

A Neuropsychology of Awakening: Cultivating Resilience and Wellbeing With the Brain in Mind



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Rick Hanson, Ph.D.

Greater Good Science Center, UC Berkeley

www.RickHanson.net

Inner Strengths For a Challenging World

Resilience is the capacity
to recover from adversity and
pursue your goals despite challenges.

It helps you survive
the worst day of your life and
thrive every day of your life.

Lasting well-being in a changing world
requires resilience.

And resilience
requires inner strengths –
grounded in the living body.

Some Key Inner Strengths

Grit, patience, determination

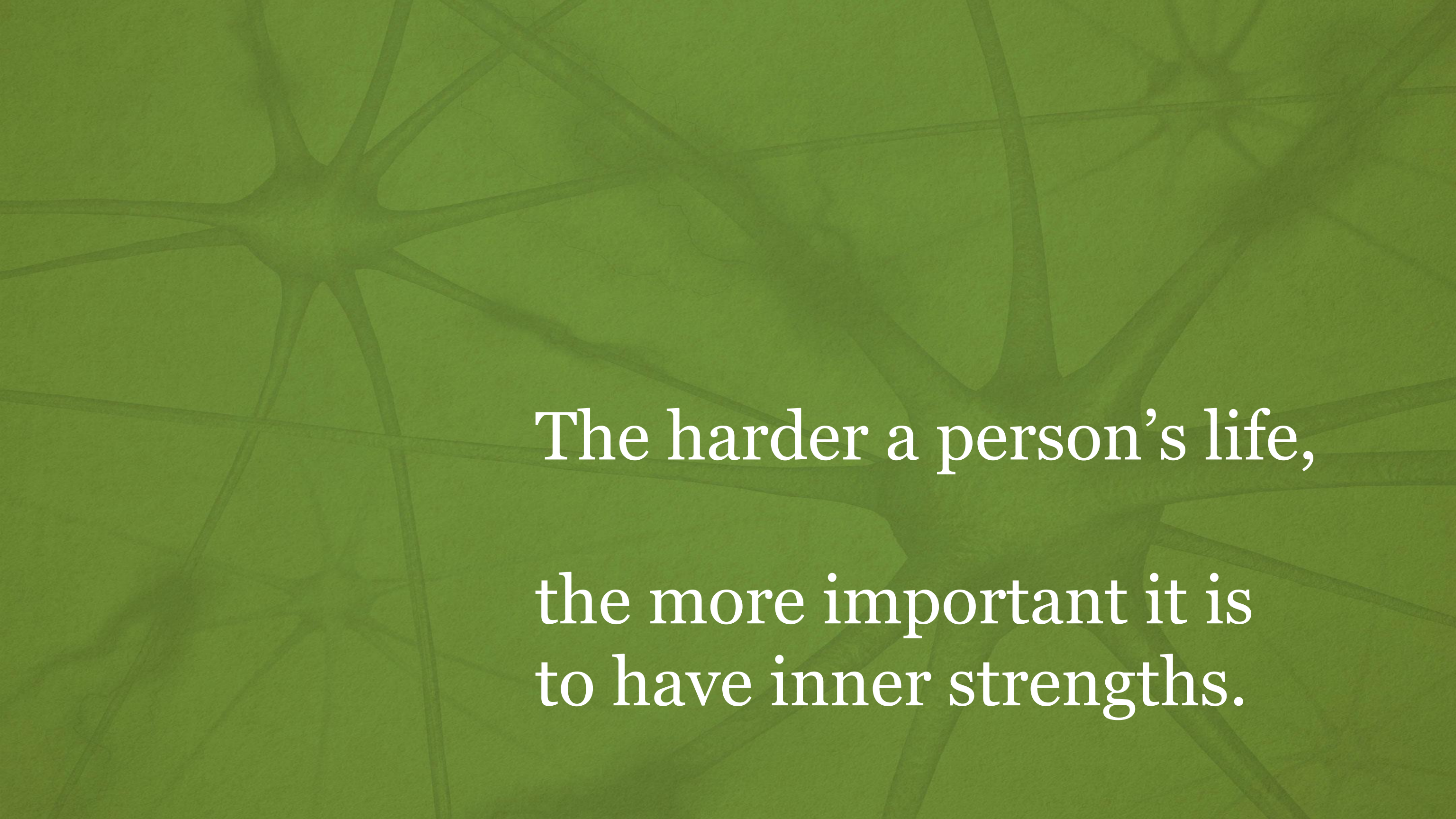
Gratitude and other positive emotions

Secure attachment, compassion, love

Mindfulness, self-knowledge

Social and emotional intelligence

Executive functions, distress tolerance

The background is a solid green color with a subtle, abstract pattern of thin, dark green lines and star-like shapes. These shapes are formed by multiple lines intersecting at various points, creating a complex, web-like structure. The lines vary in thickness and orientation, giving the background a textured, organic feel.

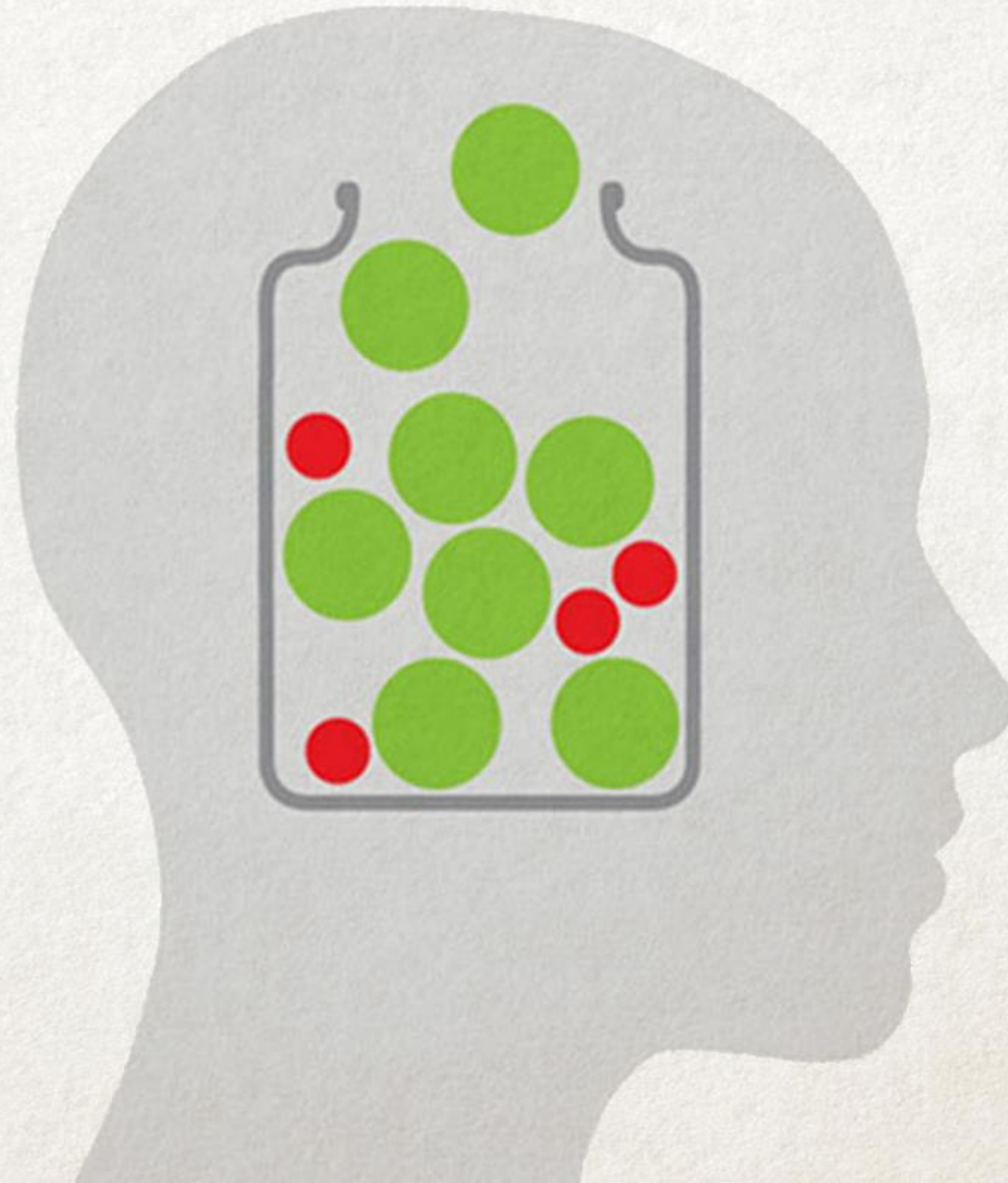
The harder a person's life,
the more important it is
to have inner strengths.

The majority
of our inner strengths
are acquired,

through emotional, somatic,
social, and motivational
learning –

which is fundamentally hopeful.

And Which Means Changing the Brain For the Better



Experience-Dependent Neuroplasticity

Mental activity involves neural activity.

Repeated patterns of mental activity
involve repeated patterns of neural activity.

Repeated patterns of neural activity
can produce lasting changes
in neural structure and function.

An Overview of Current Research

Much research on people that psychological practices lead to psychological benefits, presumably via changing their brains.

Much research on other animals that various stimuli lead to many kinds of changes in their brains.

Some research that psychological practices change people's brains.

Scattered research on deliberate internal mental factors that lead to individual differences in gains from experiences.

“The absence of evidence is not evidence of absence.”

In the Garden of the Mind

1

**Be with what
is there**

2

**Decrease
the negative**

3

**Increase
the positive**

Witness. Pull weeds. Plant flowers.
Let be. Let go. Let in.
Mindfulness is present in all three.

“Being with” is primary – but not enough.
We also need “wise effort.”

We can know ourselves in two ways:

- From the outside in, objectively, informed by science, particularly by our neurobiology
- From the inside out, subjectively, informed by modern psychology and perennial wisdom

In this workshop, we'll explore where these two meet.



Positive Neuroplasticity

Three Breaths

Breathing while feeling your chest as a whole

Breathing while feeling caring

Breathing while feeling cared about

Mental resources are acquired in two stages:

Encoding



Consolidation

Activation



Installation

State



Trait

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

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

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



Neurons that fire together,

wire together.

Key Mechanisms of Neuroplasticity

- (De)Sensitizing existing synapses
- Building new synapses between neurons
- Altered gene expression inside neurons
- Building and integrating new neurons
- Altered activity in a region
- Altered connectivity among regions
- Changes in neurochemical activity (e.g., dopamine)
- Changes in neurotrophic factors
- Modulation by stress hormones, cytokines
- Slow wave and REM sleep
- Information transfer from hippocampus to cortex

Every day gives us opportunities
to heal a little bit, to grow a little bit,
to become wiser and stronger and
happier and more loving.

This requires
not just having experiences,
but **learning** from them.

Experiencing does not equal learning.

Activation without installation

**may be pleasant,
but no trait strengths are developed.**

What fraction of our
beneficial mental states lead to lasting
changes in neural structure or function?

We focus more on activation
more than installation.

This reduces the gains from
psychotherapy, coaching,
human resources training,
mindfulness programs,
and self-help activities.

”

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

Scott Miller



The Negativity Bias

Stone age brains in the 21st century



The Negativity Bias

As the nervous system evolved, avoiding “sticks” was usually more consequential than getting “carrots.”

1. So we scan for bad news,
2. Over-focus on it,
3. Over-react to it,
4. Turn it quickly into (implicit) memory,
5. Sensitize the brain to the negative, and
6. Create vicious cycles with others.

Velcro for Bad, Teflon for Good

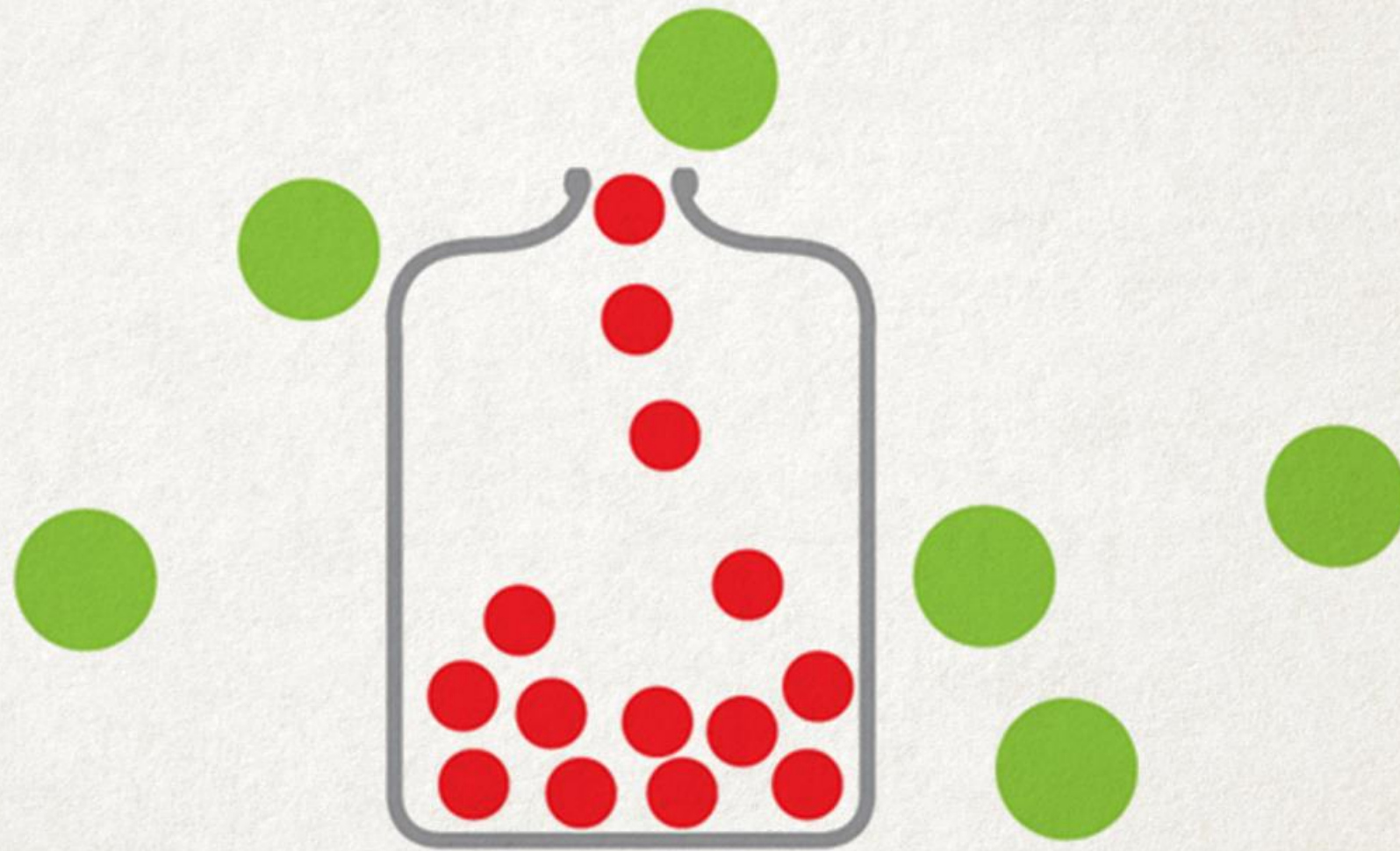
The negativity bias

bad experiences

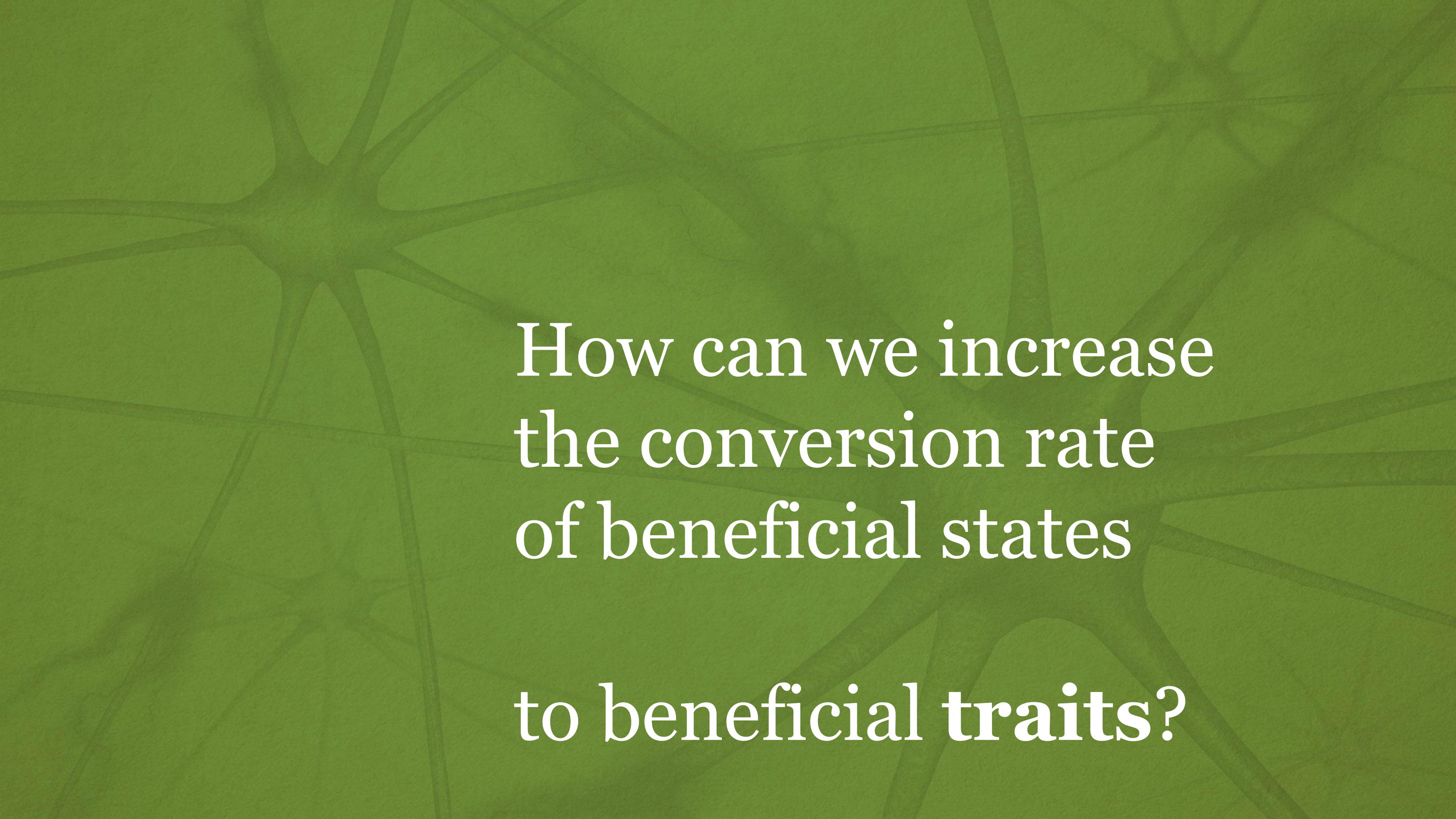
6000 good experiences

The brain is good
at learning from bad experiences
but relatively bad
at learning from good ones.

Even though
learning from good experiences
of inner strengths
is how to grow them
and have them with you every day.



The Negativity Bias

The background is a solid green color with a faint, abstract pattern of dark green lines and nodes, resembling a neural network or a complex web. The lines radiate from several points, creating a star-like or web-like structure across the entire frame.

How can we increase
the conversion rate
of beneficial states
to beneficial **traits**?

Self-Directed Neuroplasticity

Learning Factors

Environmental – setting, social support

Behavioral – activities, repetition

Mental – motivation, engagement

Types of Mental Learning Factors

Contextual

Openness

Mindfulness

View of positive experience

Growth/learning mindset

Motivation

Self-efficacy

Self-esteem

Feeling supported

Sense of safety

Engagement

Personal relevance

Alertness, sense of novelty

Arousal, enactment

Sense of reward

Emotion

Granularity of attention

Interoception

Maintenance, repetition

Meaning, elaboration

Benefits of Mental Learning Factors

Benefits of both types of factors:

- Increase learning from the present experience
- Prime NS for future beneficial experiences
- Heighten consolidation of past experiences

Engagement factors have additional benefits:

- Regulate experience directly
- Increase initial processes of consolidation
- Are under volitional control

Turning States into Traits: HEAL

Activation

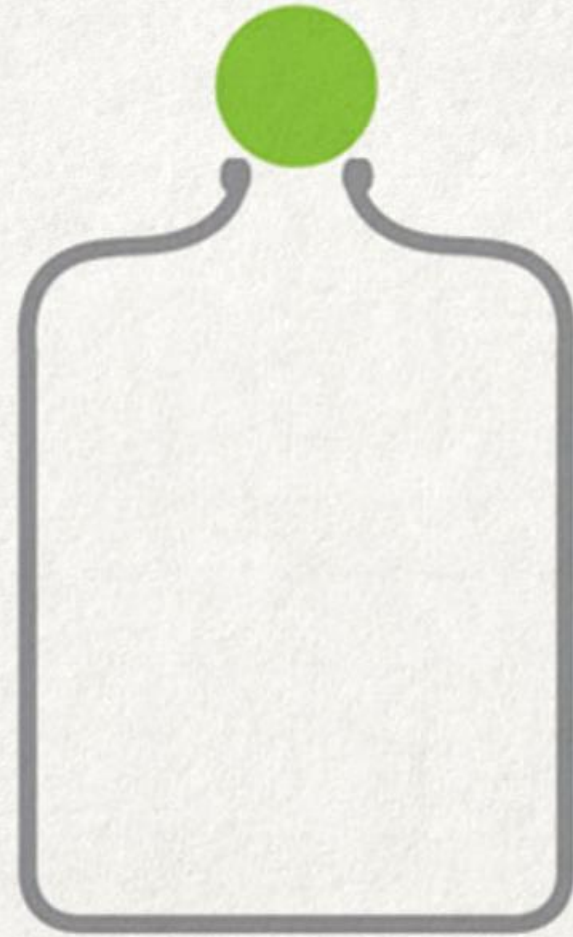
1. **Have** a beneficial experience

Installation

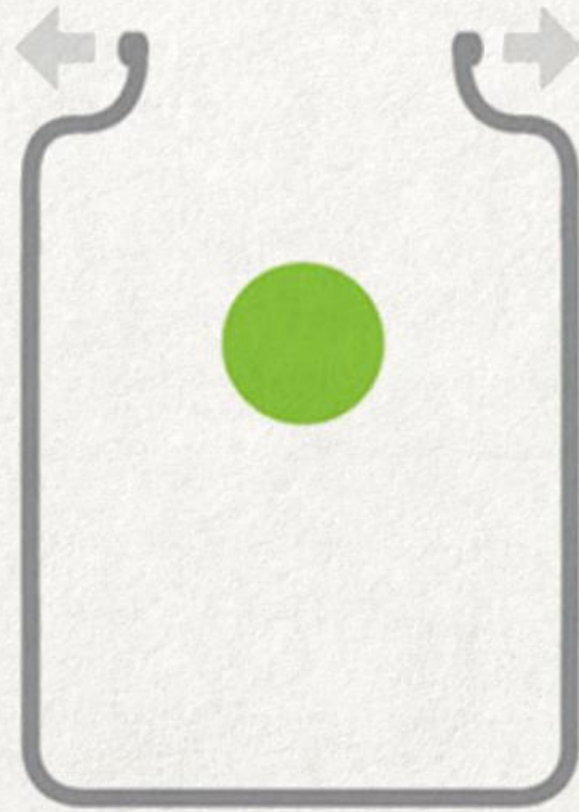
2. **Enrich** the experience

3. **Absorb** the experience

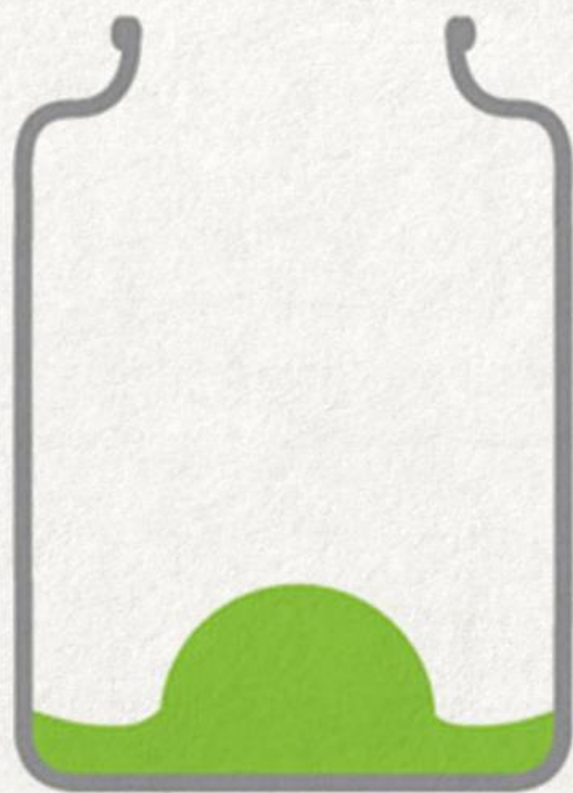
4. **Link** positive and negative material
(Optional)



Have a Beneficial Experience

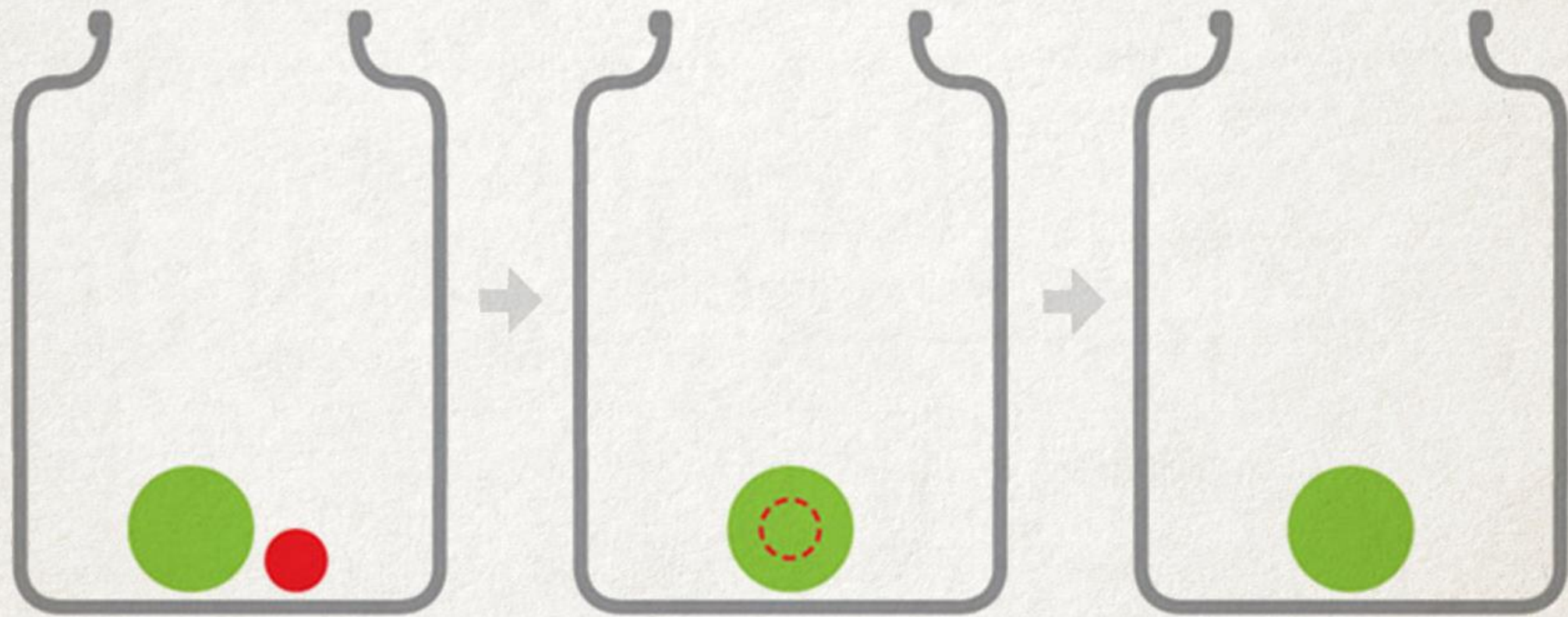


Enrich It

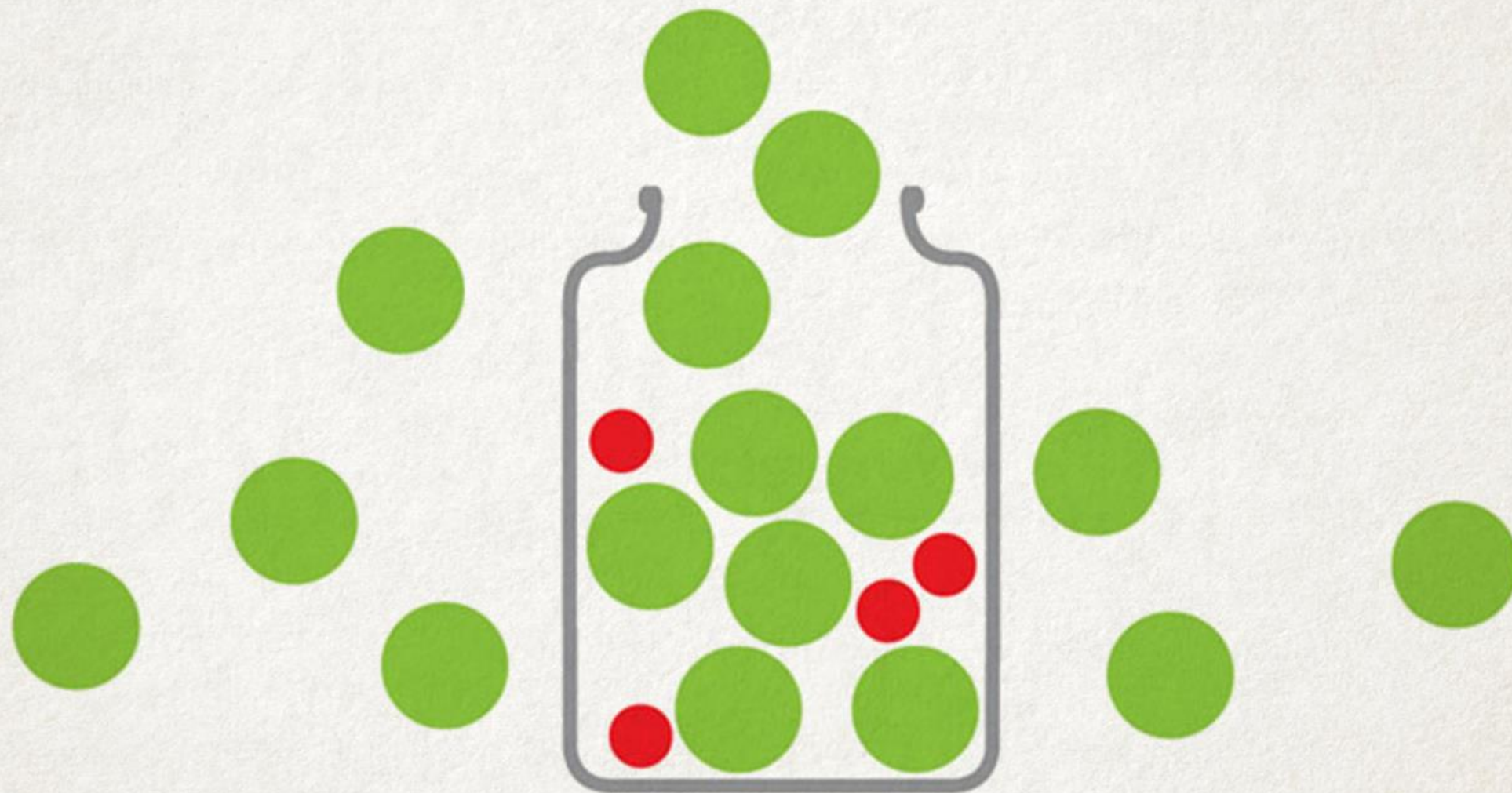


Absorb It





Link Positive & Negative Material



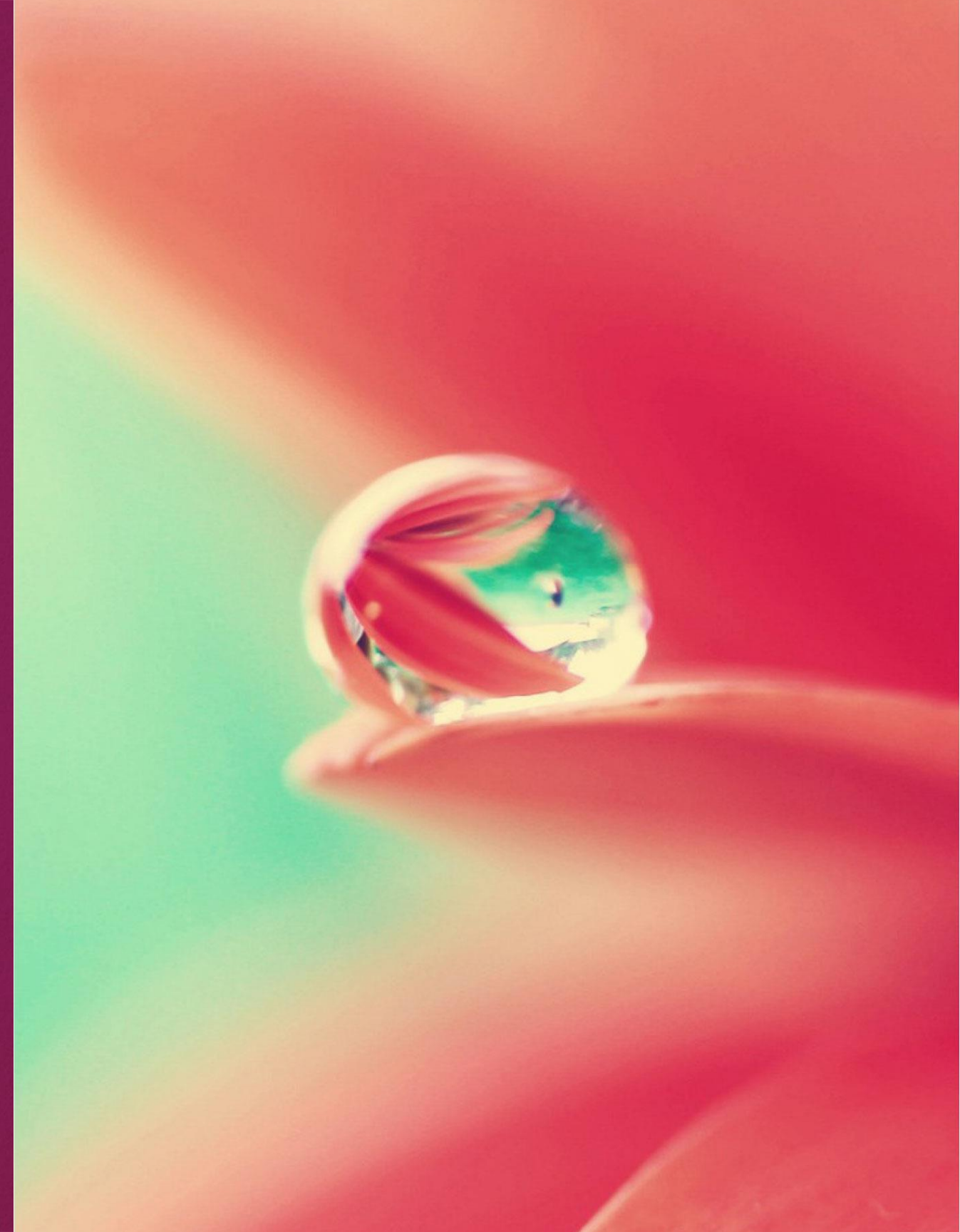
Have It, Enjoy It

*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



In the beginning, nothing came.

In the middle, nothing stayed.

In the end, nothing left.

Milarepa

What – if it were more present
in the mind of a person –
would really help?

How could a person have and
install more experiences of
these mental resources?

It's Good to Take in the Good

Develops psychological resources:

- General – resilience, positive mood, feeling loved, etc.
- Specific – matched to challenges, wounds, deficits

Has built-in, implicit benefits:

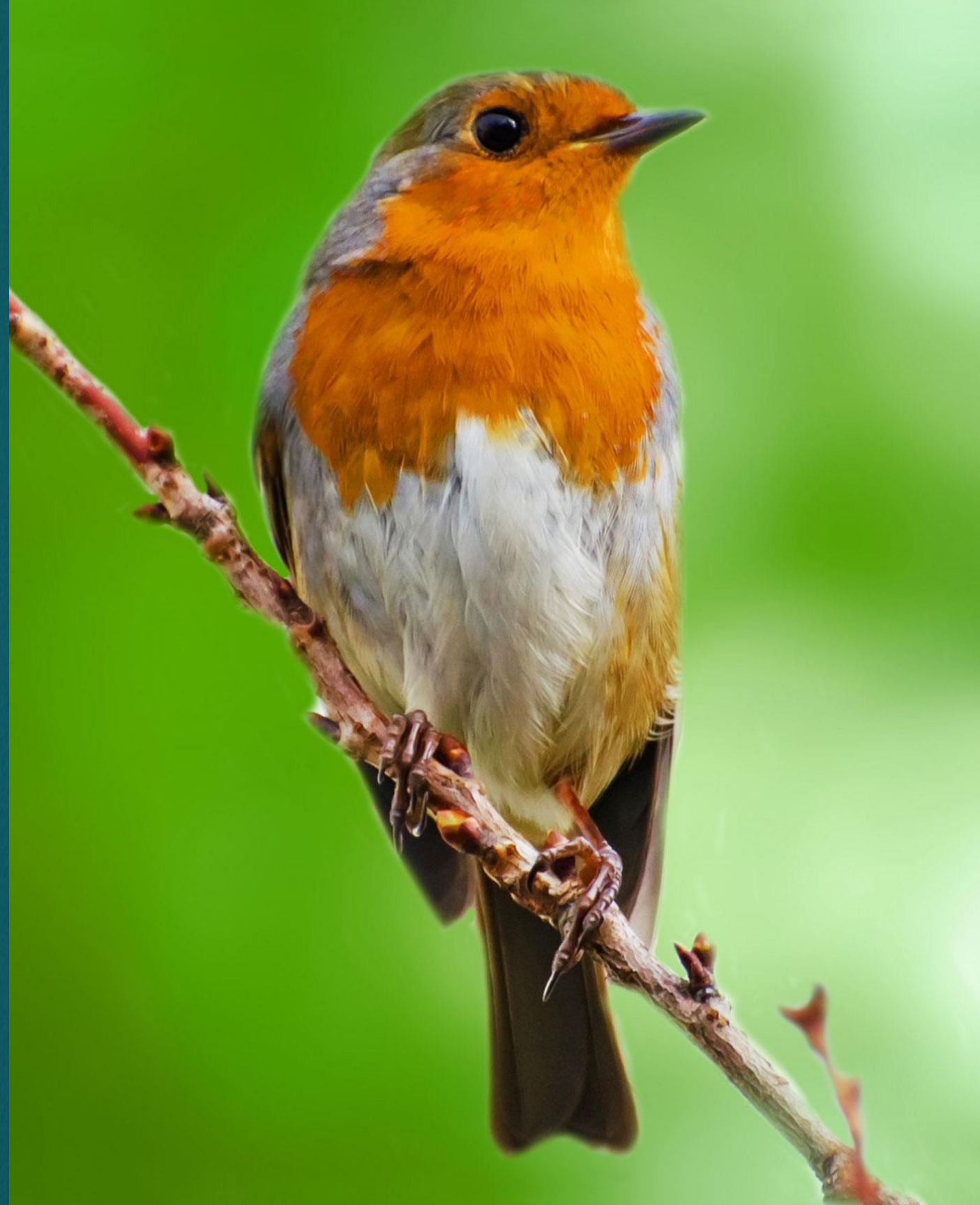
- Training attention and executive functions
- Treating oneself kindly, that one matters

May sensitize the brain to the positive

Fuels positive cycles with others

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

Lao Tzu



Learning
is the strength of strengths,
since it's the one we use
to grow the rest of them.

Knowing how to learn
the things that are important to you
could be the greatest strength of all.

Whew – that's a lot.

Let's pause to talk about it with a partner.

What implications do you see for how you do psychotherapy?

What implications do you see for yourself?

Seven Strengths In Wisdom Traditions

In wisdom traditions, including secular mindfulness, we find the development of seven qualities of being that I summarize (poetically) in these practices :

Steadying the mind

Warming the heart

Resting in fullness

Being wholeness

Receiving nowness

Opening into allness

Finding timelessness



Steadiness, Warmheartedness, and Fullness

Basics of Meditation

- Good will toward yourself
- Posture that is comfortable and alert
- In the present; aware and letting go
- Stable object of attention
- The mind settling and coming to rest

Neural Factors of Steadiness

- Intention – Top-down and bottom-up
- Relaxation – Parasympathetic NS
- Heartwarming – Social engagement sys.
- Safer – Calms sympathetic NS
- Positive emotions – Steadies attention,
reduces “craving”

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.



Having Compassion

Bring to mind one or more beings who are suffering . . . Have empathy for their suffering . . . Find the wish and the feeling that they not suffer . . .

Perhaps with soft thoughts such as, “May you not suffer . . . May you be at peace with this pain . . . May your sorrow ease . . . “

Receive the sense of compassion into yourself . . . Know what compassion feels like . . .

Meeting Our Three Fundamental Needs



Safety

Avoiding
harms

(threat response)



Satisfaction

Approaching
rewards

(goal pursuit)

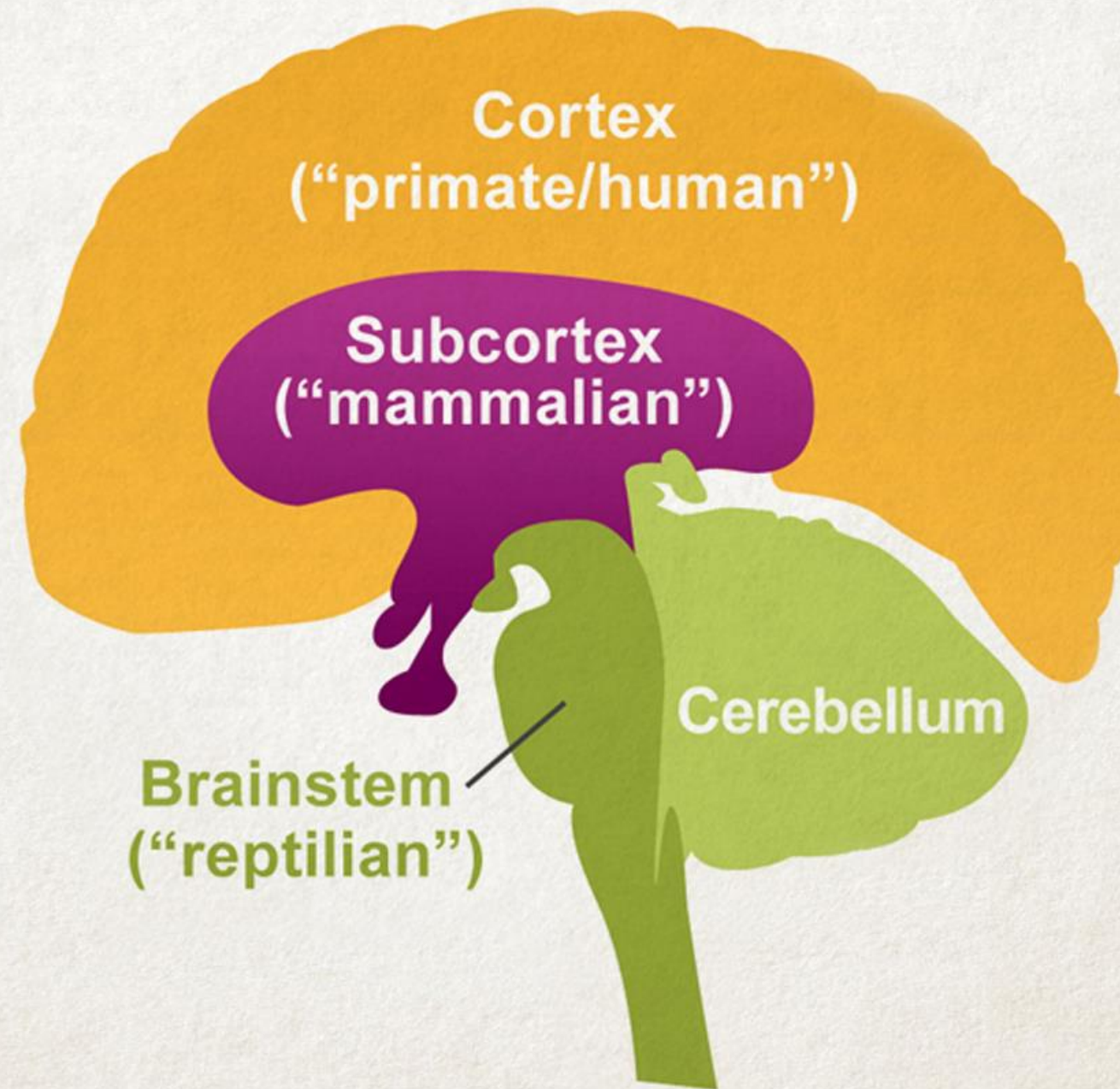


Connection

Attaching
to others

(social engagement)

The Evolving Brain



Pet the Lizard



Feed the Mouse



Hug the Monkey



Coming Home

Peace

Contentment

Love



Being Wholeness

The Parts and the Whole

Suffering is parts struggling with parts.

Meanwhile, there is always mind as a whole.

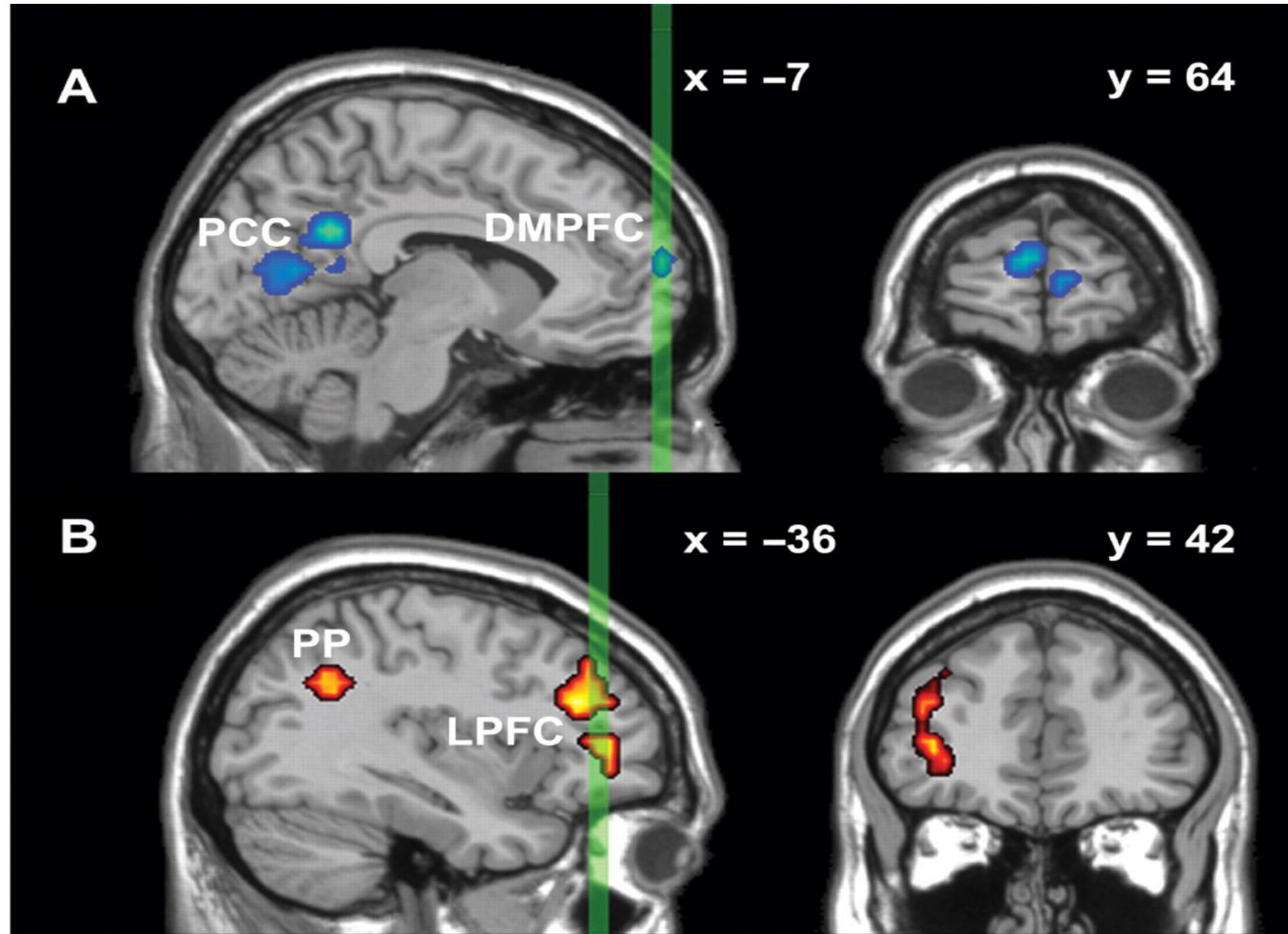
Mind as a whole simply is, not a problem.

When you experience your mind as a whole,
suffering falls away.



What helps us experience
the mind as a whole?

Self-Focused (blue) and Open Awareness (red)



Ways to Activate Lateral Networks

Focus on the present moment.

Don't problem-solve, fantasize, or ruminate.

Relax the sense of "me" and "I."

Widen into a panoramic view.

Rest in "don't know mind."

Sense your body as a whole.

Sensing Your Body as a Whole

Be aware of sensations of breathing all over your body.

Pick an area (e.g., chest) and include all the sensations there as a single whole.

Relax and receive sensations.

Gradually include more of your body.

Abide as a whole body breathing

Receiving Nowness



*Enlightenment is
to forget this moment
and grow into the next.*

Suzuki Roshi

The Present Moment of Mind

Now is the great mystery: infinitely thin temporally, yet containing everything.

Imagine super-slow motion mindfulness of the emergent edge of Now, coming into being as it passes away.

The Present Moment of Brain

The neural networks of alerting track the leading edge of the windshield of consciousness.

These alerting networks are involved with the continual updating of consciousness — which is supported by the sense of wholeness and allness.

*If you let go a little,
you'll have a little peace.*

*If you let go a lot,
you'll have a lot of peace.*

*If you let go completely,
you'll be completely peaceful.*

Ajahn Chah

Opening into Allness

*To learn about oneself
is to forget oneself.*

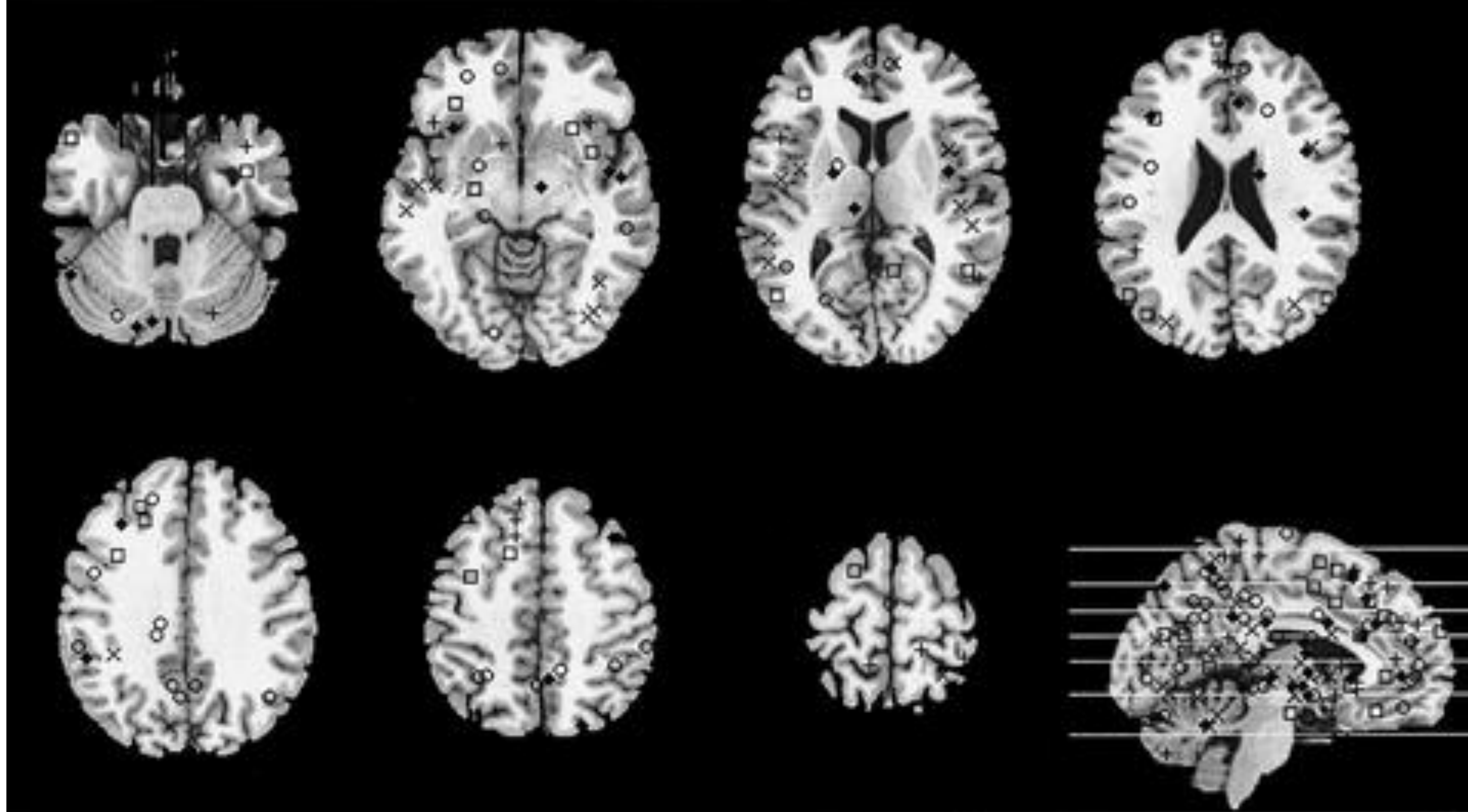
*To forget oneself
is to perceive oneself
as all things.*

Dogen

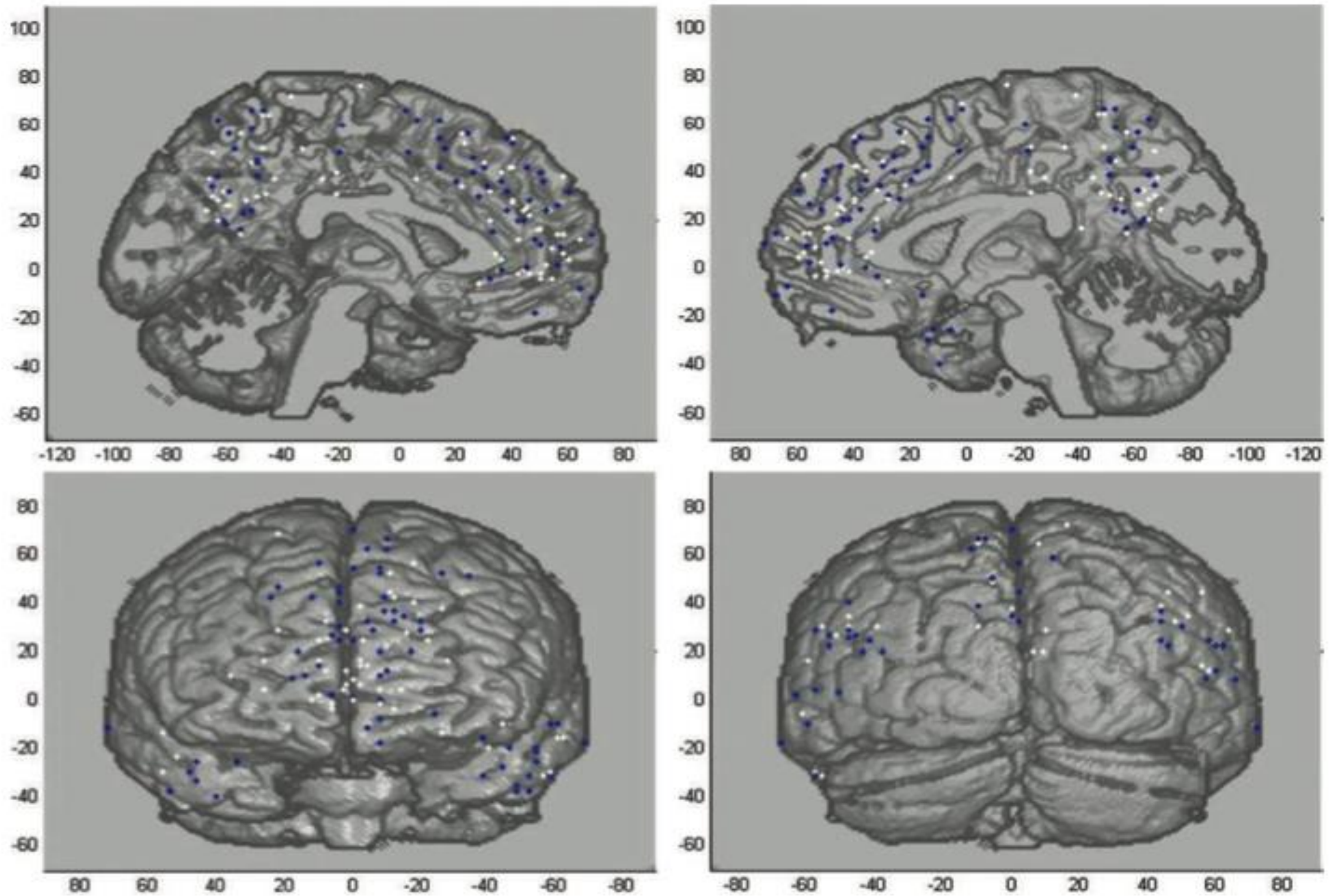
The apparent psychological self is presumed to be enduring, unified, and independent.

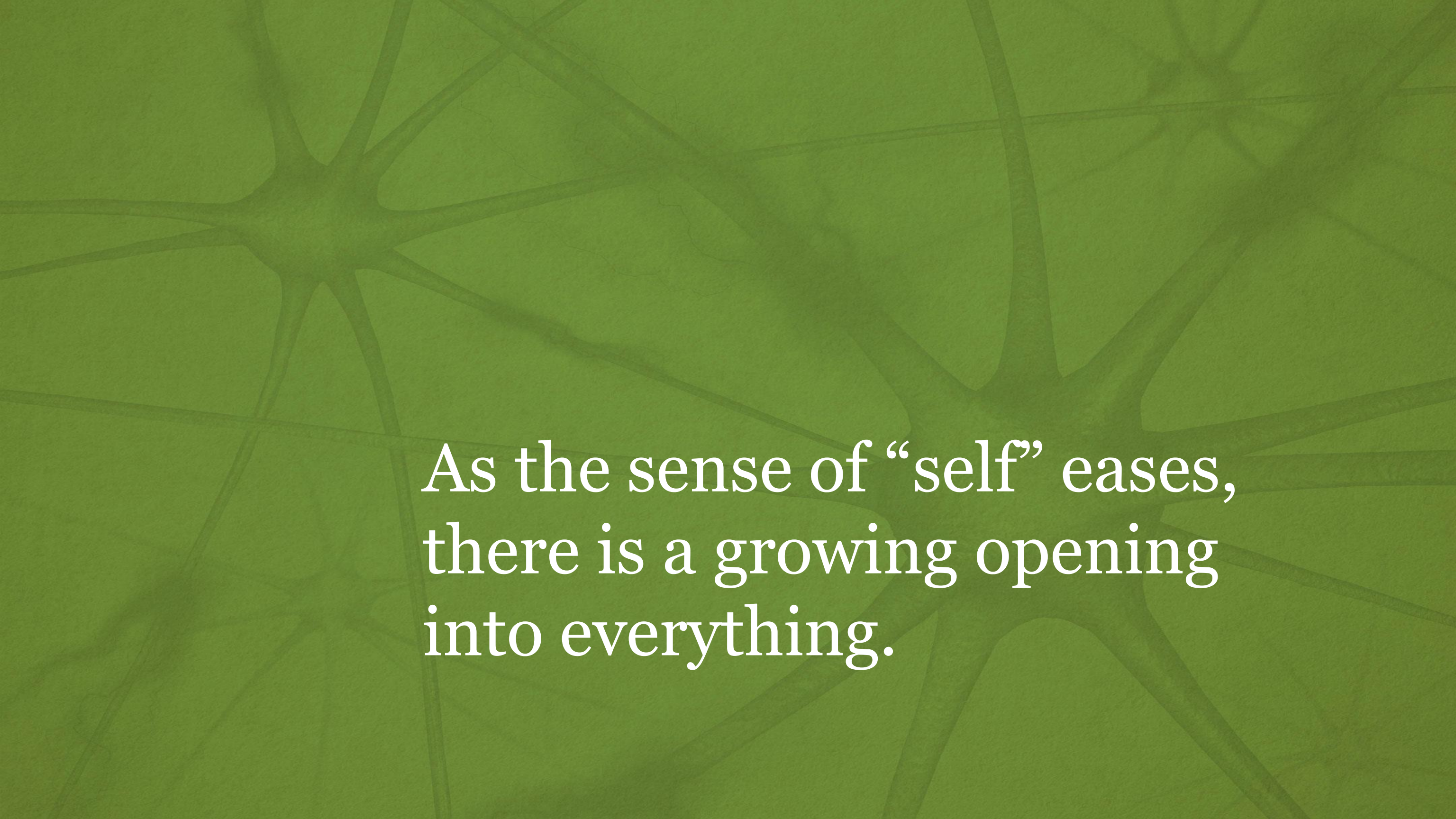
Yet when we observe the mind, we see that self-related experiences are impermanent, compounded, and dependently arising.

When we observe the brain, we find exactly the same thing.

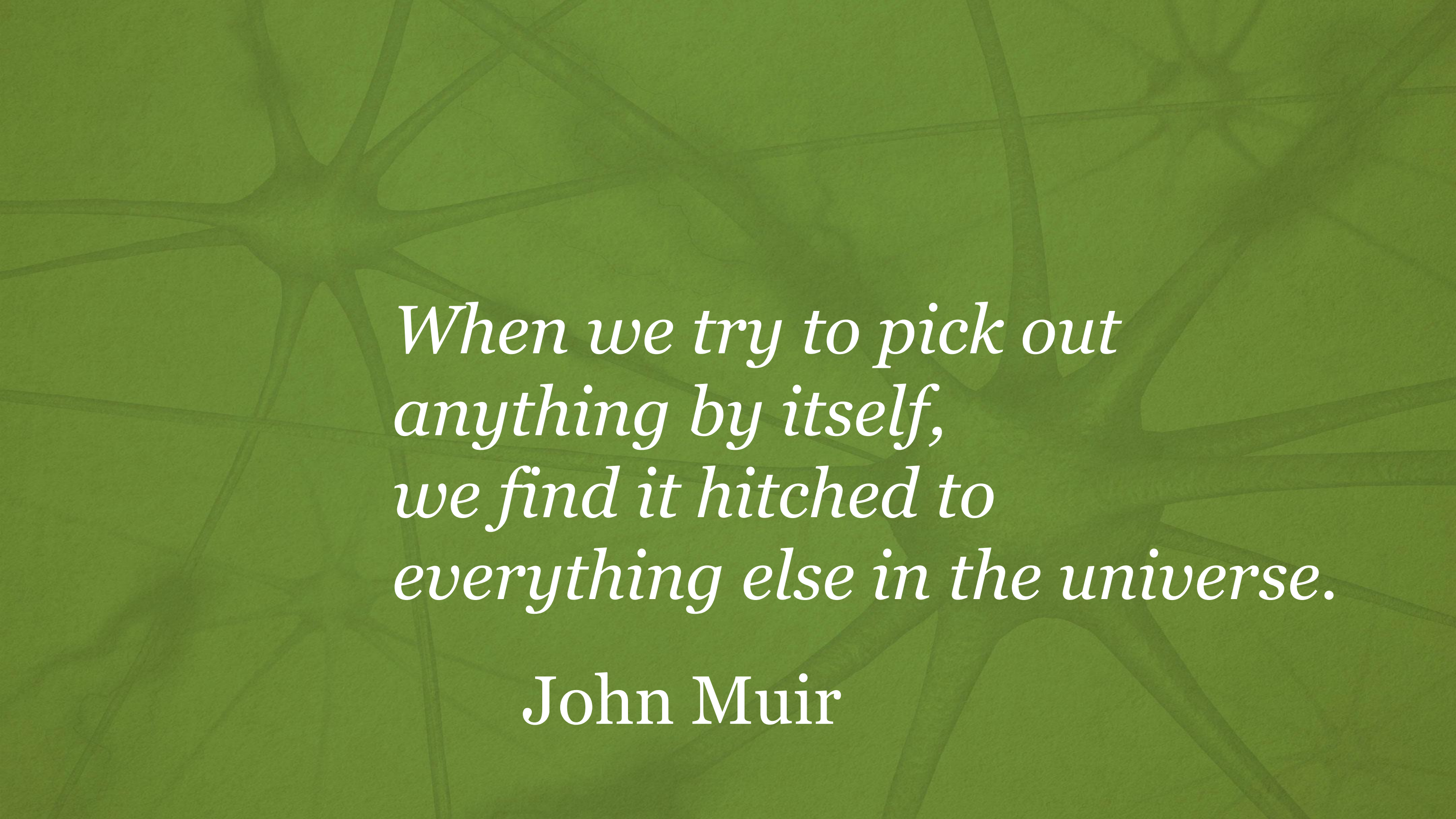


Gillihan, et al. 2005. *Psychological Bulletin*



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As the sense of “self” eases,
there is a growing opening
into everything.



*When we try to pick out
anything by itself,
we find it hitched to
everything else in the universe.*

John Muir

Allocentric Framework

Based on more ancient regions of the brain

Being-ness; alrightness already

What it is, independent of “me”; impersonal

Upper visual field

Egocentric Framework

Based on more recent regions of the brain

Doing-ness; goal-directed

Where it is, related to “me”; personal

Lower visual field

The Allocentric/Egocentric Dance

Alternately normally

As one increases, the other decreases

With new stimuli – thus, alerting –
allocentric increases briefly, then
egocentric response shaped by the
hedonic tone

Factors of Allocentrism

Fullness – nothing missing or wrong

Wholeness – wide inclusive awareness

Nowness – alerting, openness

Tranquility – GABA-regulated switches

Recognizing interconnectedness – you're a
local ripple in the vast ocean of causes

Opening, in Peace

Feeling at ease . . . tranquil and alert

Your gaze or imagination extend out to the
horizon and beyond

Experiences flowing, edges softening

Knowing you are lived by everything

Opening into allness

Intimations of Timelessness



Three Kinds of “Unconditioned”

Disengaging from conditioned patterns of suffering while experiencing “effectively unconditioned” awareness, spaciousness, and stillness

Entering extraordinary states of mind within ordinary reality in which all conditioned experiences cease

Recognizing what may be transcendentally unconditioned, distinct from conditioned reality

The Wider World

As they grow an unshakable core
of peace, contentment, and love,
people become less vulnerable to
the classic manipulations of
fear and anger,
greed and possessiveness,
and “us” against “them” conflicts.

Which has big implications for our world.

Coming Home

Peace

Contentment

Love

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See **RickHanson.net** for other good books.

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See www.RickHanson.net/key-papers/ for other suggested readings.

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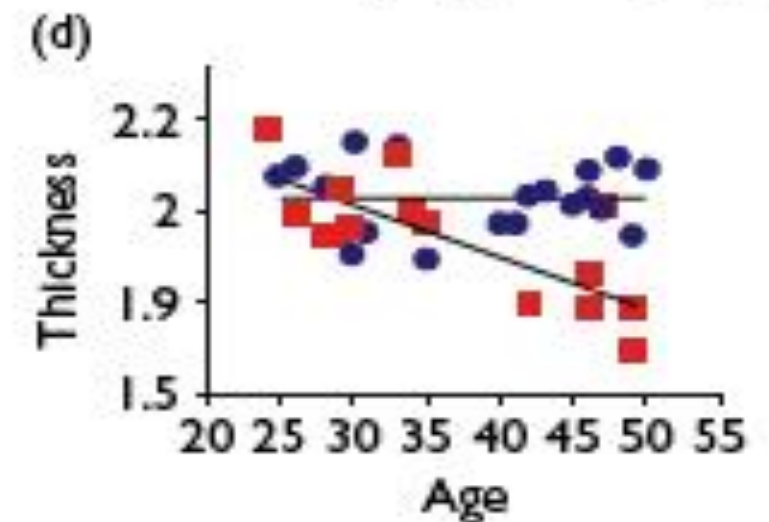
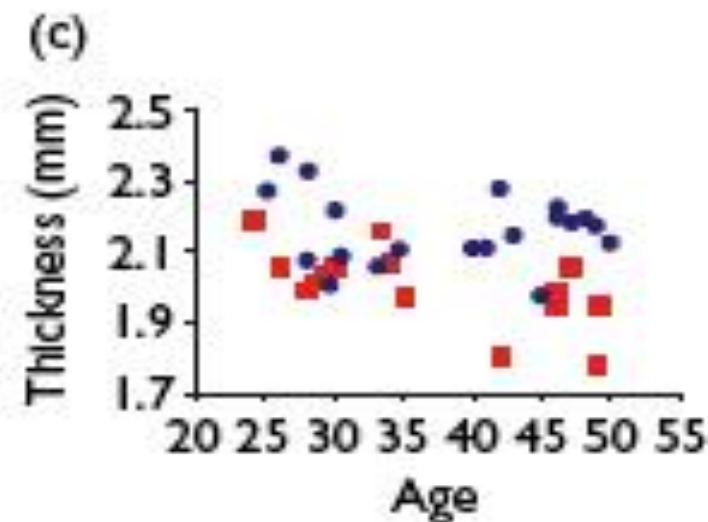
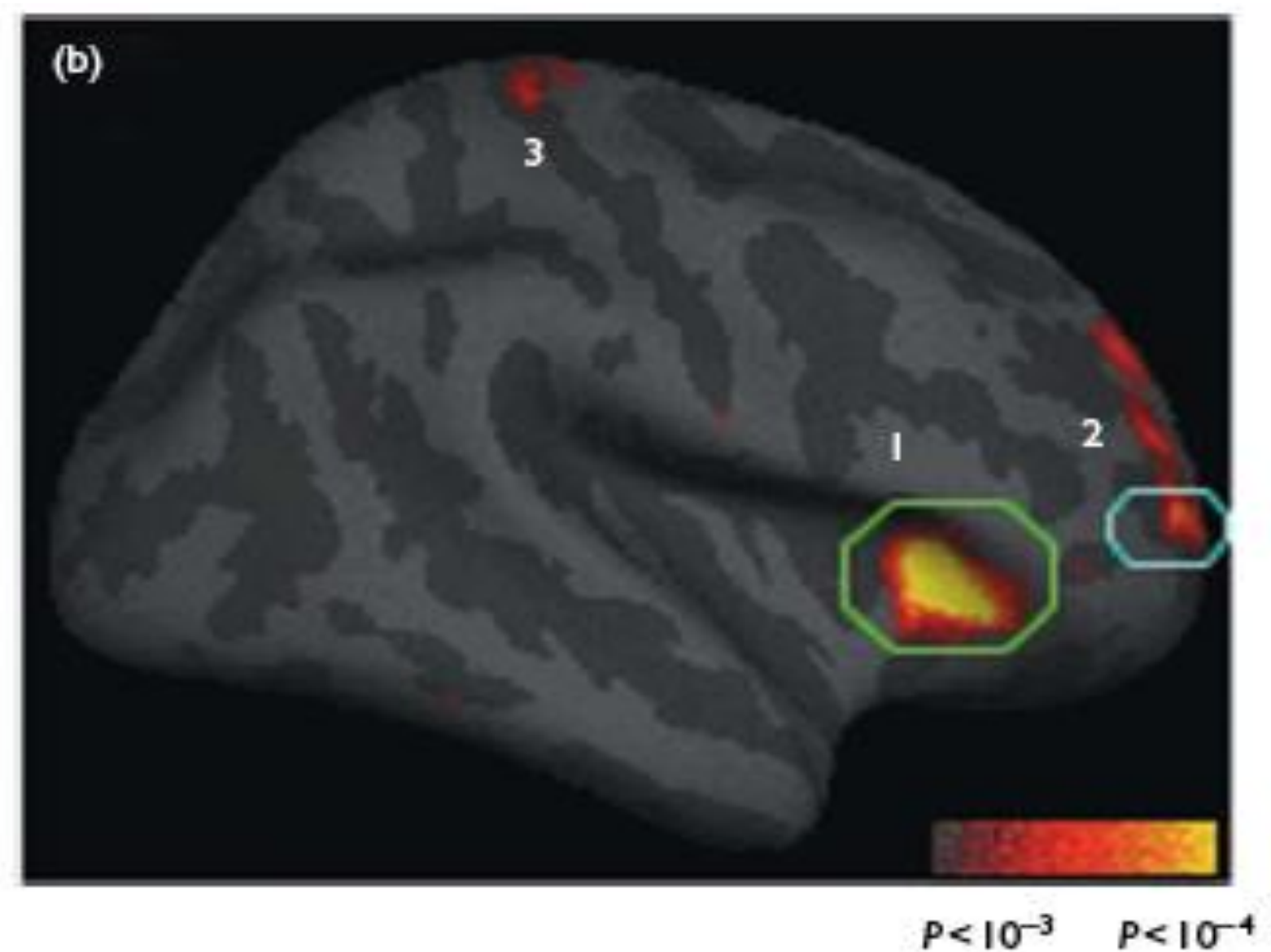


Supplemental Materials

Meditation
experience is
associated
with increased
cortical thickness.

Lazar, et al. 2005.

Neuroreport, 16, 1893-1897.



Simple Practices

Look for beneficial experiences to take in.

Stay with them for a breath or longer.

Feel them in your body.

Focus on what feels good or is meaningful.

Calm Strength

Calming in the body and mind

Feeling strong

What feels good about calm strength?

Calm strength while aware of others

Calm strength with goodwill for others

Calming the Visceral Core

- A brief explanation of heartrate variability
- Relax.
- Gently lengthen exhalations . . . As long as or longer than inhalations . . . Then letting breathing be soft and natural.
- Bring attention into the chest and area of the heart.
- Be aware of heartfelt feelings . . . Perhaps love flowing in and flowing out in rhythm with the breath.

Feeling Alright Right Now

- Aware of the body going on being . . . Enough air to breathe . . . The heart beating fine . . . Basically alright . . . Now
- You may not have been basically alright in the past and you may not be basically alright in the future . . . But now you are OK . . . Still basically OK . . . Now
- Letting go of unnecessary anxiety, guarding, bracing
- Reassurance, relief, calming is sinking into you . . . Still basically alright . . . Now

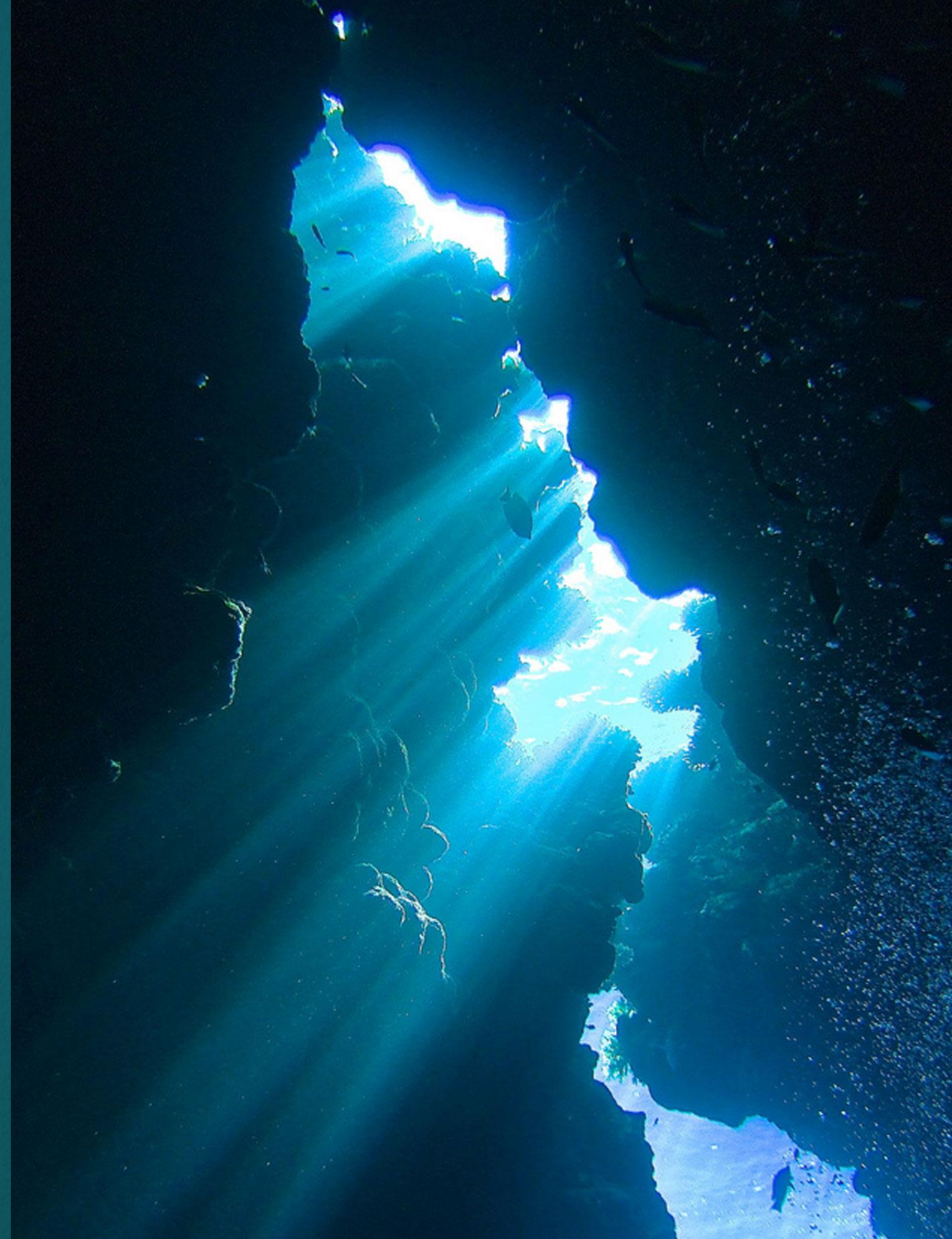
Empathy Skills

- 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.

“Anthem”

*Ring the bells that still can ring
Forget your perfect offering
There is a crack, a crack in everything
That's how the light gets in*

Leonard Cohen



Letting Go

Rest in a sense of alrightness . . . peaceful,
contented, warmhearted.

Be mindful of this moment continually
emerging . . . so it's alright to let go.

Let go while exhaling.

Be mindful of sensations, all experiences
changing . . . letting them pass away.

Softening All the Edges

Relaxing, abiding as a body breathing

Sensations softening together

Heart softening

Everything in the mind softening together, a
single mind process, awareness included

Edges softening between you and everything

*The Buddha: “Bahiya, you should train yourself thus:
In reference to seeing, there will be only seeing. In
hearing, only hearing. In sensing, only sensing. In
cognizing, only cognizing.*

*When for you there is only seeing in seeing, only hearing
in hearing, only sensing in sensing, only cognizing in
cognizing – then, Bahiya, there is no you in connection
with that.*

*When there is no you in connection with that, there is no
you there. When there is no you there, you are neither
here nor yonder nor between the two.*

This, just this, is the end of suffering.”

*The entire world is in flames,
the entire world is going up in smoke;
the entire world is burning,
the entire world is vibrating.*

*But that which does not vibrate or burn, which
is experienced by the noble ones, where death
has no entry –
in that my mind delights.*

The Buddha

Only Allness

Much as the mind is a whole, the material universe is a whole.

The allness that includes every sort of mind and matter is also a whole.

Allness as allness is always allness.

Much as mind as a whole is never a problem, allness as allness is never a problem.

Effectively Unconditioned

Being aware of various conditioned experiences in the streaming of consciousness

Getting a sense of awareness as an effectively unconditioned field

Also spaciousness . . . edges softening . . .

And stillness . . . unchanging . . . timeless . . .