

Hardwiring Happiness:

The New Brain Science of Lasting Inner Strength and Peace

Leading Edge

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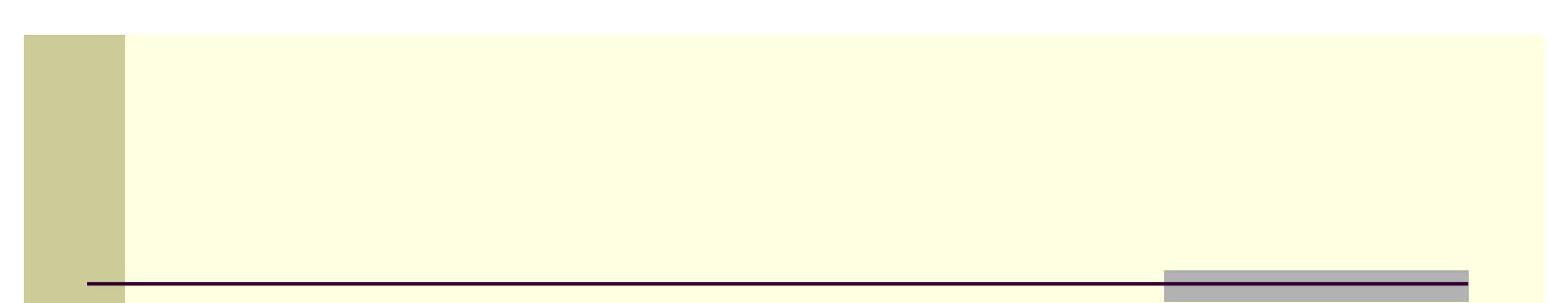
Topics

- **The mind and the brain**
- **Growing inner strengths**

- **The evolving brain**
- **The negativity bias**

- **Taking in the good**
- **Self-compassion**
- **Healing old pain**

- **Cultivation and craving**



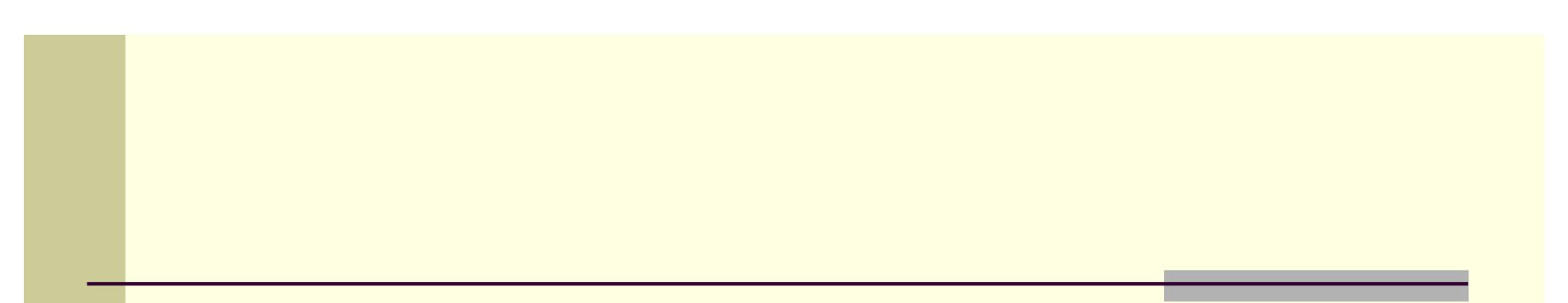
The Mind and the Brain

*[People] ought to know that
from nothing else but the brain
come joys, delights, laughter and sports,
and sorrows, griefs, despondency, and lamentations.*

Hippocrates

Three Facts about Brain and Mind

- As the brain changes, the mind changes.
 - Mental activity depends upon neural activity.
- As the mind changes, the brain changes.
 - Transient: brainwaves, local activation
 - Lasting: epigenetics, neural pruning, “neurons that fire together, wire together”
 - Experience-dependent neuroplasticity
- You can use the mind to change the brain to change the mind for the better: self-directed neuroplasticity.



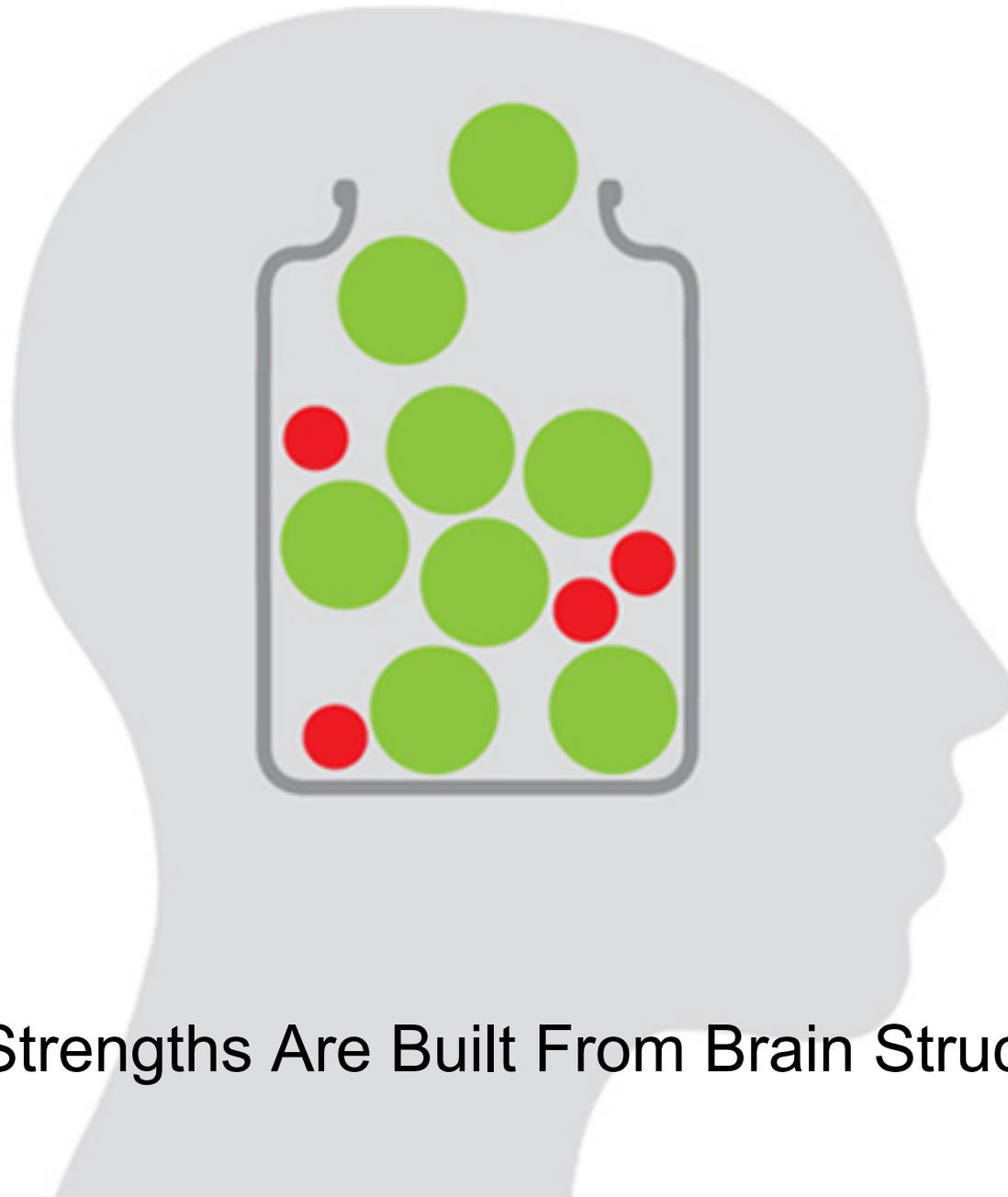
Growing Inner Strengths

The image is a split-screen comparison of two wolves. The left side shows a close-up of a domesticated wolf, likely a husky, with thick white and grey fur and warm brown eyes. It has a black collar around its neck and is smiling, showing its teeth. The right side shows a close-up of a wild wolf with grey and brown fur and more intense, yellowish-brown eyes. It is also showing its teeth, but the expression is more menacing. The text "Two wolves in the heart" is written in a white, serif font across the center of both images.

Two wolves in the heart

Inner Strengths Include

- **Virtues** (e.g., patience, energy, generosity, restraint)
- **Executive functions** (e.g., meta-cognition)
- **Attitudes** (e.g., optimism, openness, confidence)
- **Capabilities** (e.g., mindfulness, emotional intelligence, resilience)
- **Positive emotions** (e.g., gratitude, self-compassion)
- **Approach orientation** (e.g., curiosity, exploration)



Inner Strengths Are Built From Brain Structure

The Causes of Inner Strengths

How do we build the neural traits of inner strengths?

Inner strengths are mainly built from positive experiences.

You develop mindfulness by repeatedly being mindful; you develop compassion by repeatedly feeling compassionate; etc.

The brain is like a VCR or DVR, not an iPod: you must play the song to record it - you must experience the strength to install it in your brain.

Learning and Memory

- The sculpting of the brain by experience is memory:
 - Explicit - Personal recollections; semantic memory
 - Implicit - Bodily states; emotional residues; “views” (expectations, object relations, perspectives); behavioral repertoire and inclinations; what it feels like to be “me”
- Implicit memory is much larger than explicit memory. Resources are embedded mainly in implicit memory.
- Therefore, the key target is implicit memory. So what matters most is not the explicit recollection of positive *events* but the implicit emotional residue of positive *experiences*.

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 and privileged 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]**

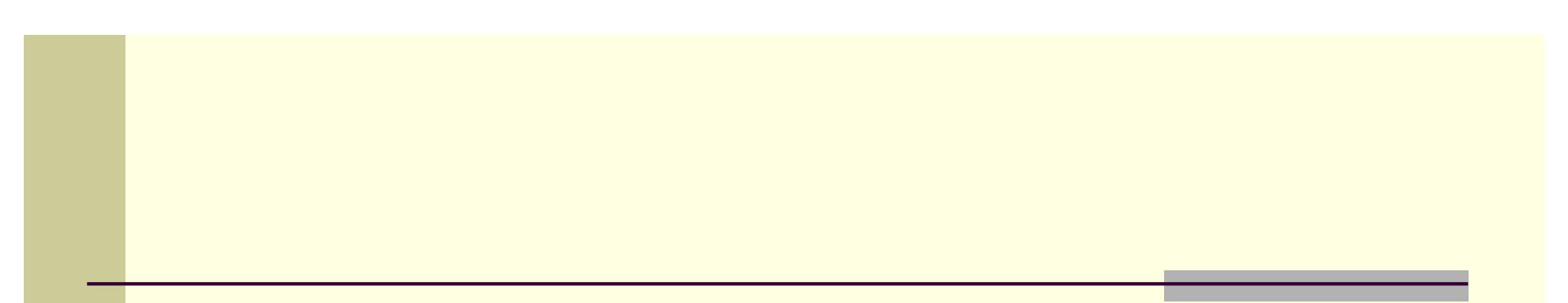
with Ayya Anandabodhi
and Ayya Santacitta

on

Sunday, July 8

from 9:30 am - 5 pm.

(Photo by Ed Ritger)

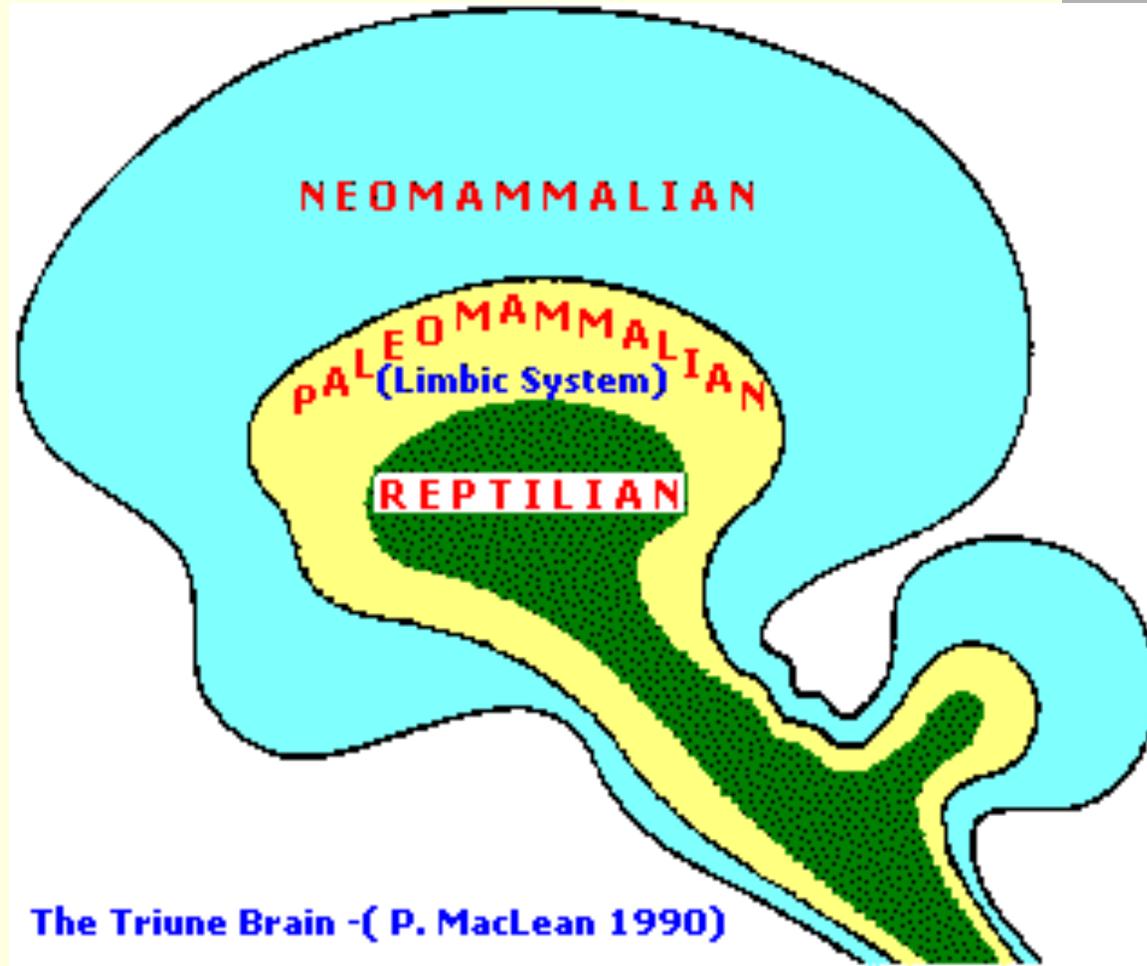


The Evolving Brain

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

Three Fundamental Motivational and Self-Regulatory Systems

- **Avoid Harms:**
 - Primary need, tends to trump all others
- **Approach Rewards:**
 - Elaborated via sub-cortex in mammals for emotional valence, sustained pursuit
- **Attach to Others:**
 - Very elaborated via cortex in humans for pair bonding, language, empathy, cooperative planning, compassion, altruism, etc.



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

The Homeostatic Home Base

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

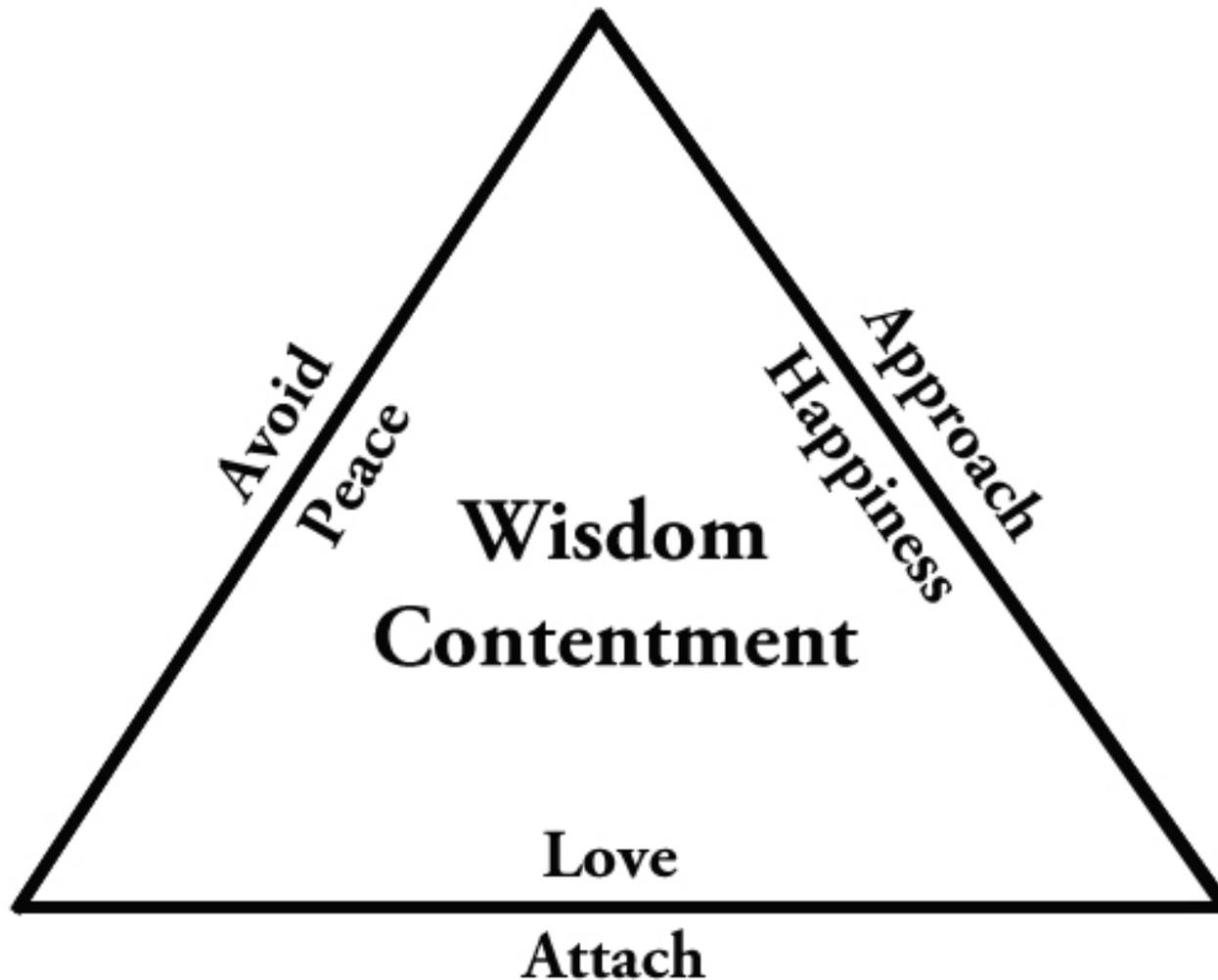
The body defaults to a sustainable equilibrium of refueling, repairing, and pleasant abiding.

The mind defaults to a sustainable equilibrium of:

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

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

The Responsive Mode



Neurobiological Basis of Craving

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

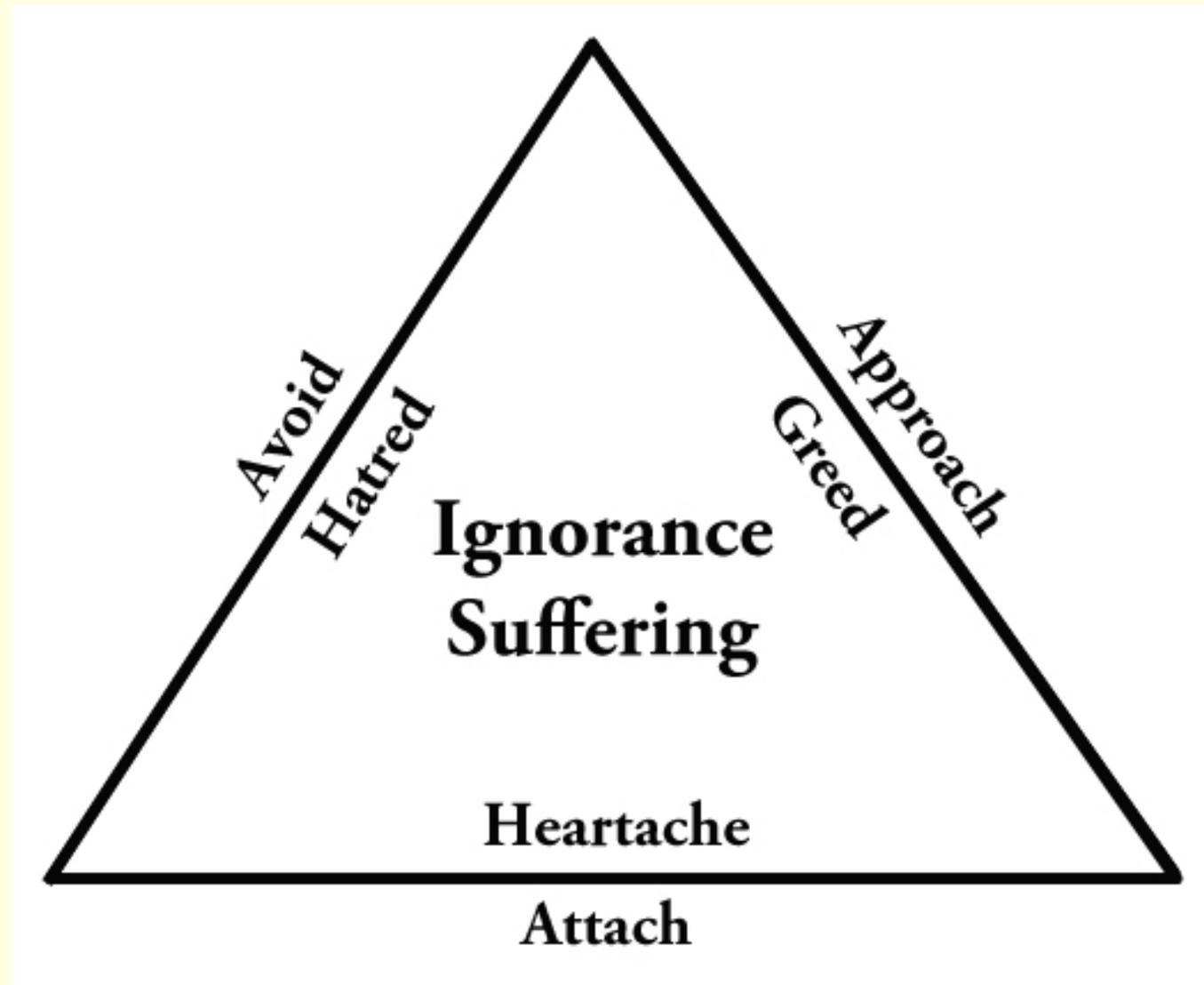
The body fires up into the stress response; outputs exceed inputs; long-term building is deferred.

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.²¹

The Reactive Mode

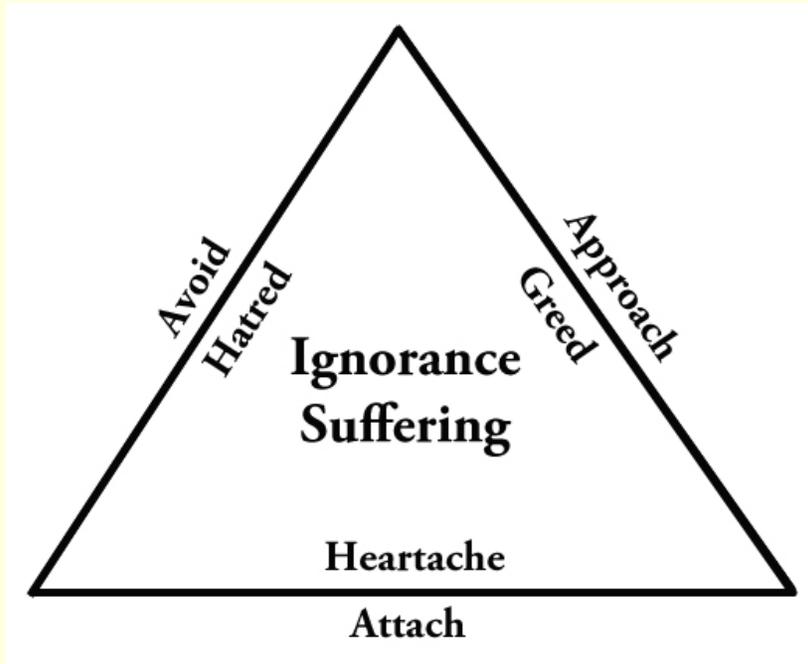


Reactive Dysfunctions in Each System

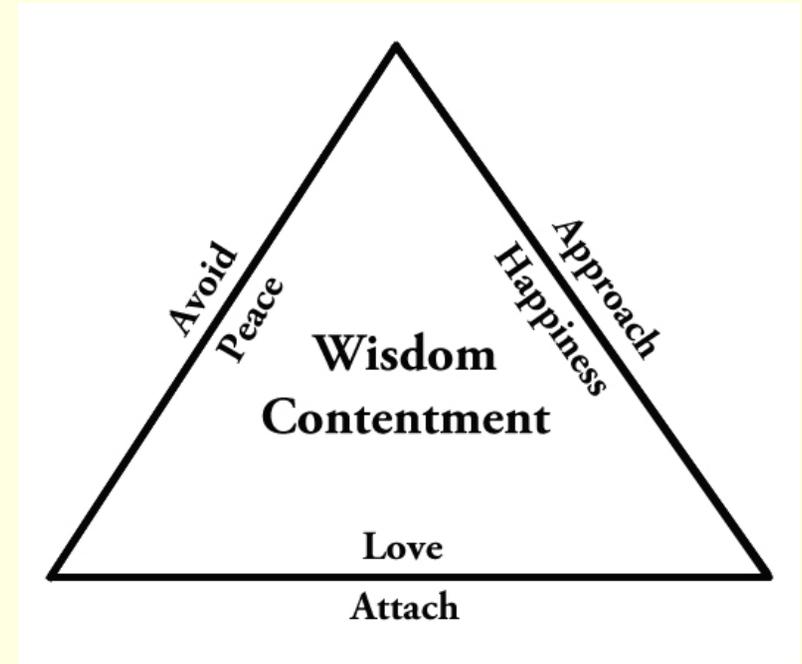
- **Avoid** - Anxiety disorders; OCD; PTSD; panic, terror; rage; violence
- **Approach** - Addiction; over-drinking, -eating, -gambling; hoarding; driving for goals at great cost
- **Attach** - Borderline, narcissistic, antisocial PD; “looking for love in all the wrong places”

Choices . . .

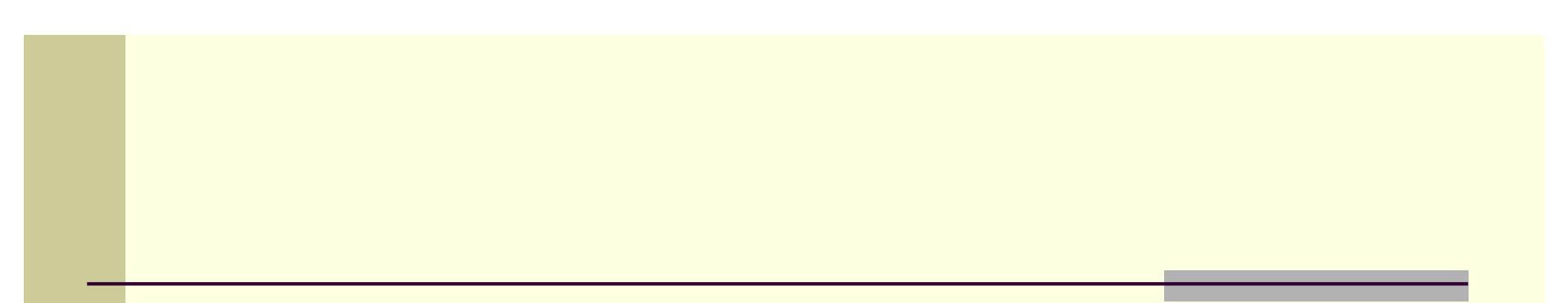
Or?



Reactive Mode



Responsive Mode



The Negativity Bias

Negative Experiences Can Have Benefits

- There's 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

But is there really any shortage of negative experiences?

Health Consequences of Chronic Stress

■ 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)

Negativity Bias

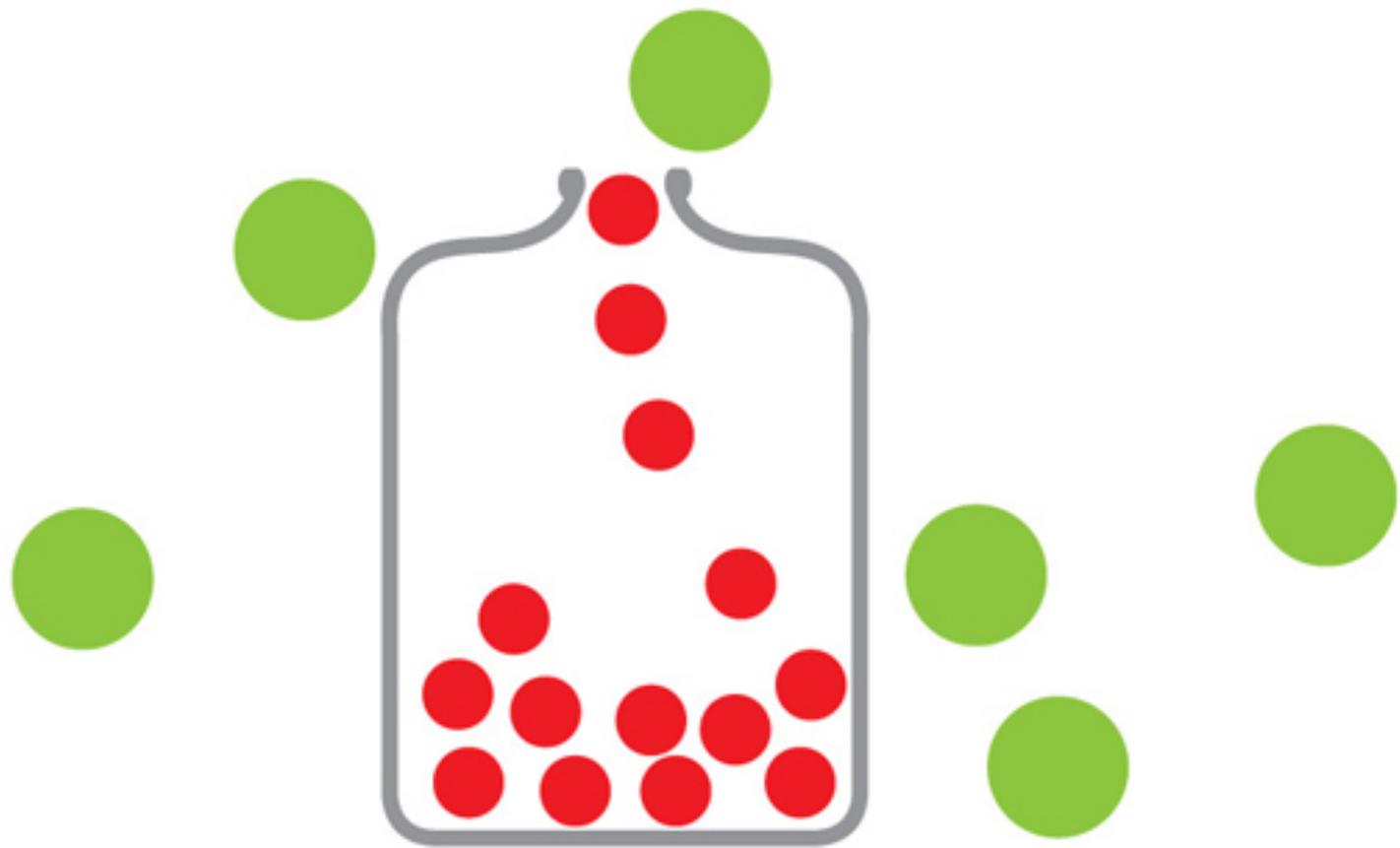
- As our ancestors evolved, avoiding “sticks” was more important for survival than getting “carrots.”
- Preferential encoding in implicit memory:
 - We learn faster from pain than pleasure.
 - Negative interactions: more powerful than positive
 - Easy to create learned helplessness, hard to undo
 - Rapid sensitization to negative through cortisol
- Most good experiences are wasted on the brain: lowers both the results of practice and motivation

A Bottleneck For Growing Inner Strengths

The problem is that, for survival reasons, the brain is poor at turning positive states into neural traits.

It is bad at learning from good experiences compared to how good it is at learning from bad experiences.

This design feature of the brain creates a kind of bottleneck that reduces the conversion of positive mental states to positive neural traits.



The Negativity Bias

Velcro for Bad, Teflon for Good

The negativity bias

bad experiences

good experiences

A composite image showing Stone Age people in a modern city park. In the background, there are tall, modern apartment buildings. In the foreground, three Stone Age people are crouching in a grassy field. The central figure is a man with long, dark hair and a beard, wearing a simple, dark, animal-skin garment. He is looking directly at the camera. To his left, another man is crouching, and to his right, a woman is crouching, both also wearing simple, animal-skin garments. The scene is set in a lush, green park with many trees and bushes. The text "Stone age brains in the 21st century" is overlaid in white, serif font across the middle of the image.

Stone age brains in the 21st century

A Poignant Truth

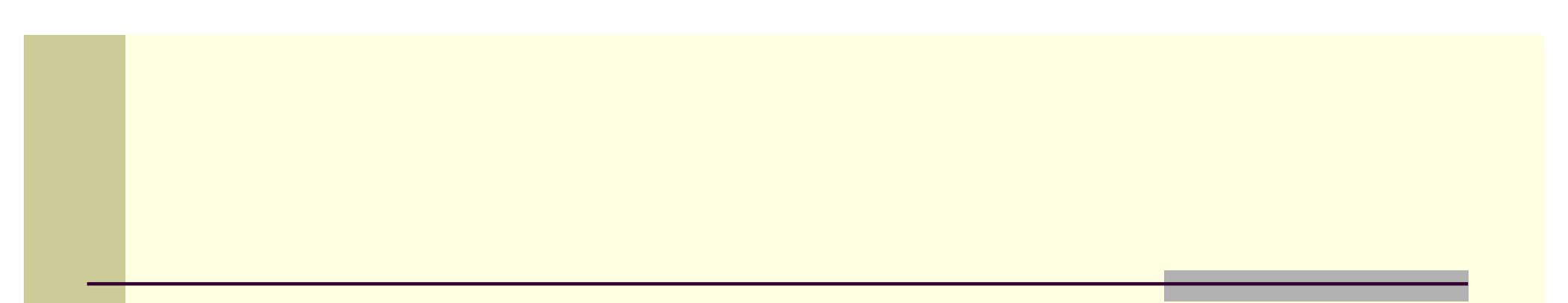
Mother Nature is tilted toward producing gene copies.

But tilted against personal quality of life.

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

What shall we do?

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



Taking in the Good

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.

HEAL by Taking in the Good

1. Have a positive experience. Notice or create it.
2. Enrich the experience through duration, intensity, multimodality, novelty, personal relevance
3. Absorb the experience by intending and sensing that it is sinking into you as you sink into it.
4. Link positive and negative material.

Let's Try It

- **Notice** the experience already present in awareness that you are alright right now
 - Have the experience
 - Enrich it
 - Absorb it

- **Create** the experience of compassion
 - Have the experience - bring to mind someone you care about . . . Feel caring . . . Wish that he or she not suffer . . . Open to compassion
 - Enrich it
 - Absorb it

Targets of TG

- **Thoughts** - expectations; object relations; perspectives on self, world, past and future
- **Perceptions** - sensations; relaxation; vitality
- **Emotions** - both feelings and mood
- **Desires** - values, aspirations, passions, wants
- **Behaviors** - repertoire; inclinations

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

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

Synergies of TG and Mindfulness

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

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TG and Children

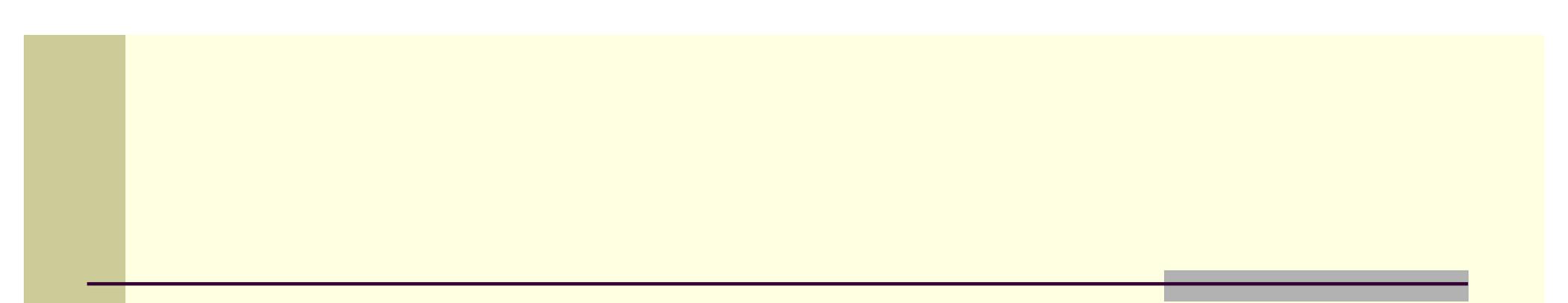
- All kids benefit from TG.
- Particular benefits for mistreated, anxious, spirited/ADHD, or LD children.
- Adaptations:
 - Brief
 - Concrete
 - Natural occasions (e.g., bedtimes)

It's Good to Take in the Good

- Development of specific inner strengths
 - General - resilience, positive mood, feeling loved
 - “Antidote experiences” - Healing old wounds, filling the hole in the heart
- 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



Self-Compassion

*The root of compassion is
compassion for oneself.*

Pema Chodron

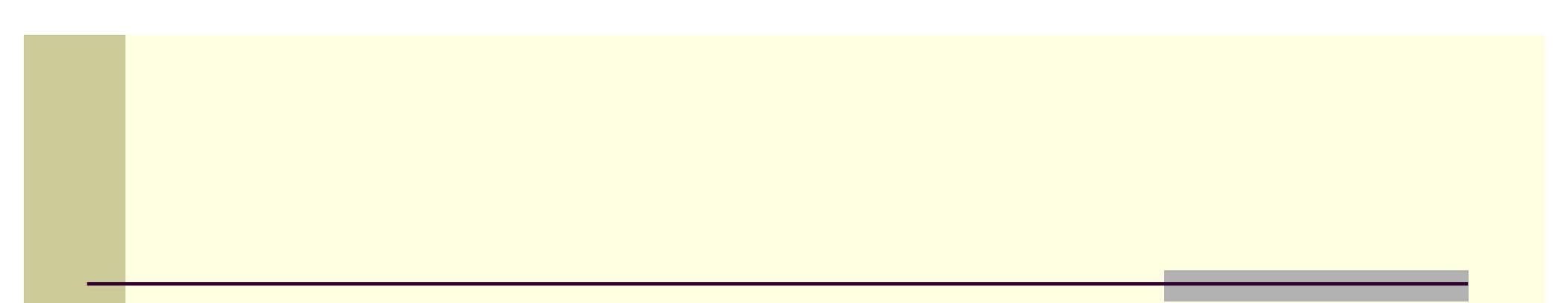
Wishing Yourself Well

- 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



Healing Old Pain

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 HEAL

- 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.

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

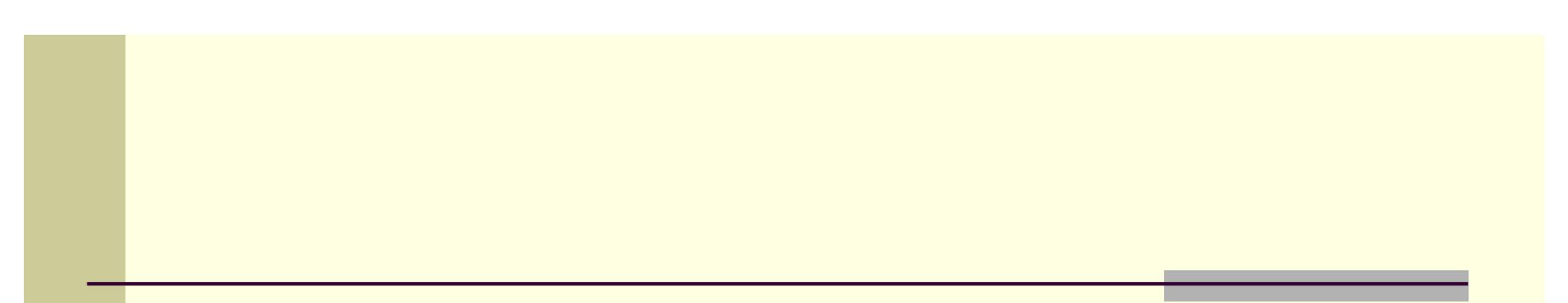
The Tip of the Root

- 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

TG and Trauma

- 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.

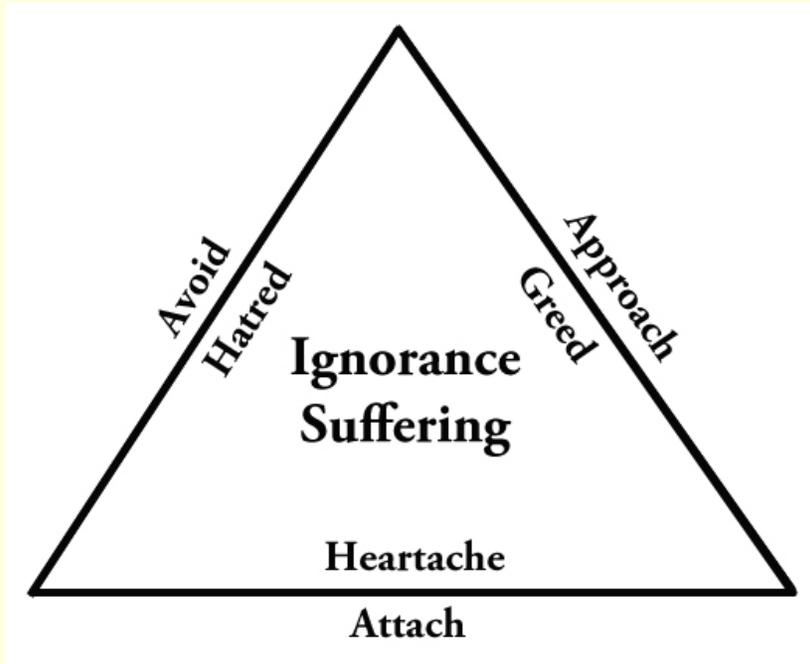
First of all, do no harm.



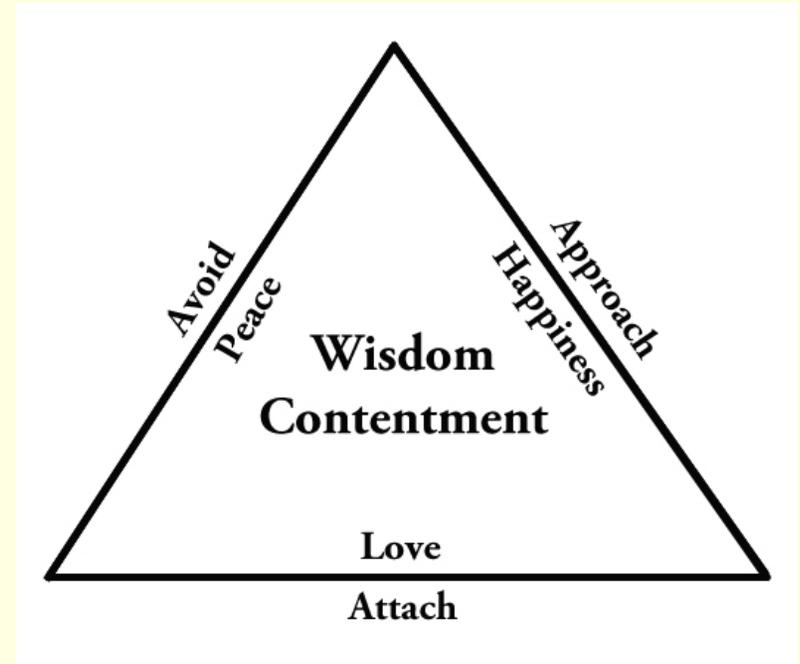
Cultivation and Craving

Choices . . .

Or?



Reactive Mode



Responsive Mode

Cultivation Undoes Craving

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

The Fruit as the Path

Peace

Contentment

Love

Pet the Lizard



Feed the Mouse



Hug the Monkey



*Think not lightly of good, saying,
"It will not come to me."*

Drop by drop is the water pot filled.

*Likewise, the wise one,
gathering it little by little,
fills oneself with good.*

Great Books

See www.RickHanson.net for other great books.

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See www.RickHanson.net for other scientific papers.

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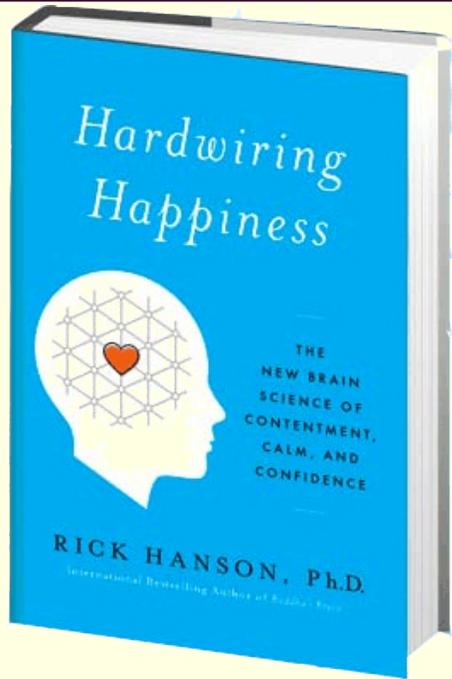
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Where to Find Rick Hanson Online



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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