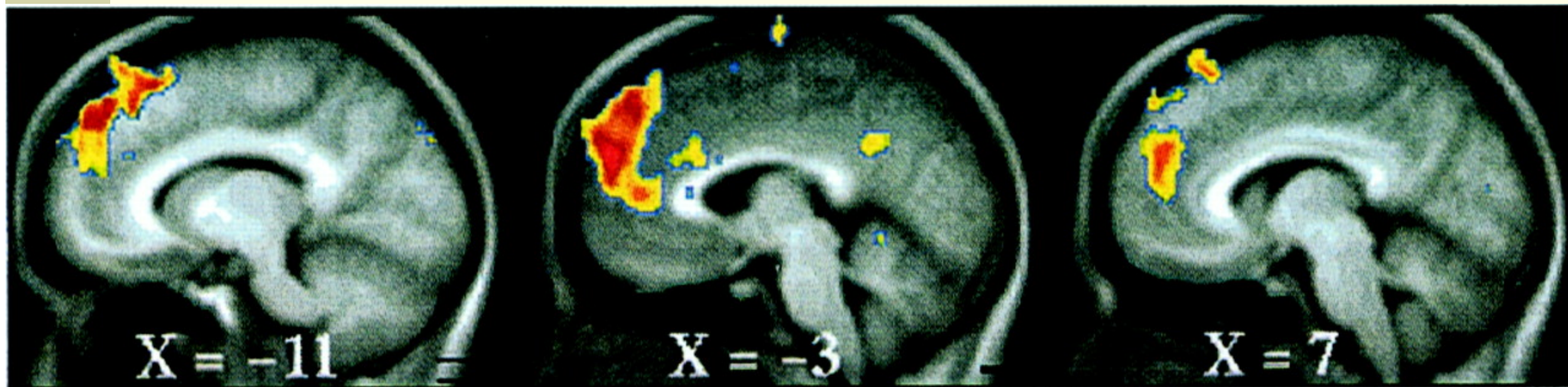
“Doing”

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”

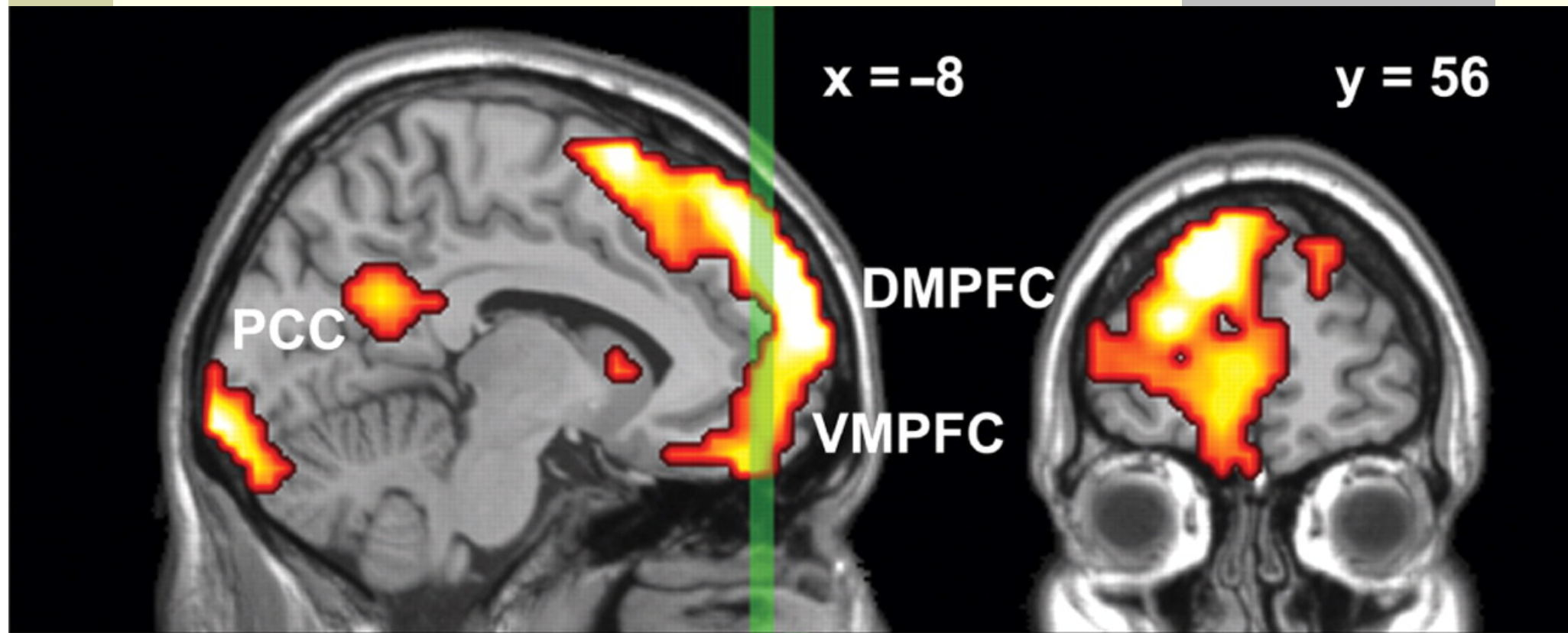
Mainly sensory
Little verbal activity
Concrete
Now-focused
Nothing to do, nowhere to go
Sense of peace
Impersonal, 3rd person perspective
Panoramic view
Uncertainty, not-knowing
Nonjudgmental
Mindful presence
Immediate and transient
Loosely connected experiences
Minimal or no self-as-object
Minimal or no self-as-subject

Increased Medial PFC Activation Related to Self-Referencing Thought



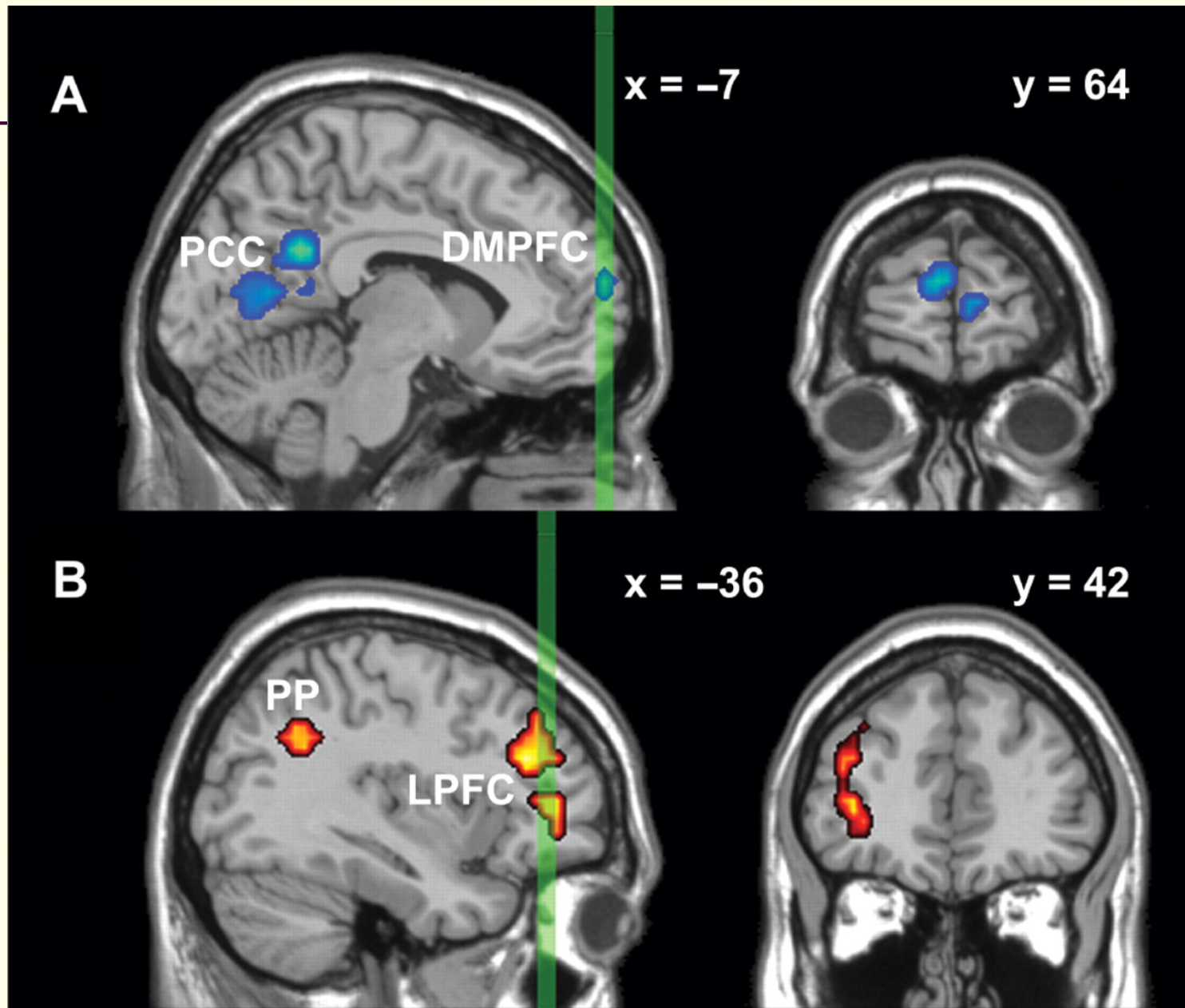
Gusnard D. A., et.al. 2001. *PNAS*, 98:4259-4264

Cortical Midline Areas for Self-Referencing Thought

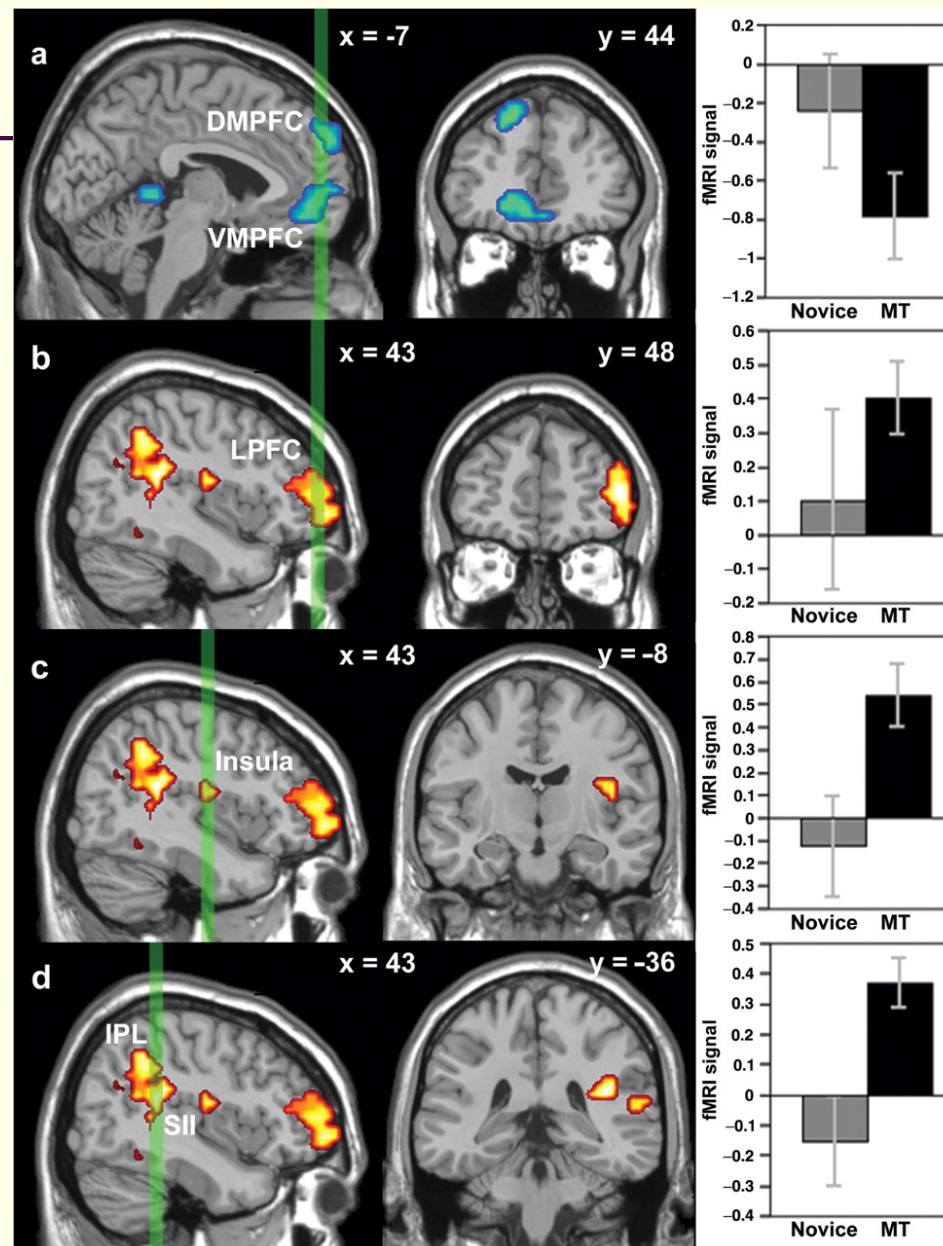


Farb, et al. 2007. *Social Cognitive Affective Neuroscience*, 2:313-322

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



Self-Focused (blue) vs Open Awareness (red) Conditions (following 8 weeks of MT)



Dual Modes

“Doing”

Mainly representational
Much verbal activity
Abstract
Future- or past-focused
Goal-directed
Sense of craving
Personal, self-oriented perspective
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Minimal or no self-as-object
Minimal or no self-as-subject

“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.

Ways to Activate “Being” Mode

- 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.

A decorative vertical bar in a light olive green color runs along the left edge of the slide. A thin, dark purple horizontal line spans across the upper portion of the slide, starting from the vertical bar and ending at a small grey rectangular block on the right.

Your Loving Nature

The Social Brain

- Social capabilities have driven recent brain evolution.
- Mammals and birds: bigger brains than reptiles and fish.
- More social primate species have larger cortex.
- Much of the brain's tripling in size is for social functions (e.g., cooperative planning, empathy, language). The growing brain needed a longer childhood, which required greater pair bonding and band cohesion.

















































A Kind Heart

Us and Them


- Core evolutionary strategy: within-group cooperation, and between-group aggression.
- Both capacities and tendencies are hard-wired into our brains, ready for activation. And there is individual variation.
- Our biological nature is much more inclined toward cooperative sociability than toward aggression and indifference or cruelty. We are just very reactive to social distinctions and threats.
- That reactivity is intensified and often exploited by economic, cultural, and religious factors.
- Two wolves in your heart:
 - Love sees a vast circle in which all beings are “us.”
 - Hate sees a small circle of “us,” even only the self.

Which one will you feed?

*In between-family fights, the baboon's 'I'
expands to include all of her close kin;
in within-family fights,
it contracts to include only herself.*

*This explanation serves for baboons
as much as for the Montagues and Capulets.*

Dorothy Cheney and Robert Seyfarth



*If we could read the secret history
of our enemies,
we should find in each [person's] life
sorrow and suffering enough
to disarm any hostility.*

Henry Wadsworth Longfellow



The Wisdom of Connection

A human being is a part of a whole, called by us “universe,” a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest... a kind of optical delusion of his consciousness.

This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us.

Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

Albert Einstein

The Buddha's Words on Lovingkindness

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.

Lovingkindness Practice


- Types of wishes

- Safety
- Health
- Happiness
- Ease

- Types of beings

- Self
- Benefactor
- Friend
- Neutral
- Difficult

- Continually “omitting none” in all directions



Feeding the Hungry Heart

Healthy “Narcissistic Supplies”

- Healthy development requires caregivers to give a child extensive mirroring, attunement, and prizing; healthy adult relationships require much the same.
- These are normal “narcissistic supplies.” Deficits lead to:
 - Feelings of inadequacy, worthlessness, and shame
 - Tendencies toward extremes of clinging or distance
- As an adult, you can take in narcissistic supplies, gradually weaving them into your brain and your being.
- This is not clinging to praise, etc. It is filling the hole in your heart so your happiness is increasingly unconditional - not dependent on external events.

Feeling Prized

- It is natural and important to feel that your person is special to others: appreciated, acknowledged, respected, cherished, prized.
- Bring to mind experiences of:
 - Being praised, complimented, acknowledged
 - A time you knew you were appreciated, perhaps after some contribution or generosity
 - Being wanted by someone; wanted by a group
 - Feeling cherished by someone
- In daily life, look for experiences of being prized, including in small ways, and then savor them so they sink in.

Feeling Like a Good Person

- Everyone has good qualities. No halo is required to have patience, determination, fairness, honesty, kindness, etc.
- Recognizing these qualities in yourself is simply seeing reality with clear eyes, just like recognizing good food in your cupboard or good qualities in another person.
- Methods:
 - Pick a good quality that you know you have.
 - Pay attention to any obstructions to recognizing and appreciating this good quality. Let them be . . . then let them go and return attention to the good quality.
 - Gather evidence for this good quality in you (e.g., examples).
 - Be mindful of what the good quality feels like in your body and mind; let it sink in.
 - Consider how this good quality contributes to yourself and others.
 - Open to a simple gladness for this good quality; let it sink in.



Equanimity



The First and Second Dart

- 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.

Parasympathetic Nervous System


- The “rest-and-digest” parasympathetic nervous system (PNS) balances and dials down the “fight-or-flight” sympathetic nervous system.
- It soothes, resets, renews the body-mind. Though the SNS gets more press, the PNS is more primary.

Cooling the Fires

- Recognize that stress is not good for you. Get on your own side to prevent and minimize it.
- Cultivate relaxation and calm in your resting state.
- When you get stressed, activating a PNS, “cooling” cascade:
 - Inhale super-fully; hold it; l-o-n-g exhalation; repeat
 - Relax the tongue
 - Touch the lips
 - Relax the body

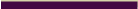
Liking and Wanting

- Distinct neural systems for liking and wanting
- In the brain: feeling/hedonic 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.



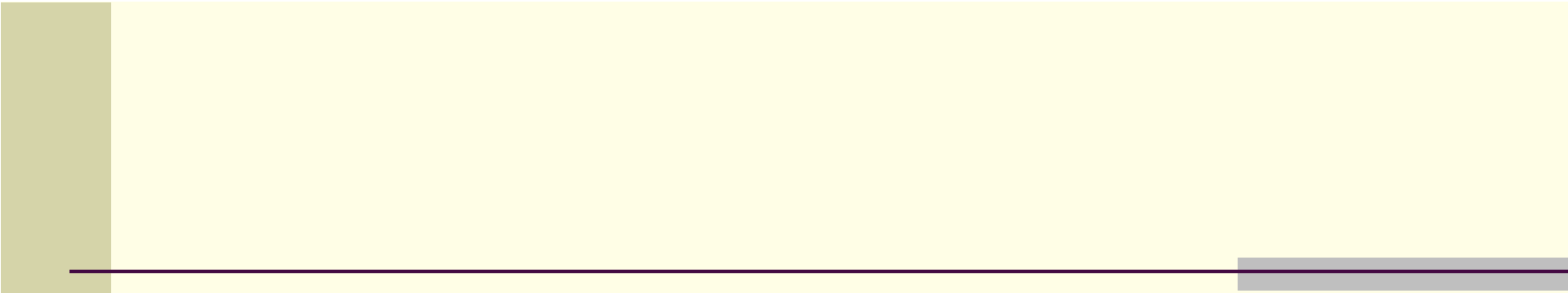
I make myself rich by making my wants few.

Henry David Thoreau



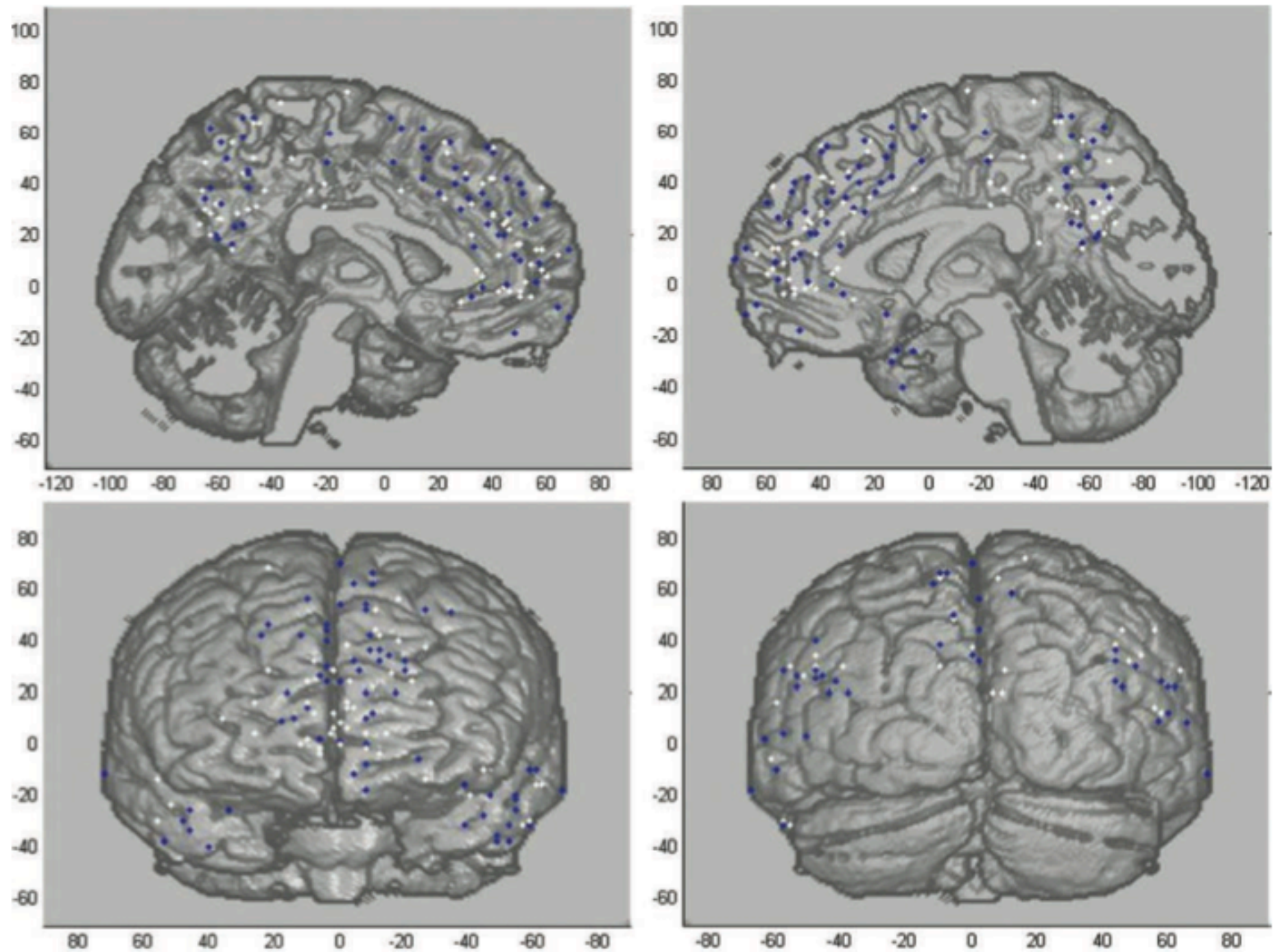
Practicing with Wanting

- 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.




No self,

No problem



Legrand & Ruby, 2009. What is self-specific? [White = self; blue = other]



Strength with Heart

What Is Empathy?

- It is sensing, feeling, and understanding how it is for the other person. In effect, you *simulate* his or her inner world.
- It involves (sometimes subtly) all of these elements:
 - Bodily resonance
 - Emotional attunement
 - Conceptual understanding
- Empathy is usually communicated, often tacitly.
- We can give empathy, we can receive it, and we can ask for it.

Neural Substrates of Empathy

- Three *simulating* systems:
 - Actions: “mirror” systems; temporal-parietal
 - Feelings: resonating emotionally; insula
 - Thoughts: “theory of mind”; prefrontal cortex
- These systems interact with each other through association and active inquiry.
- They produce an automatic, continual re-creation of aspects of others’ experience.

Empathy Skills

- Pay attention.
- Be open.
- Read emotion in face and eyes.
- Sense beneath the surface.
- Drop aversion (judgments, distaste, fear, anger, withdrawal).
- Investigate actively.
- Express empathic understanding:
 - Reflect the content
 - Resonate with the tone and implicit material
 - Questions are fine
 - Offer respect and wise speech throughout


Reflections about Empathy

- You're more likely to get empathy if you're:
 - Open, present
 - Honest, real, authentic
 - Reasonably clear
 - Responsible for your own experience
 - Taking it in when you feel felt

- Empathy can be negotiated:
 - Name it as a topic in the relationship
 - Follow NVC format: "When X happens, I feel Y, because I need Z. So I request _____."
 - Stay with it.

Wise Speech


- Well-intended
- True
- Beneficial
- Timely
- Expressed without harshness
- If possible: wanted



*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



*If you let go a little,
you will have a little happiness.*

*If you let go a lot,
you will have a lot of happiness.*

*If you let go completely,
you will be completely happy.*

Ajahn Chah

Benefits of Unilateral Virtue

- It simplifies things: all you have to do is live by your own code, and others will do whatever they do.
- It feels good in its own right; it brings peace of mind, “the bliss of blamelessness.”
- It minimizes inflammatory triggers, and encourages good behavior in others.
- It stands you on the moral high ground.
- It teaches you what you can ask for from others

Healthy Assertiveness

What it is: Speaking your truth and pursuing your aims
in the context of relationships

What supports it:

- Being on your own side
- Self-compassion
- Naming the truth to yourself
- Refuges: Three Jewels, reason, love, nature, God
- Taking care of the big things so you don't grumble about the little ones
- Health and vitality

Healthy Assertiveness: How to Do It - 1

- Know your aims; stay focused on the prize; lose battles to win wars
- Ground in empathy, compassion, and love
- Practice unilateral virtue

Healthy Assertiveness: How to Do It - 2

- Communicate for yourself, not to change others
 - Wise Speech; be especially mindful of tone
 - NVC: “When X happens, I feel Y because I need Z.”
 - Dignity and gravity
 - Distinguish empathy building (“Y”) from policy-making

- If appropriate, negotiate solutions
 - Establish facts as best you can (“X”)
 - Find the deepest wants (“Z”)
 - Focus mainly on “from now on”
 - Make clear plans, agreements
 - Scale relationships to their actual foundations



Coming Home

The Fruit as the Path

Peace

Contentment

Love



Penetrative insight

joined with calm abiding

utterly eradicates

afflicted states.

Shantideva

Suggested Books

See www.RickHanson.net for other suggestions.

- Austin, J. 2009. *Selfless Insight*. MIT Press.
- Begley, S. 2007. *Train Your Mind, Change Your Brain*. Ballantine.
- Carter, C. 2010. *Raising Happiness*. Ballantine.
- Hanson, R. (with R. Mendius). 2009. *Buddha's Brain: The Practical Neuroscience of Happiness, Love, and Wisdom*. New Harbinger.
- Johnson, S. 2005. *Mind Wide Open*. Scribner.
- Keltner, D. 2009. *Born to Be Good*. Norton.
- Kornfield, J. 2009. *The Wise Heart*. Bantam.
- LeDoux, J. 2003. *Synaptic Self*. Penguin.
- Linden, D. 2008. *The Accidental Mind*. Belknap.
- Sapolsky, R. 2004. *Why Zebras Don't Get Ulcers*. Holt.
- Siegel, D. 2007. *The Mindful Brain*. Norton.
- Thompson, E. 2007. *Mind in Life*. Belknap.

Key Papers - 1

See www.RickHanson.net for other scientific papers.

- Atmanspacher, H. & Graben, P. 2007. Contextual emergence of mental states from neurodynamics. *Chaos & Complexity Letters*, 2:151-168.
- Baumeister, R., Bratlavsky, E., Finkenauer, C. & Vohs, K. 2001. Bad is stronger than good. *Review of General Psychology*, 5:323-370.
- Braver, T. & Cohen, J. 2000. On the control of control: The role of dopamine in regulating prefrontal function and working memory; in *Control of Cognitive Processes: Attention and Performance XVIII*. Monsel, S. & Driver, J. (eds.). MIT Press.
- Carter, O.L., Callistemon, C., Ungerer, Y., Liu, G.B., & Pettigrew, J.D. 2005. Meditation skills of Buddhist monks yield clues to brain's regulation of attention. *Current Biology*. 15:412-413.

Key Papers - 2

- Davidson, R.J. 2004. Well-being and affective style: neural substrates and biobehavioural correlates. *Philosophical Transactions of the Royal Society*. 359:1395-1411.
- Farb, N.A.S., Segal, Z.V., Mayberg, H., Bean, J., McKeon, D., Fatima, Z., and Anderson, A.K. 2007. Attending to the present: Mindfulness meditation reveals distinct neural modes of self-reflection. *SCAN*, 2, 313-322.
- Gillihan, S.J. & Farah, M.J. 2005. Is self special? A critical review of evidence from experimental psychology and cognitive neuroscience. *Psychological Bulletin*, 131:76-97.
- Hagmann, P., Cammoun, L., Gigandet, X., Meuli, R., Honey, C.J., Wedeen, V.J., & Sporns, O. 2008. Mapping the structural core of human cerebral cortex. *PLoS Biology*. 6:1479-1493.
- 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

- Lazar, S., Kerr, C., Wasserman, R., Gray, J., Greve, D., Treadway, M., McGarvey, M., Quinn, B., Dusek, J., Benson, H., Rauch, S., Moore, C., & Fischl, B. 2005. Meditation experience is associated with increased cortical thickness. *Neuroreport*. 16:1893-1897.
- Lewis, M.D. & Todd, R.M. 2007. The self-regulating brain: Cortical-subcortical feedback and the development of intelligent action. *Cognitive Development*, 22:406-430.
- Lieberman, M.D. & Eisenberger, N.I. 2009. Pains and pleasures of social life. *Science*. 323:890-891.
- Lutz, A., Greischar, L., Rawlings, N., Ricard, M. and Davidson, R. 2004. Long-term meditators self-induce high-amplitude gamma synchrony during mental practice. *PNAS*. 101:16369-16373.
- Lutz, A., Slager, H.A., Dunne, J.D., & Davidson, R. J. 2008. Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*. 12:163-169.

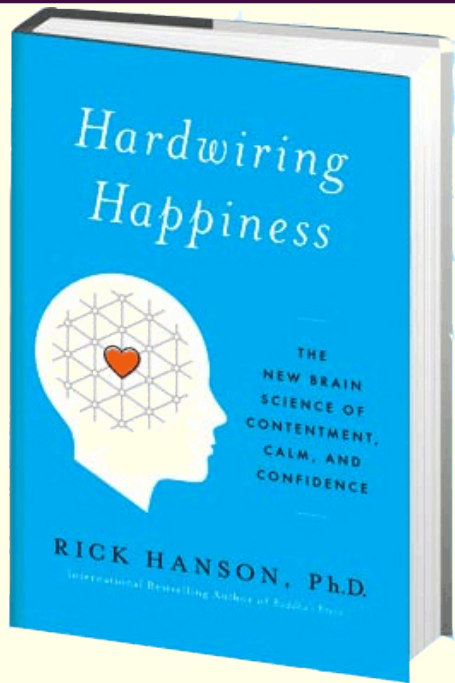
Key Papers - 4

- Rozin, P. & Royzman, E.B. 2001. Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5:296-320.
- Takahashi, H., Kato, M., Matsuura, M., Mobbs, D., Suhara, T., & Okubo, Y. 2009. When your gain is my pain and your pain is my gain: Neural correlates of envy and schadenfreude. *Science*, 323:937-939.
- Tang, Y.-Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., Yu, Q., Sui, D., Rothbart, M.K., Fan, M., & Posner, M. 2007. Short-term meditation training improves attention and self-regulation. *PNAS*, 104:17152-17156.
- Thompson, E. & Varela F.J. 2001. Radical embodiment: Neural dynamics and consciousness. *Trends in Cognitive Sciences*, 5:418-425.
- Walsh, R. & Shapiro, S. L. 2006. The meeting of meditative disciplines and Western psychology: A mutually enriching dialogue. *American Psychologist*, 61:227-239.

Feeling Already Full

- Sensing enoughness for the body
- Feeling buoyed and nurtured by the natural world
- Awareness of phenomena filling the mind
- Feeling filled by each moment's arisings even as they pass away

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



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