Embodied Happiness: The Practical Neuroscience Of Positive Emotions

The Anat Baniel Center
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Topics

- Using the mind to change the brain
- Why it’s good to feel good
- The negativity bias
- Taking in the good
- Healing old pain
- Taking the fruit as the path
Using the Mind to Change the Brain
[People] ought to know that from nothing else but the brain come joys, delights, laughter and sports, and sorrows, grieves, despondency, and lamentations.

Hippocrates
Mental activity entails underlying neural activity.
Key Brain Areas for Consciousness

(adapted from) M. T. Alkire et al., Science 322, 876-880 (2008)
The Rewards of Love
Ardent, Diligent, Resolute, and Mindful
Repeated mental activity entails repeated neural activity.

Repeated neural activity builds neural structure.
Neurons that fire together,
wire together.
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.
The Opportunity

We can use the mind
To change the brain
To change the mind for the better
To benefit ourselves and other beings.
Two wolves in the heart
Why It’s Good to Feel Good
Benefits of Positive Emotions

Emotions organize the brain as a whole, so positive ones have far-reaching results:

- Promote exploratory, “approach” behaviors
- Lift mood; increase optimism, resilience
- Counteract trauma
- Strengthen immune system
- Protect cardiovascular system
- Overall: “broaden and build”
- Create positive cycles
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)
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.
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
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?*
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
Velcro for Bad, Teflon for Good

The negativity bias

bad experiences

good 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 for women)
  - Primes aversion (SNS-HPAA negativity bias)
One Neural Consequence of Negative Experiences

- Amygdala (“alarm bell”) initiates stress response
- 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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How stress changes the brain
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 Stone Age 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.
Cultivation in Context

Three ways to engage the mind:
- Be with it. Decrease negative. Increase positive.
- 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 Buddhist, nondual, and mindfulness-based practice.

Skillful means for decreasing the negative and increasing the positive have developed over 2500 years. Why not use them?
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)
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.
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
Sense the experience sinking into you.
Targets of TG

- Thoughts - expectations; object relations; perspectives on self, world, past and future
- Perceptions - relaxed sensations; vitality; beauty
- Emotions - both feelings and mood
- Desires - values, aspirations, passions, wants
- Behaviors - reportoire; 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
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
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
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)
Healing Old Pain
The Fourth Step of TG

- 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.*
Taking the Fruit as the Path
The Fruit as the Path

Peace

Contentment

Love
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.
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.

Dhammapada 9.122
Thank you
Great Books

See www.RickHanson.net for other great books.

See www.RickHanson.net for other scientific papers.


Key Papers - 2


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


Key Papers - 4


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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