

Hardwiring Happiness:

Turning Passing Experiences Into Lasting Inner Strength and Peace

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Topics

- **Self-directed neuroplasticity**
- **How to grow inner strengths**
- **The negativity bias**
- **Taking in the good**
- **Key resource experiences**
- **Coming home**



Self-Directed Neuroplasticity

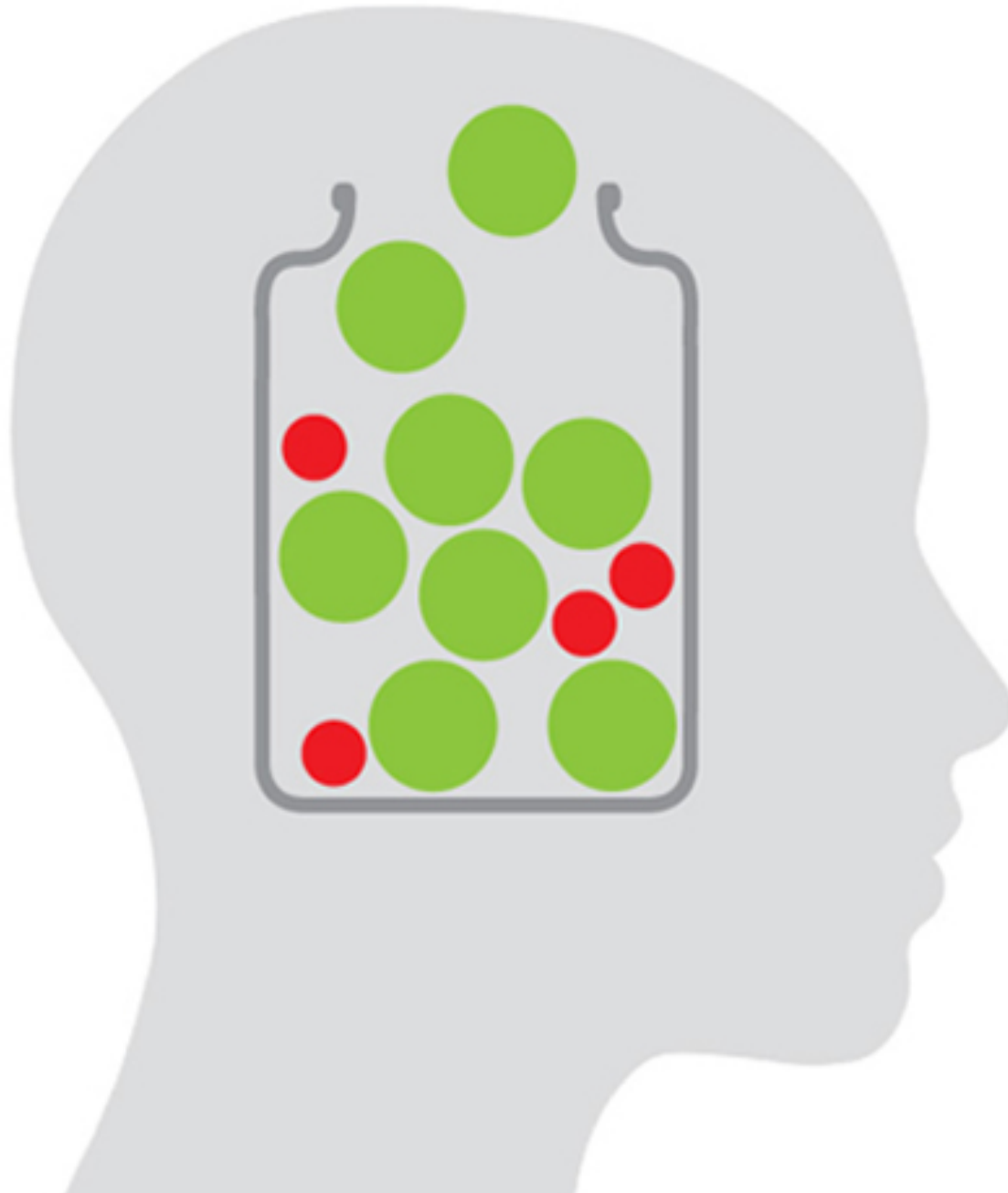
The image is a composite of two side-by-side close-up photographs of wolves. The left photograph shows a domesticated wolf, likely a husky, with thick white and grey fur and warm brown eyes. It has a black collar around its neck and is smiling, showing its teeth. The right photograph shows a wild wolf with grey and brown fur and yellowish-brown eyes. It is looking down and to the left, with its mouth slightly open, showing its teeth. 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

- **Understandings**
- **Capabilities**
- **Positive emotions**
- **Attitudes**
- **Motivations**
- **Virtues**

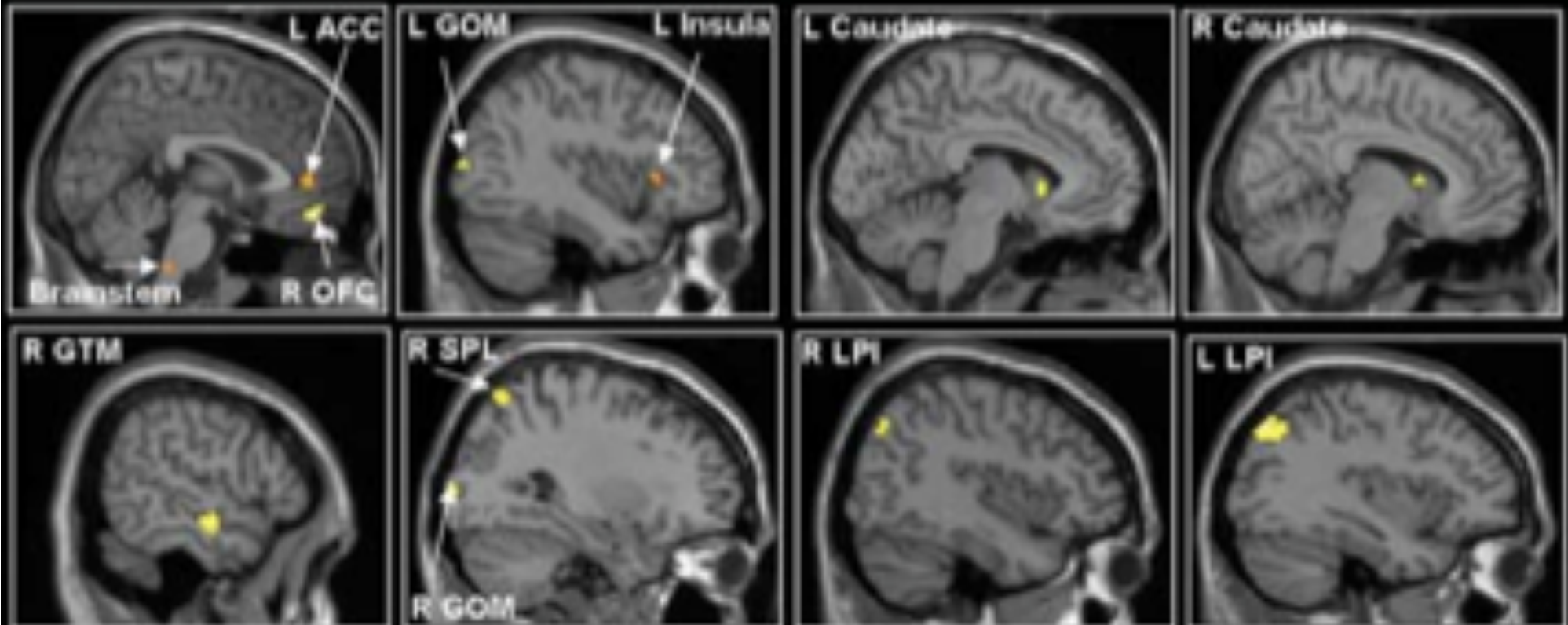
Inner Strengths Are Built From Brain Structure



**Mental activity entails
underlying neural activity.**

Christian Nuns, Recalling a Profound Spiritual Experience

Mystical > Baseline



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

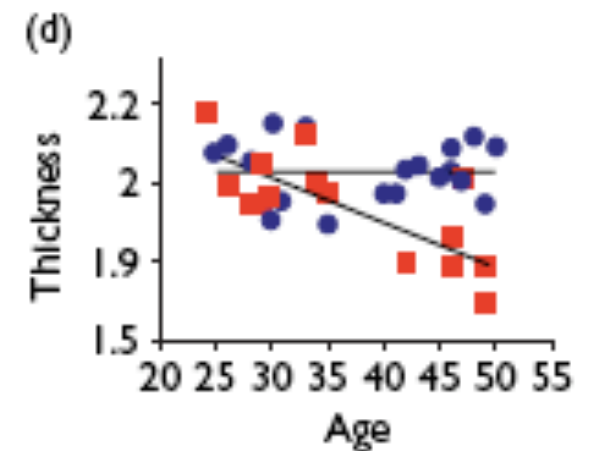
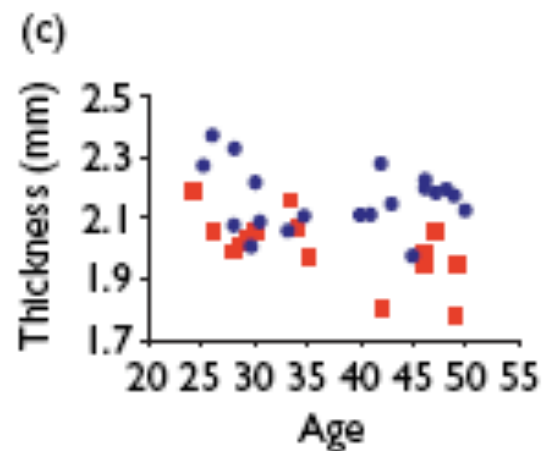
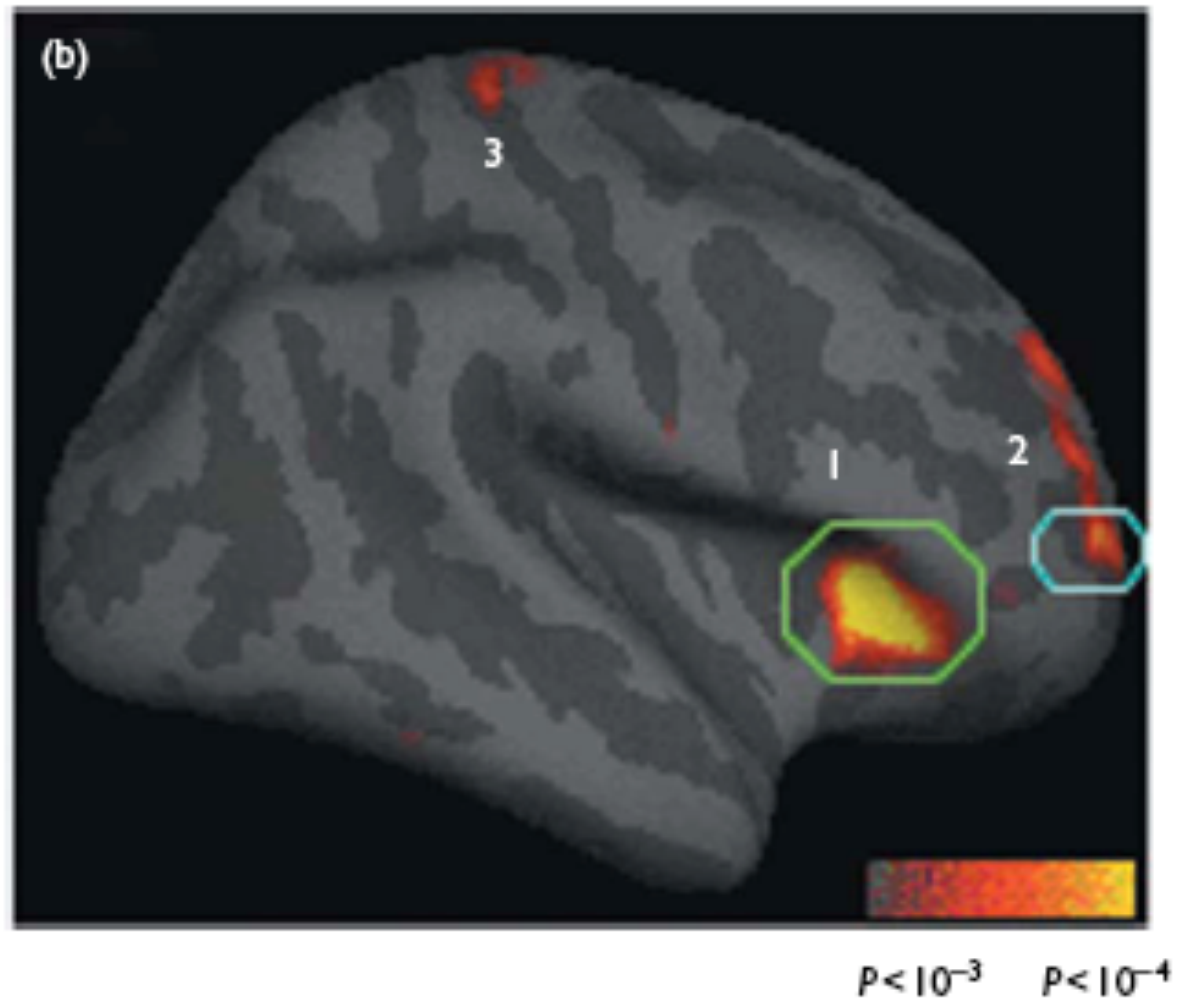
**Repeated neural activity
builds neural structure.**

A network of glowing yellow neurons with a central neuron highlighted in green. The neurons are interconnected by a dense web of fibers, creating a complex, interconnected structure. The background is dark, making the glowing neurons stand out.

Neurons that fire together,

wire together.

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



The Opportunity

We can use the mind

To change the brain

To change the mind for the better

To benefit ourselves and other beings.



How to Grow Inner Strengths

Growing Gratitude

- Think of things you feel grateful for . . . Let this become a feeling of gratitude.
- Stay with this experience . . . Open to it.
- Imagine or sense that gratitude is sinking into you . . . As you sink into it.

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 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.**

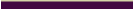
**You become more mindful
by repeatedly installing experiences of mindfulness.**

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

**Without 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.**



Installation



Installation


Installation



Installation

Installation

Installation



**Meanwhile your painful,
harmful experiences
are being rapidly converted
into neural structure.**



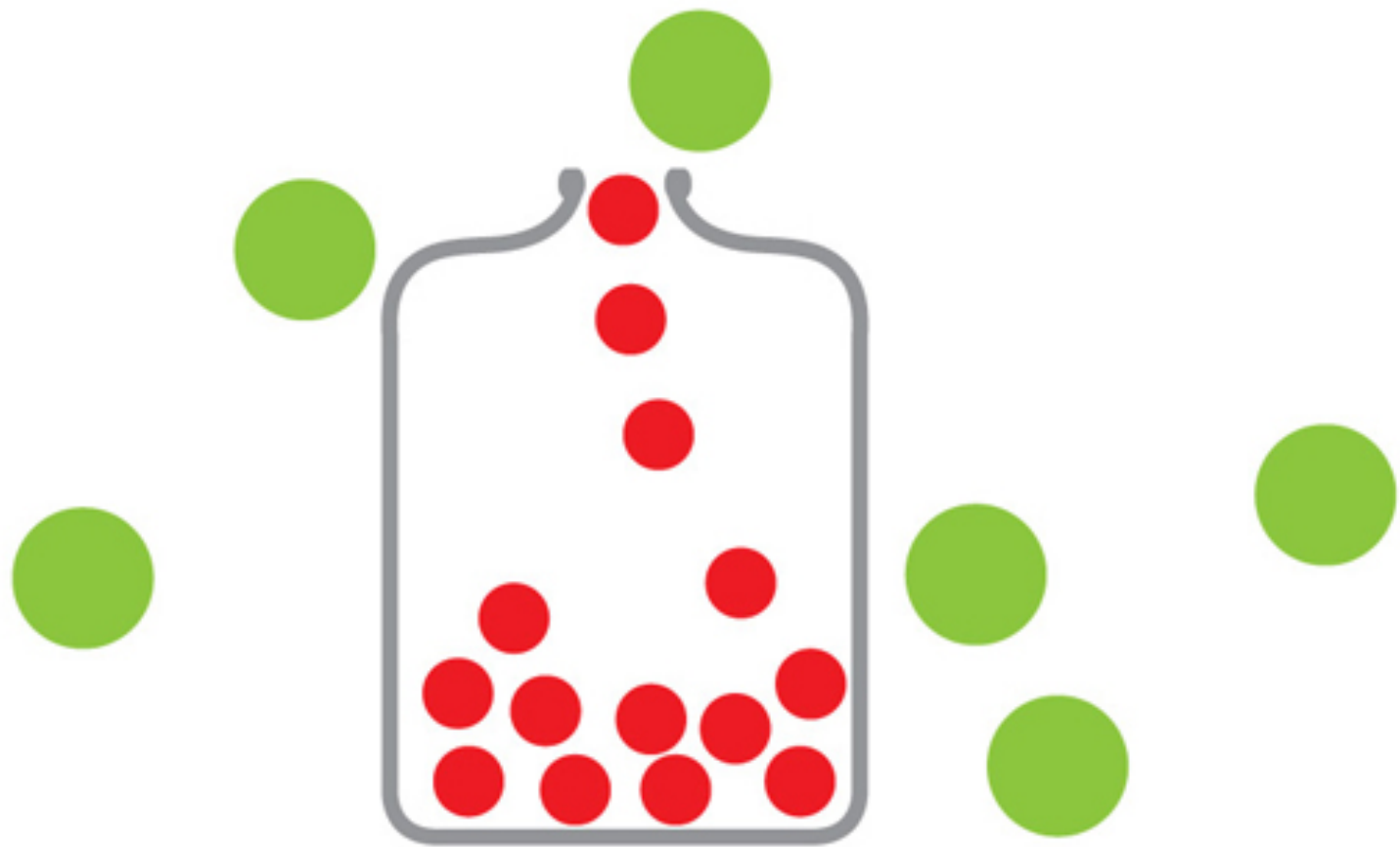
The Negativity Bias

Velcro for Bad, Teflon for Good

The negativity bias

bad experiences

good experiences



The Negativity Bias

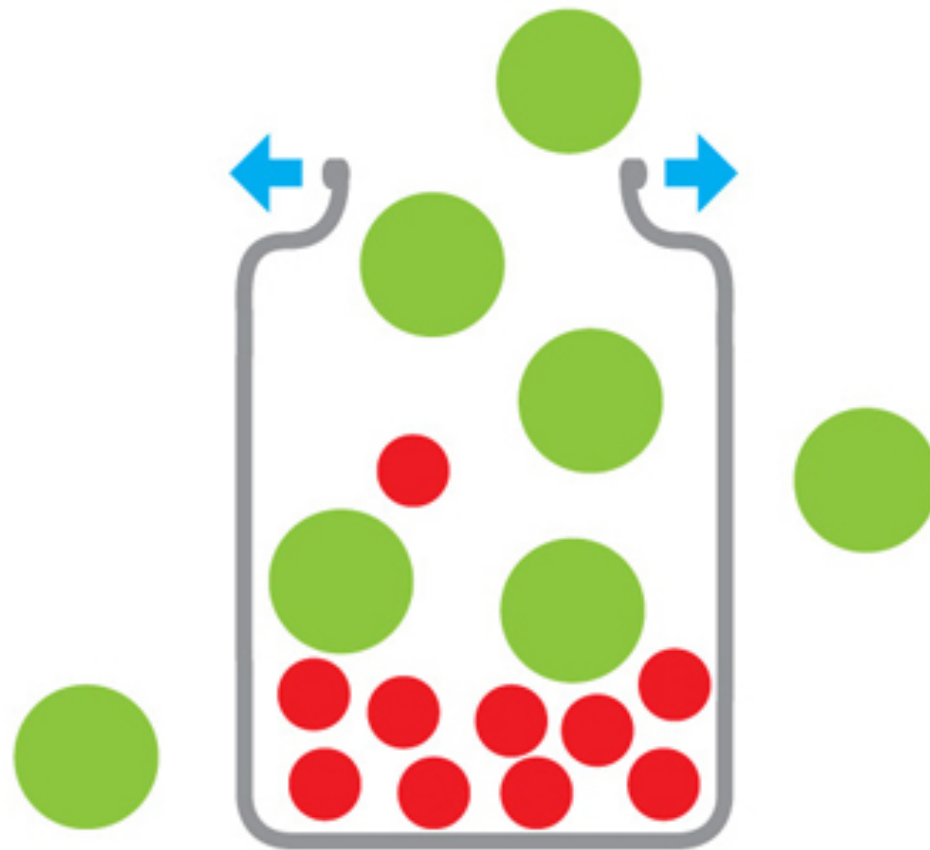
A composite image showing Stone Age people in a modern city park. In the background, there are tall, modern apartment buildings. In the foreground, three Stone Age people are crouching in a grassy field. The central figure is a man with long, dark hair and a beard, wearing a simple, dark, animal-skin 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 overall image is a mix of modern and prehistoric elements.

Stone age brains in the 21st century

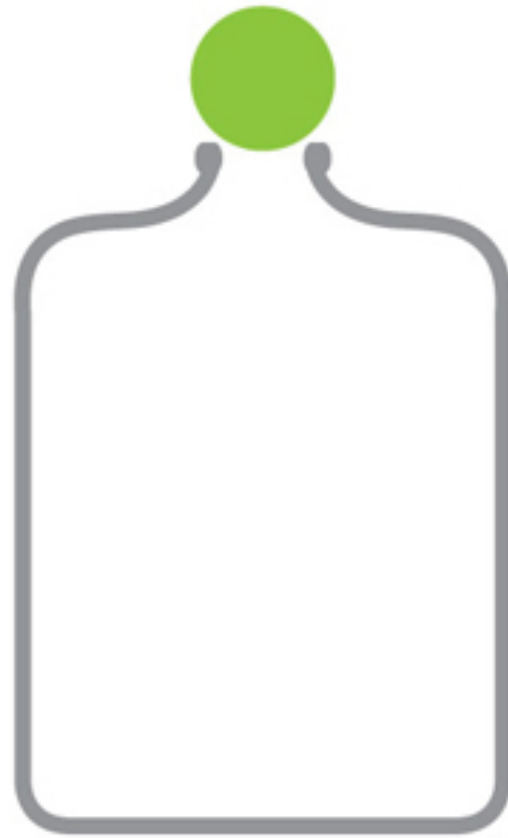
*We can deliberately use the mind
to change the brain for the better.*



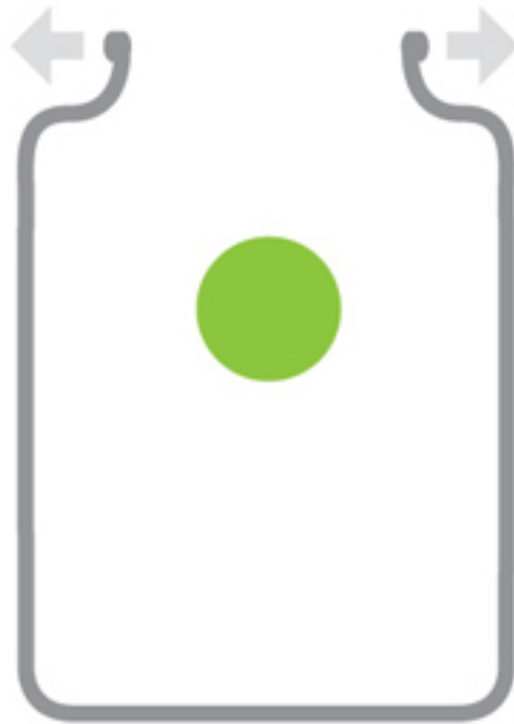
Taking in the Good



Learning to Take in the Good



Have a Good Experience



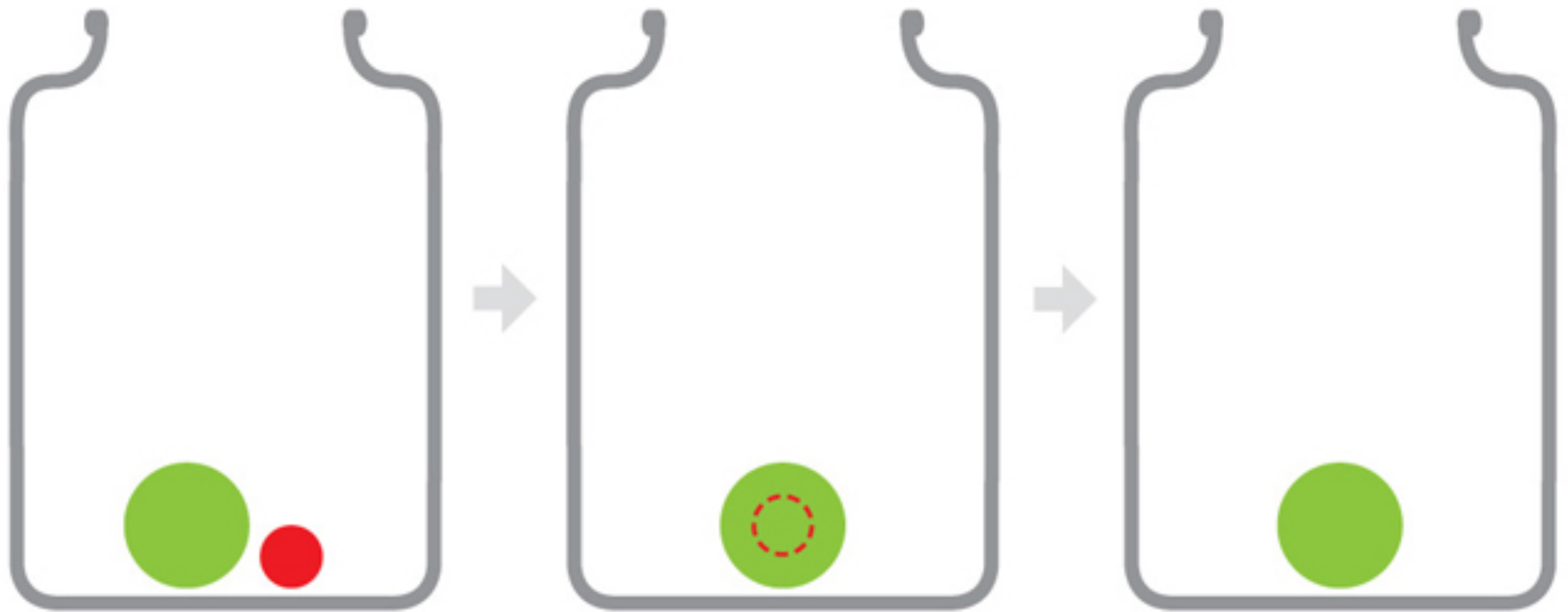
Enrich It

How to Enrich an Experience

- **Duration**
- **Intensity**
- **Multimodality**
- **Novelty**
- **Saliency**



Absorb It



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

Growing Compassion

- Think of someone you care about. Be aware of this person's challenges, stress, and pain. Find the sincere wish that this person not suffer . . . With warmhearted concern.
- Stay with this experience . . . Open to it.
- Imagine or sense that compassion is sinking into you . . . As you sink into it.

It's Good to Take in the Good

- Development of specific inner strengths
- Implicit benefits
- Sensitizes brain to the positive
- Creates positive cycles

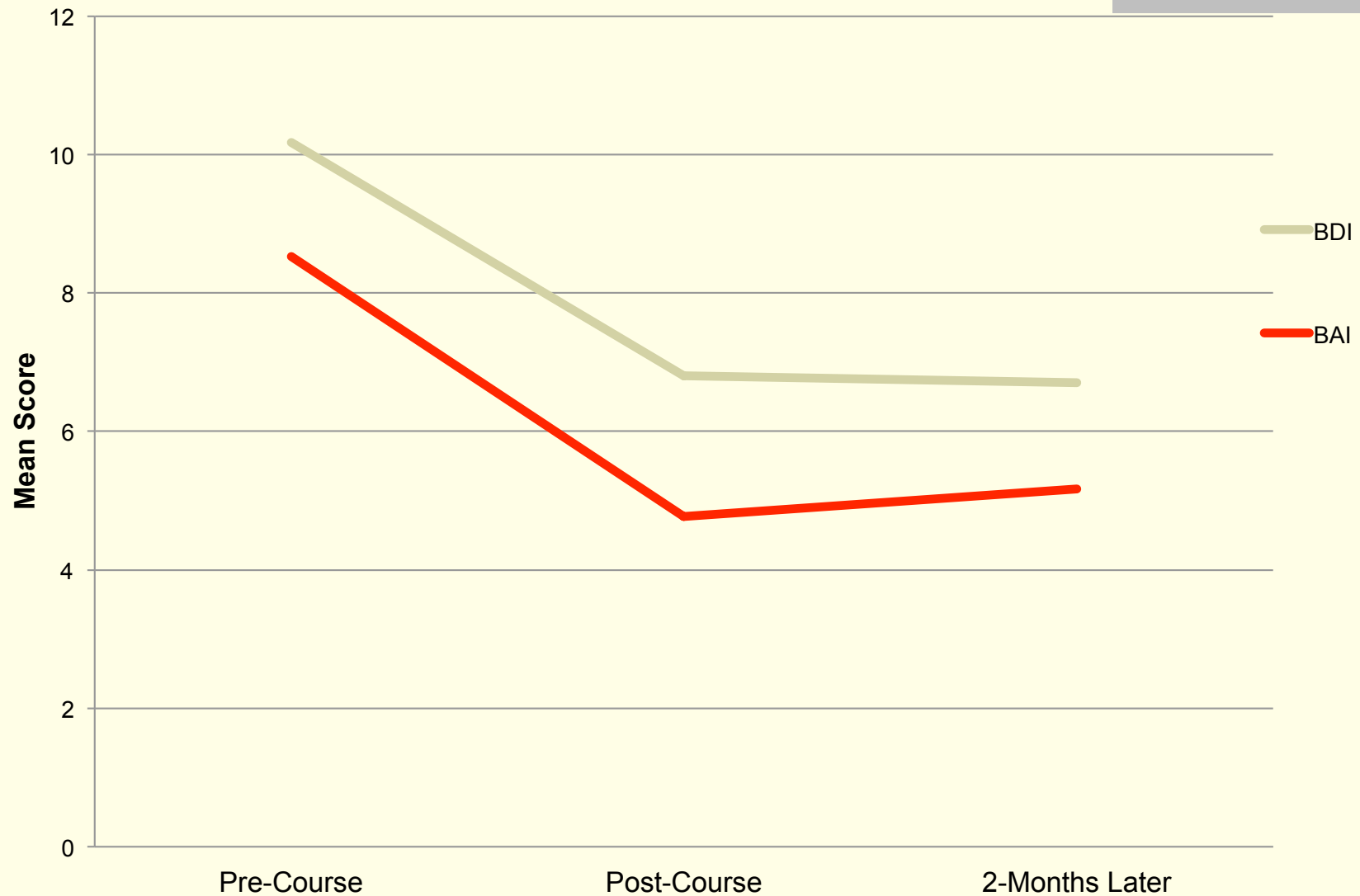
*Keep a green bough in your heart,
and a singing bird will come.*

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.

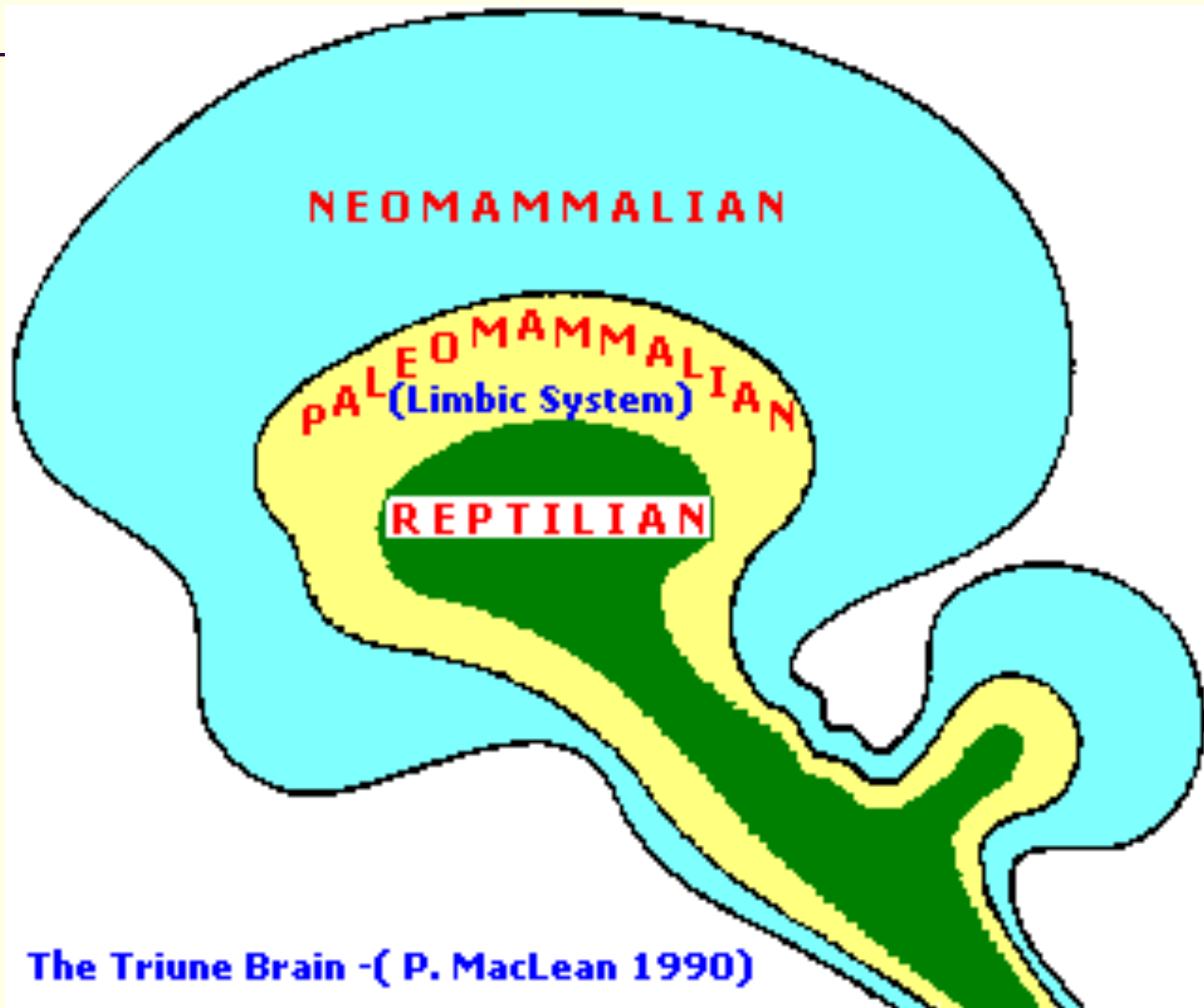
Combined Sample: Depression (BDI) & Anxiety (BAI)





Key Resource Experiences

The Evolving Brain



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



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



Coming Home

The Brain's Responsive Setting

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 Brain's Reactive Setting

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:

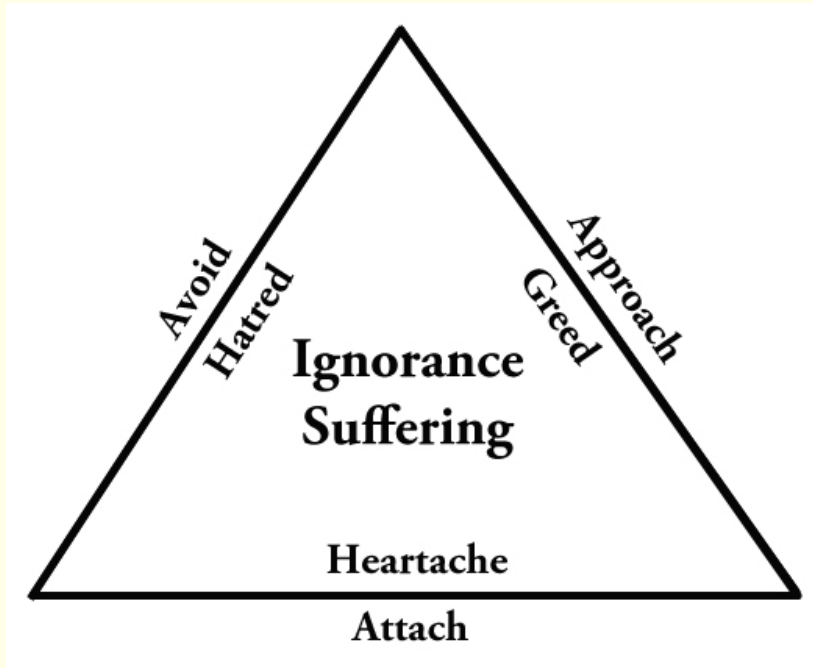
- **Fear** (the Avoiding system)
- **Frustration** (the Approaching system)
- **Heartache** (the Attaching system)

This is the brain in allostatic, **Reactive**, *craving* mode. ⁵⁴

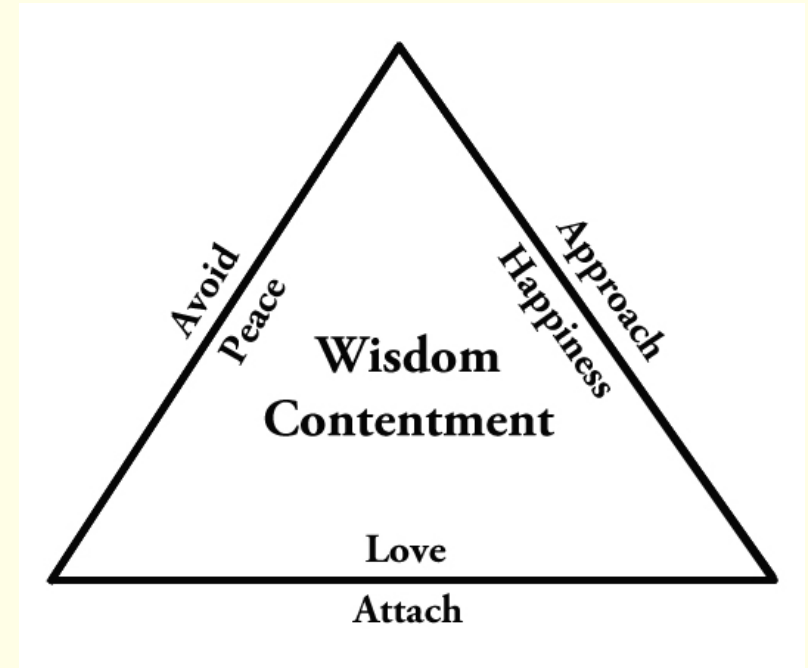


Choices . . .

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.



Peace

Contentment

Love

*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.*

Thank you



Suggested Books

See www.RickHanson.net for other great books.

- 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.

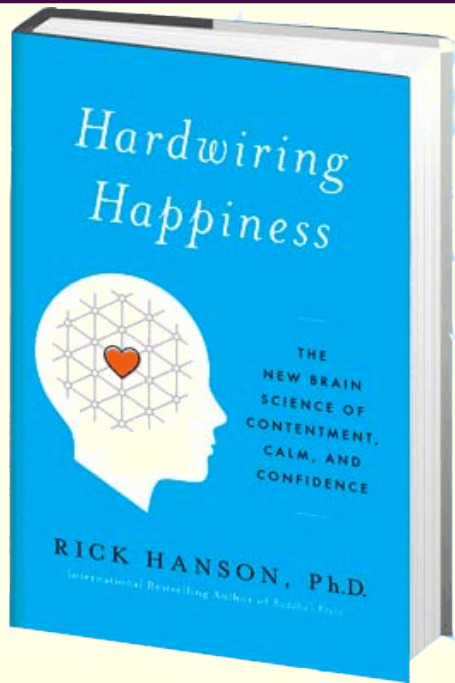
Key Papers - 3

- 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.

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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