

Acquiring Mental Resources For a “Green Zone” Brain



Sounds True Neuroscience Summit
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Mental Resources

Mental Resources Support Well-Being

Resilience

Mindfulness

Secure Attachment

Self Regulation

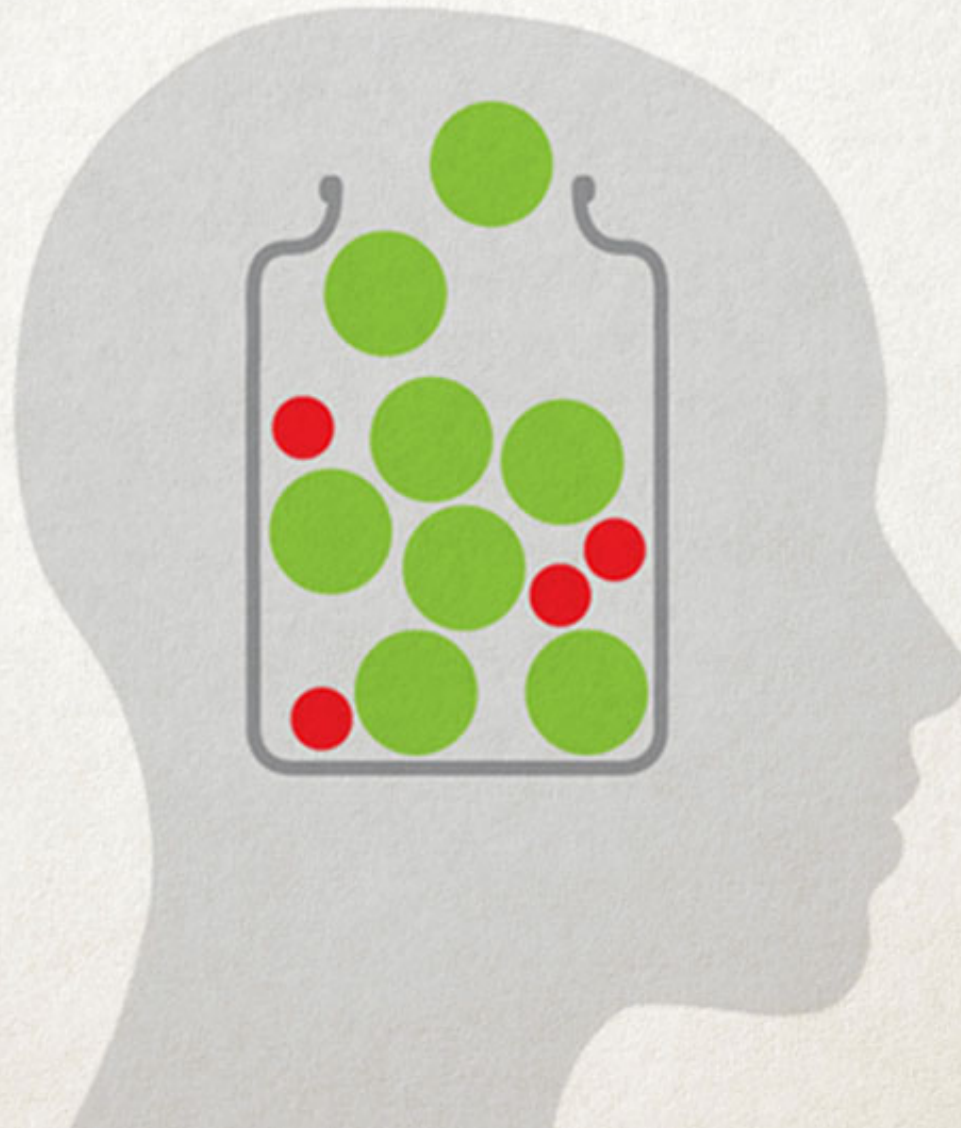
Optimism

Self-Worth

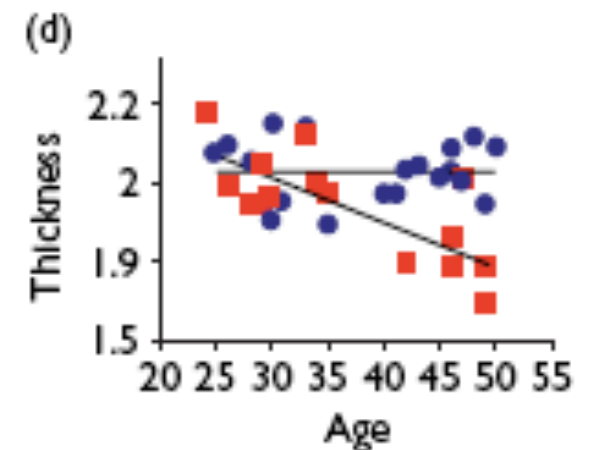
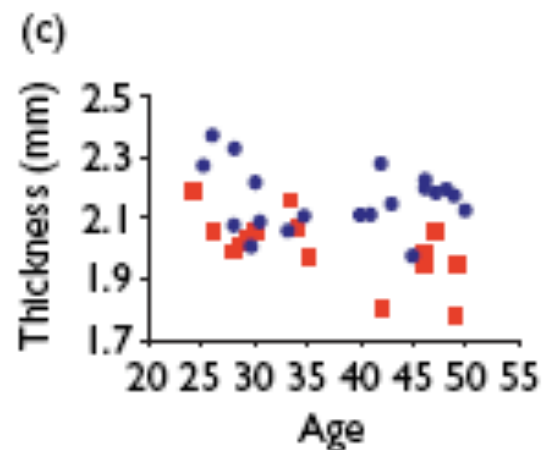
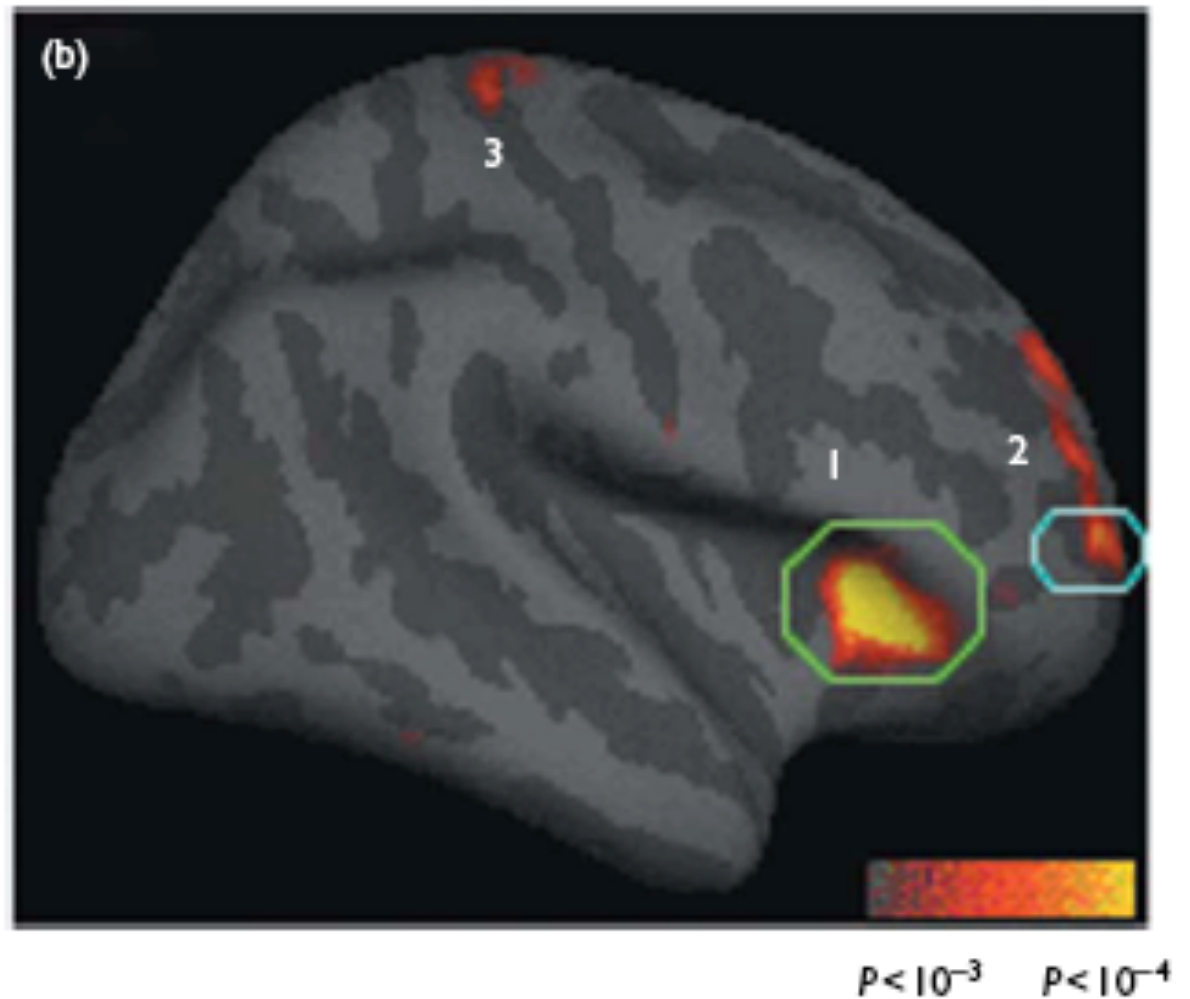
Roughly half to two-thirds of the variation in psychological attributes involves non-heritable factors.

A large fraction of a typical person's mental resources are **acquired** – learned – rather than innate.

Mental Resources Are Acquired Through Changes in Nervous System



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



Mental resources are acquired in two stages:

Encoding	➤	Consolidation
Activation	➤	Installation
State	➤	Trait

Neural Mechanisms of Learning

(De) Sensitizing existing synapses

Building new synapses

Altered gene expression

Building and integrating new neurons

Increased ongoing activity in a brain region

Increased connectivity of brain regions

Altered neurochemical activity

Information transfer from hippocampus to cortex

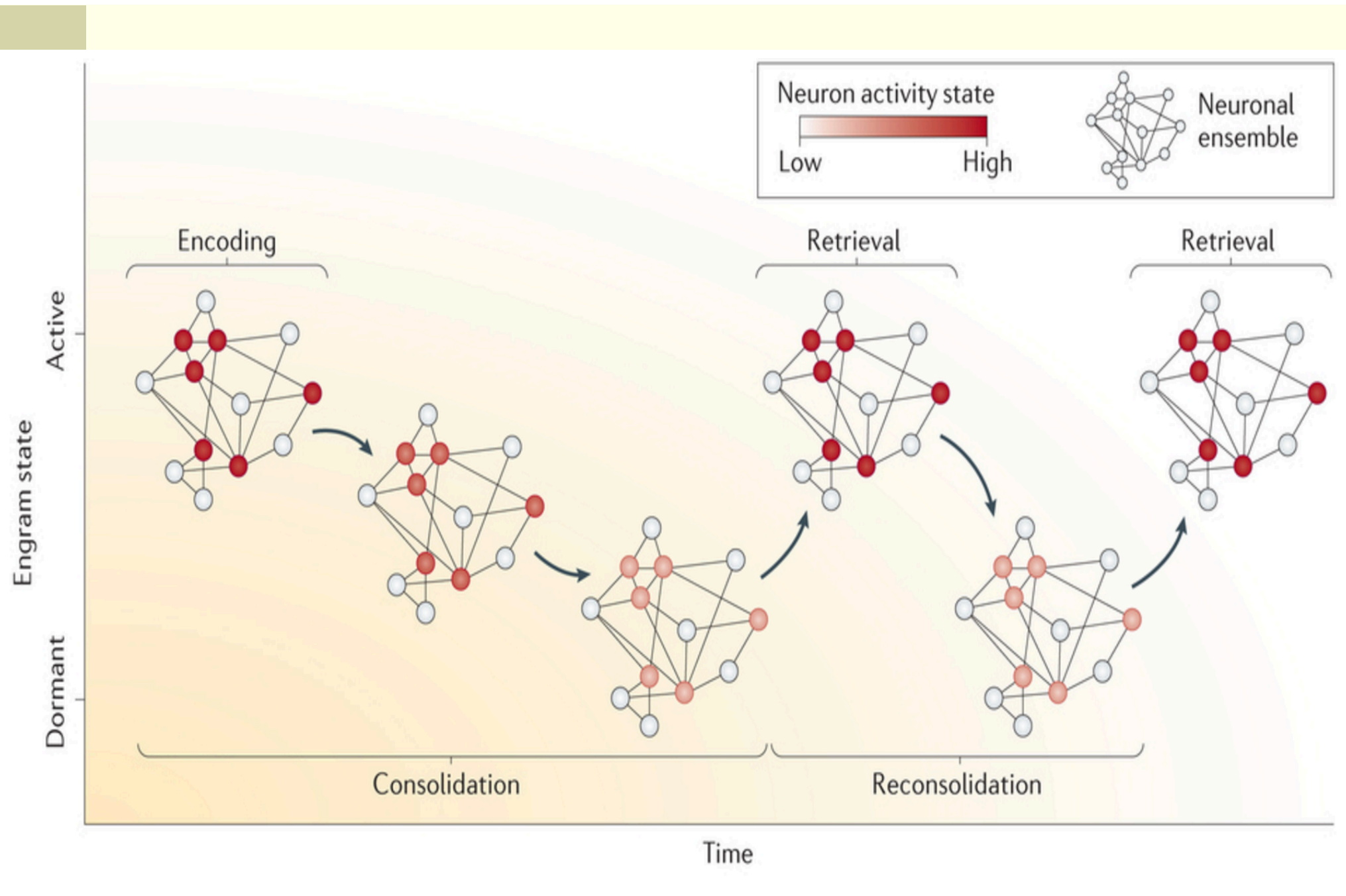
Modulation by stress hormones and cytokines

Slow wave and REM sleep

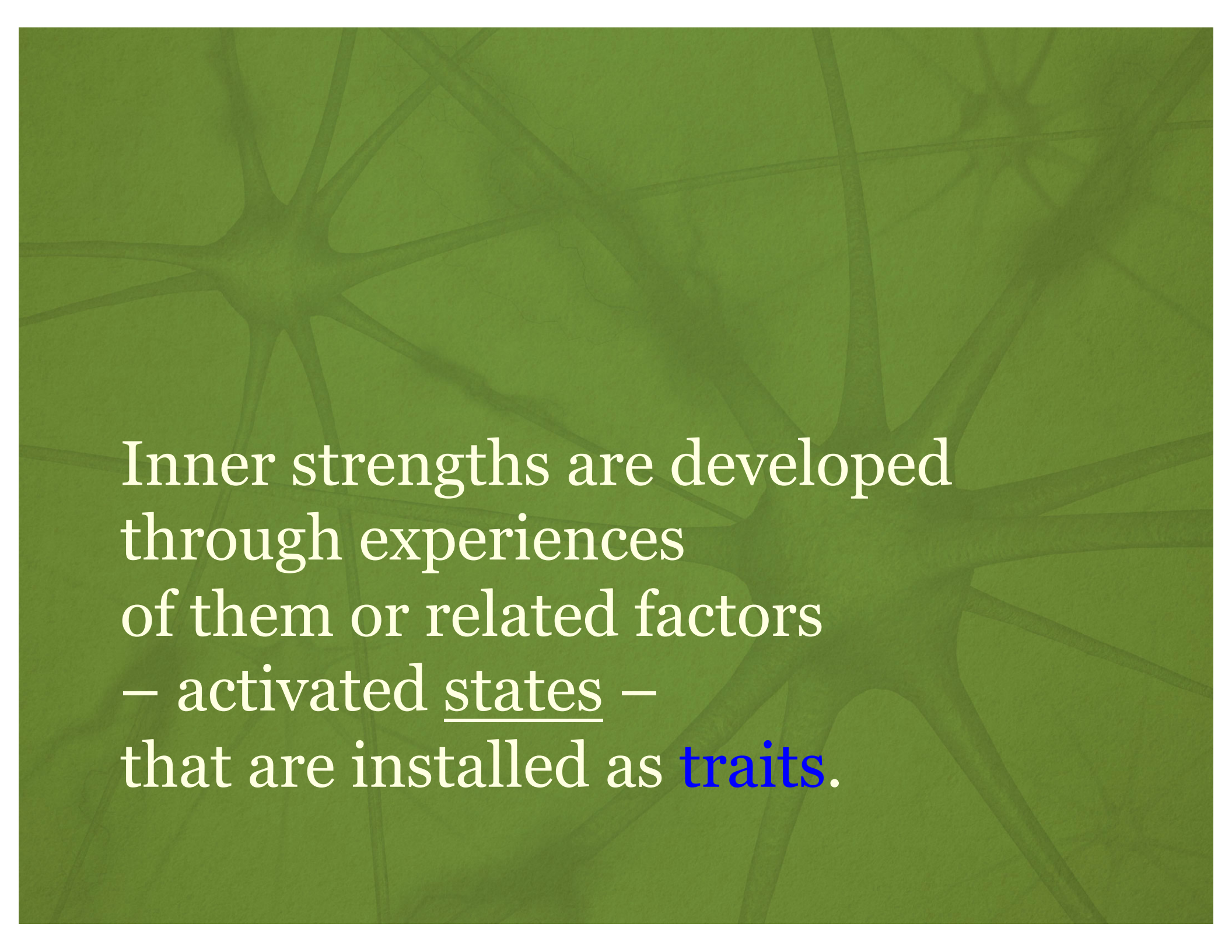
A detailed illustration of a neural network. The background is a deep black, providing a stark contrast for the glowing yellow and orange neurons. Numerous long, thin, and slightly curved axons or dendrites crisscross the frame, creating a complex web. In the center, a more prominent neuron is shown with a rounded, translucent yellow cell body containing a bright green nucleus. Other similar but less distinct neurons are visible in the lower-left and upper-left corners. The overall effect is one of organic complexity and vibrant energy.

Neurons that fire together,

wire together.



Josselyn et al., 2015. Nature Reviews Neuroscience, 16, 521-524.



Inner strengths are developed
through experiences
of them or related factors
– activated states –
that are installed as **traits**.

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

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

We become more **resilient** by repeatedly installing experiences of resilience.

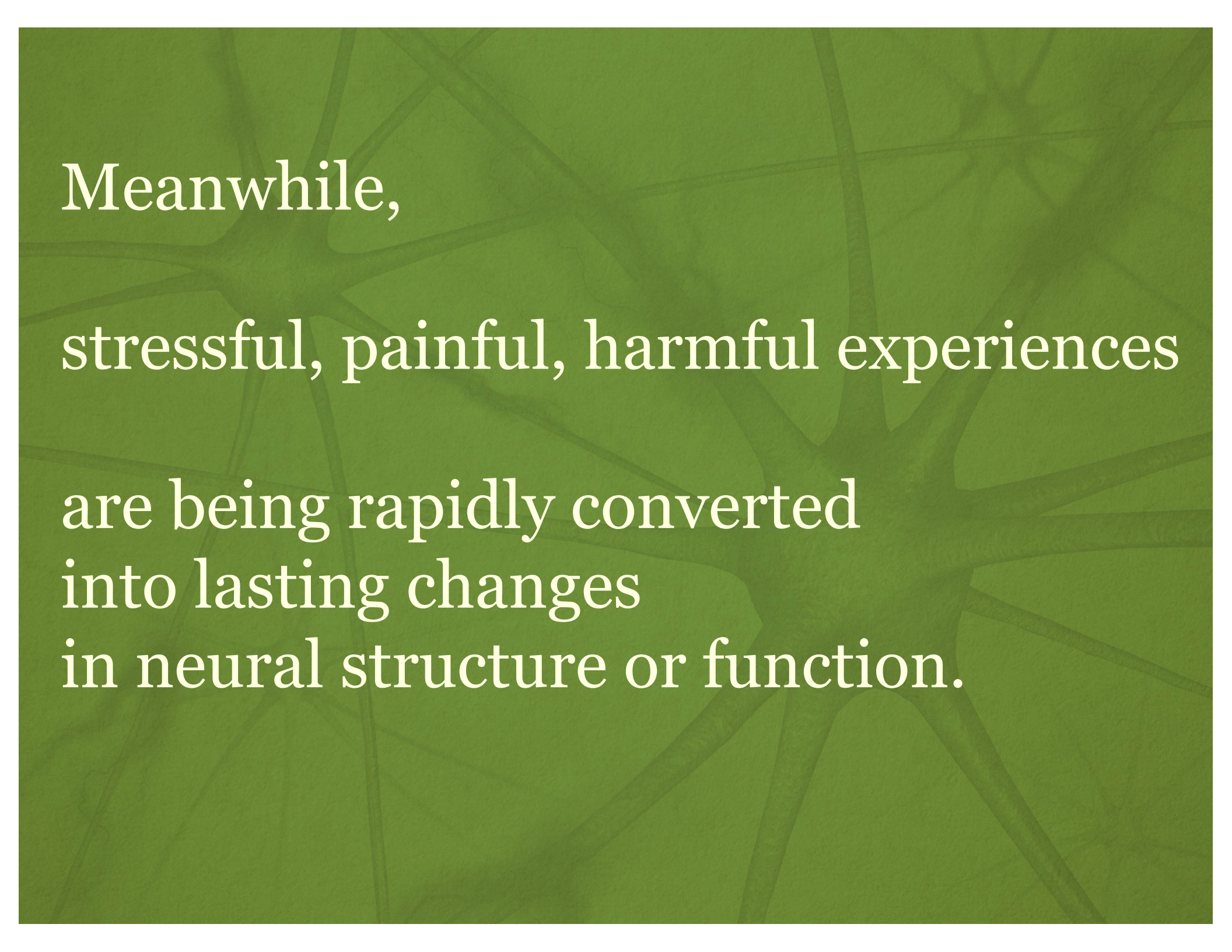


Steepening Personal Growth Curves

Experiencing doesn't equal learning.

**Activation without installation
may be pleasant,
but no trait resources are acquired.**

What fraction of our
beneficial mental states ever
become neural structure?



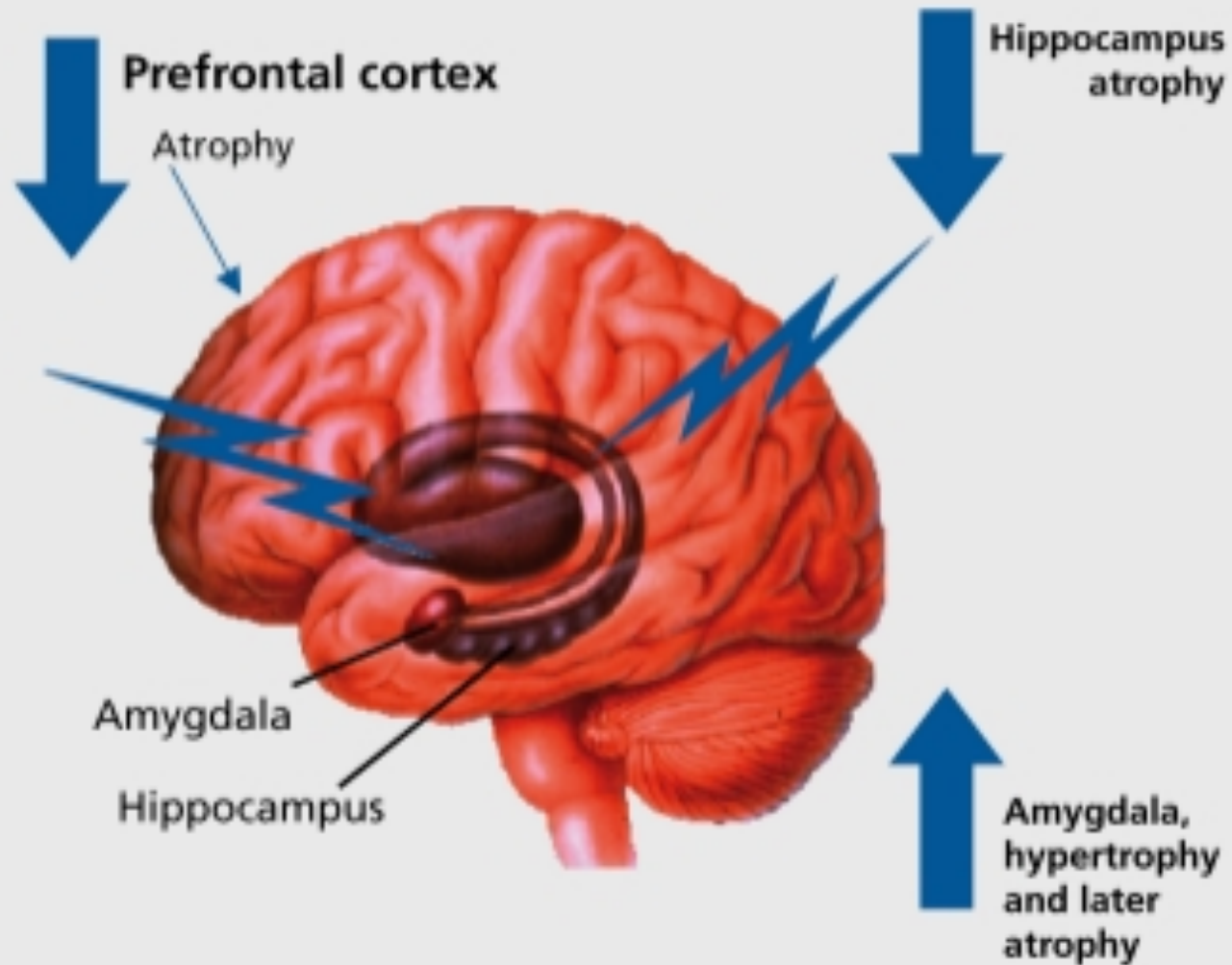
Meanwhile,
stressful, painful, harmful experiences
are being rapidly converted
into lasting changes
in neural structure or function.

The Negativity Bias

During the 600 million year evolution of the nervous system, 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. Install it efficiently in memory (incl. implicit),
5. Sensitize the brain to the negative, and
6. Create vicious cycles with others.

The brain under stress: structural remodeling



How stress changes the brain

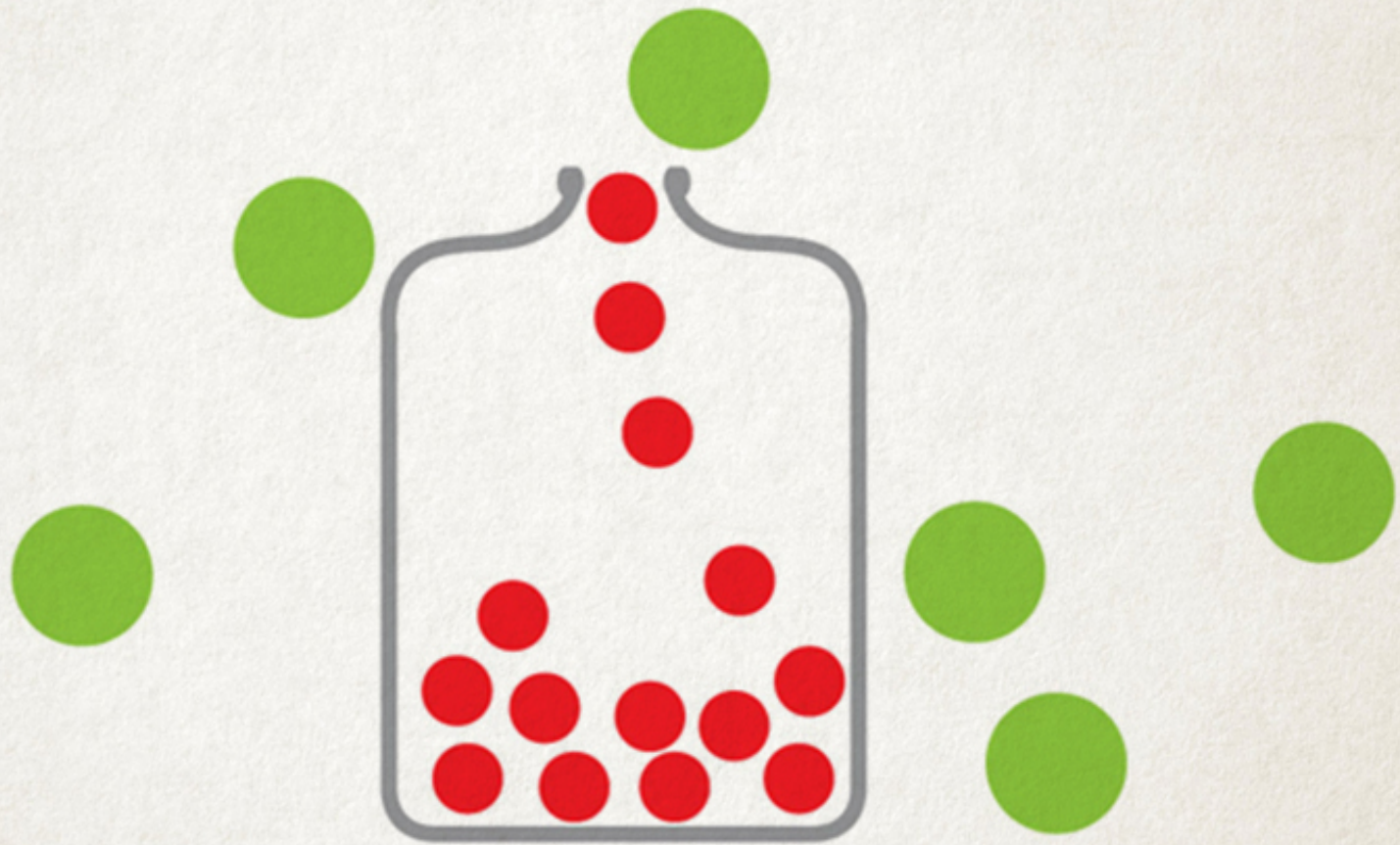
McEwen, 2006. Dialogues in Clinical Neuroscience, 8:367-381

Velcro for Bad, Teflon for Good

The negativity bias

bad experiences

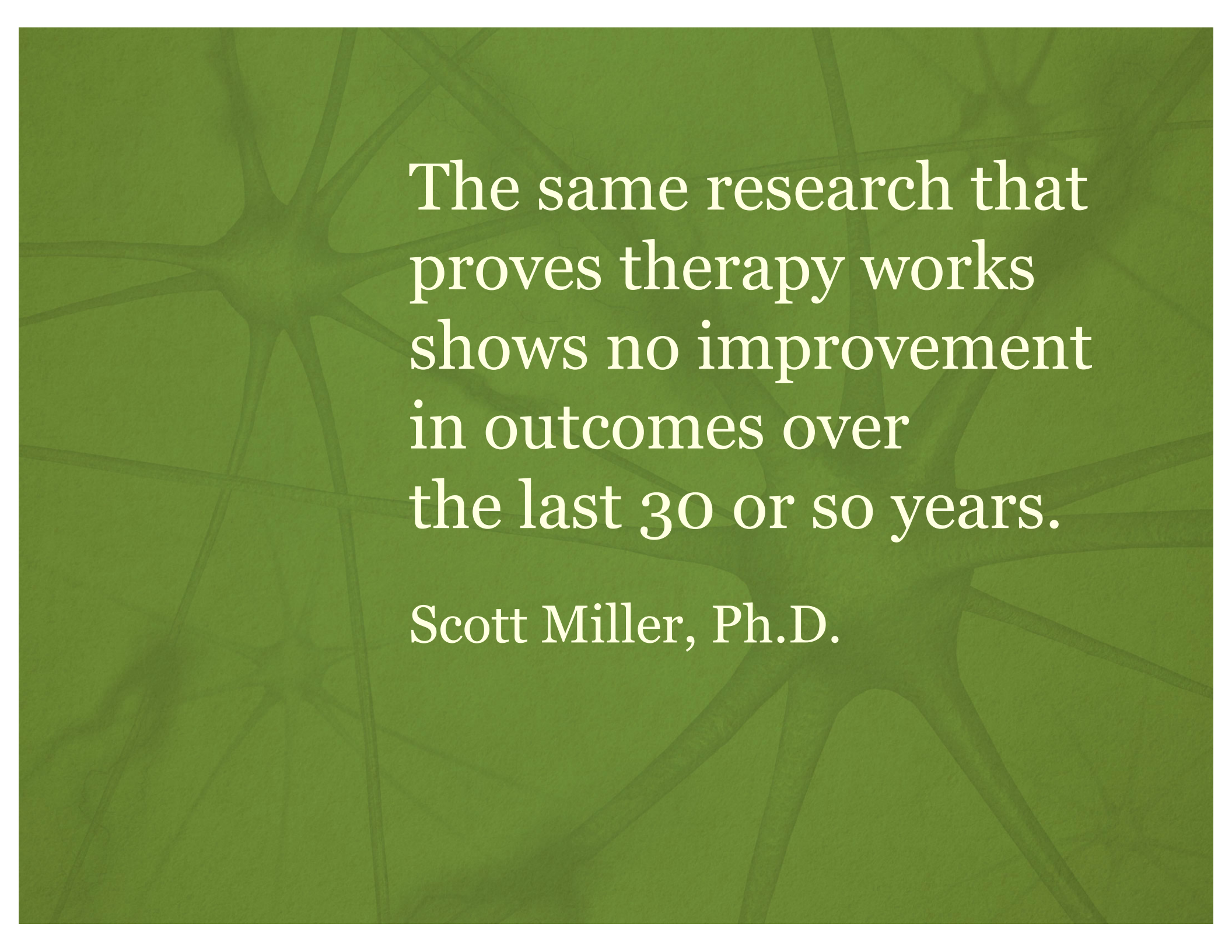
good experiences



The Negativity Bias

Professionals and the public
are generally good at activation
but bad at installation.

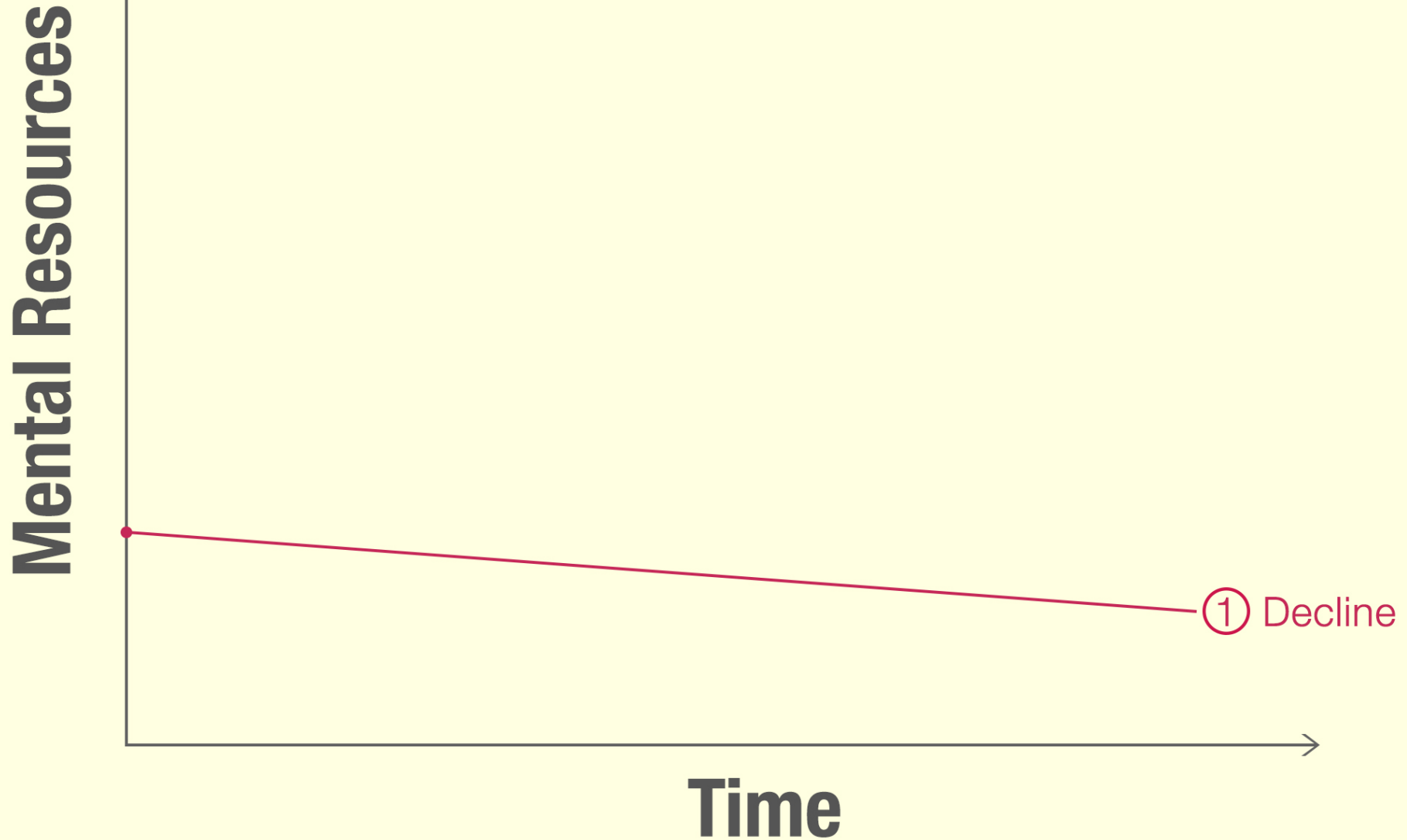
This is the fundamental weakness –
and opportunity – in much
coaching, psychotherapy, human
resources training, and mindfulness
programs.



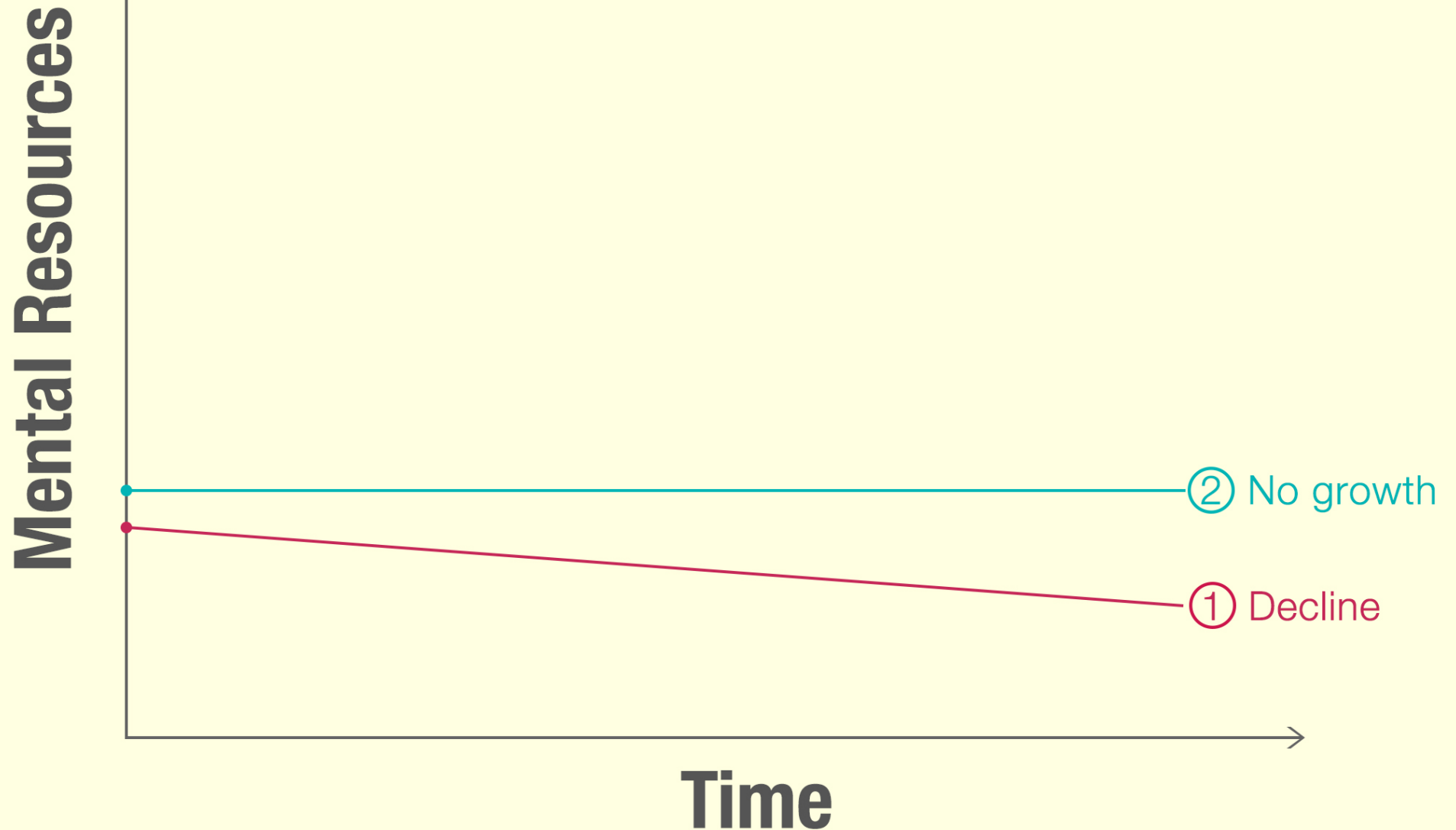
The same research that
proves therapy works
shows no improvement
in outcomes over
the last 30 or so years.

Scott Miller, Ph.D.

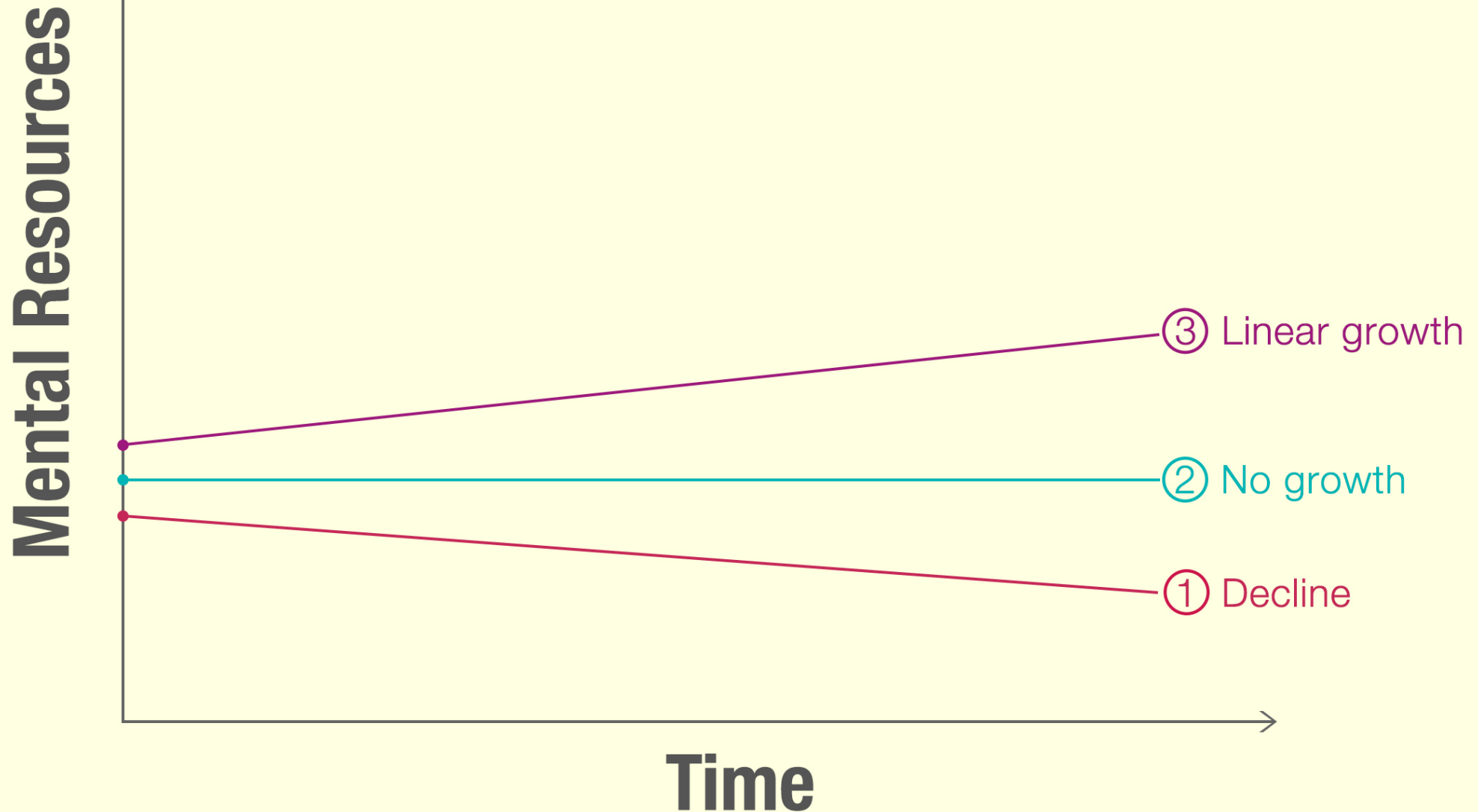
Four Learning Curves



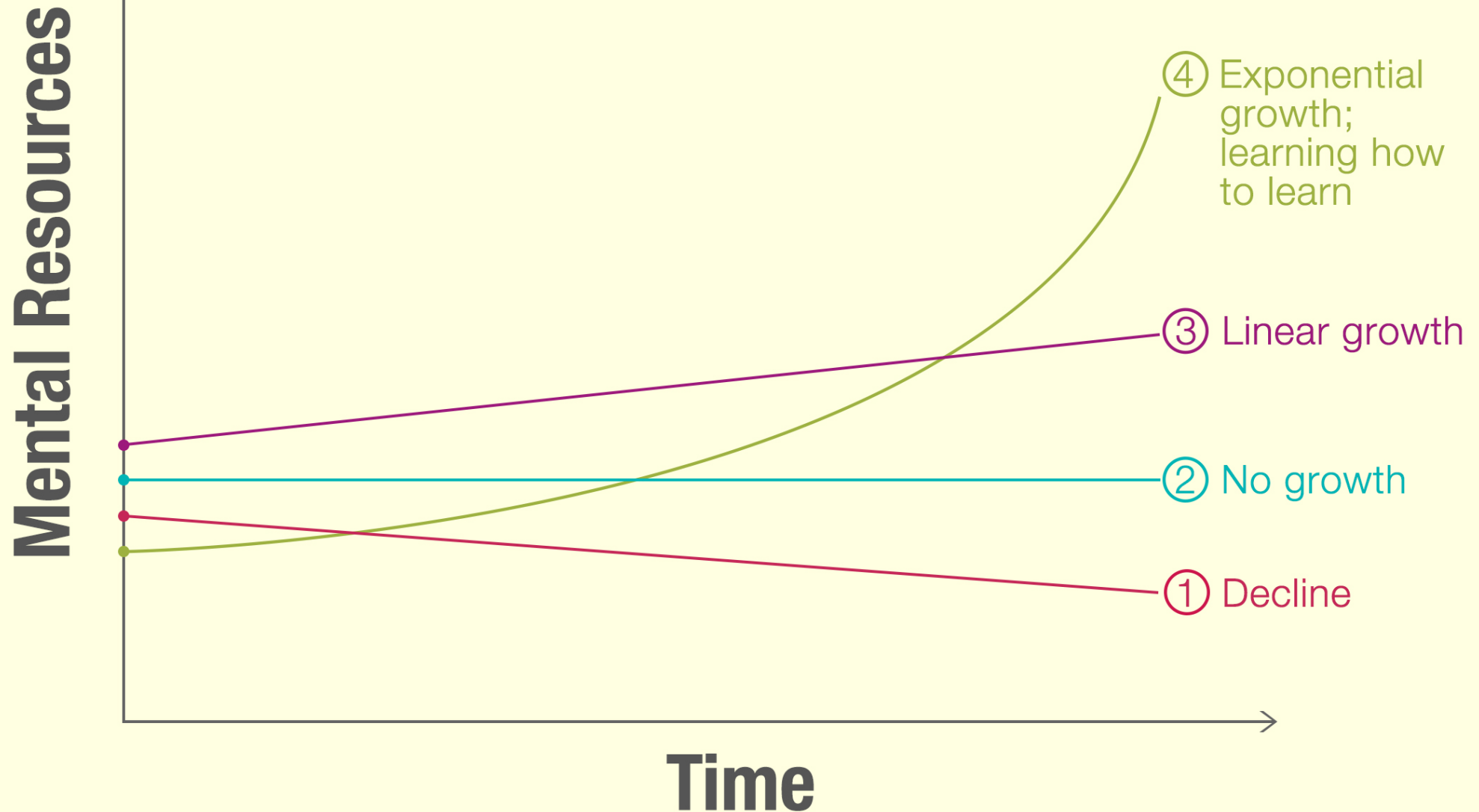
Four Learning Curves

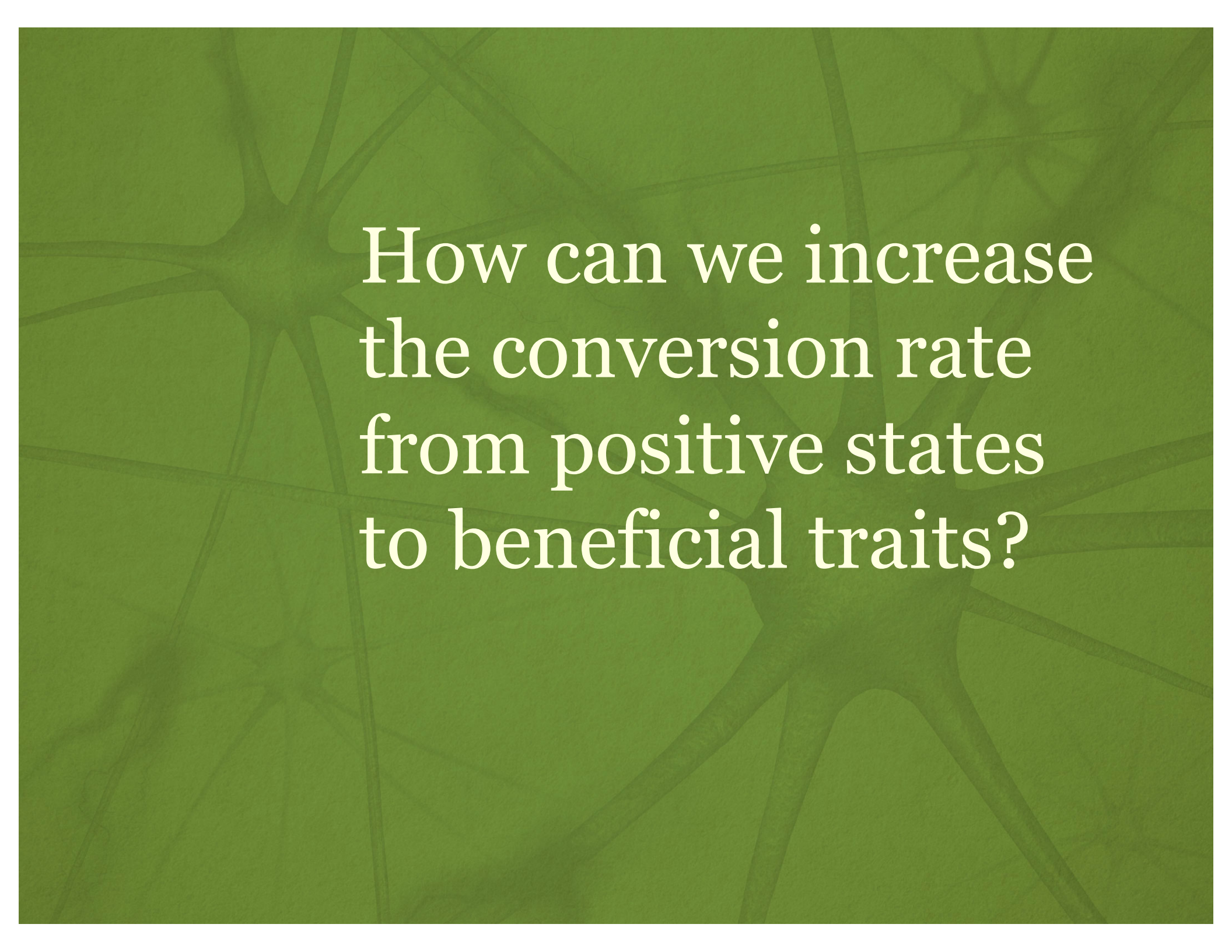


Four Learning Curves



Four Learning Curves






How can we increase
the conversion rate
from positive states
to beneficial traits?

Learning Factors

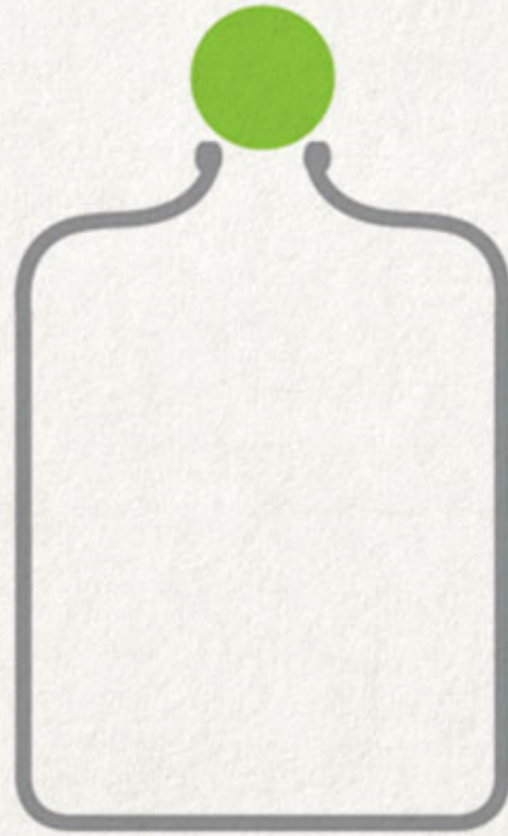
Environmental – setting, social support

Behavioral – activities, repetition

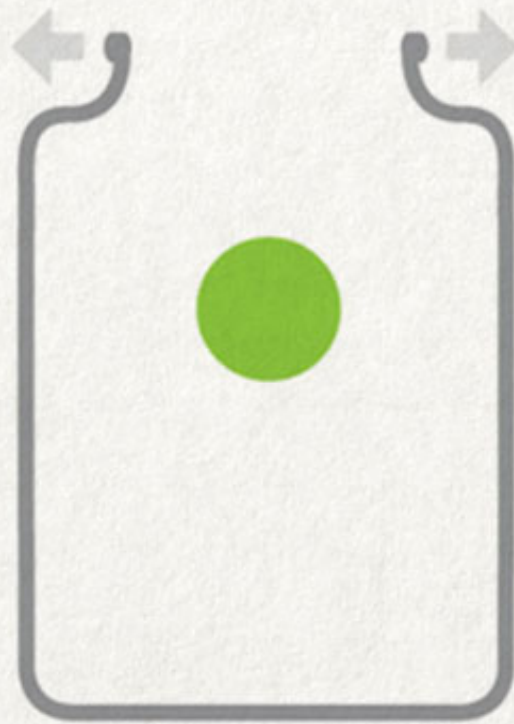
Mental – motivation, engagement



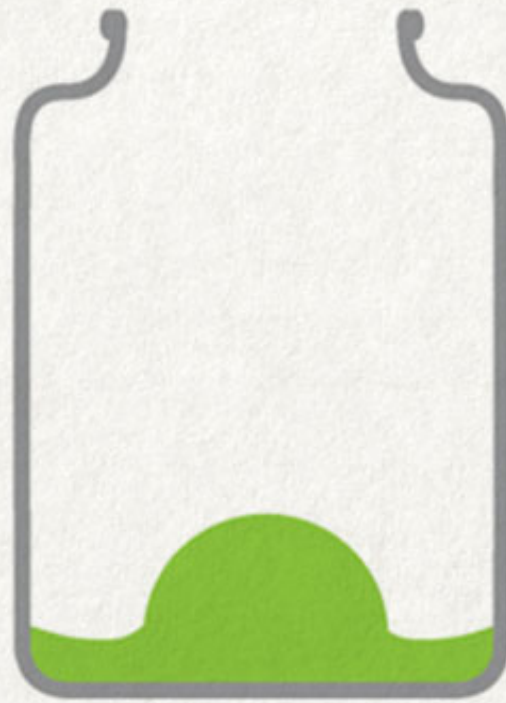
Learning How To Learn



Have a Beneficial Experience



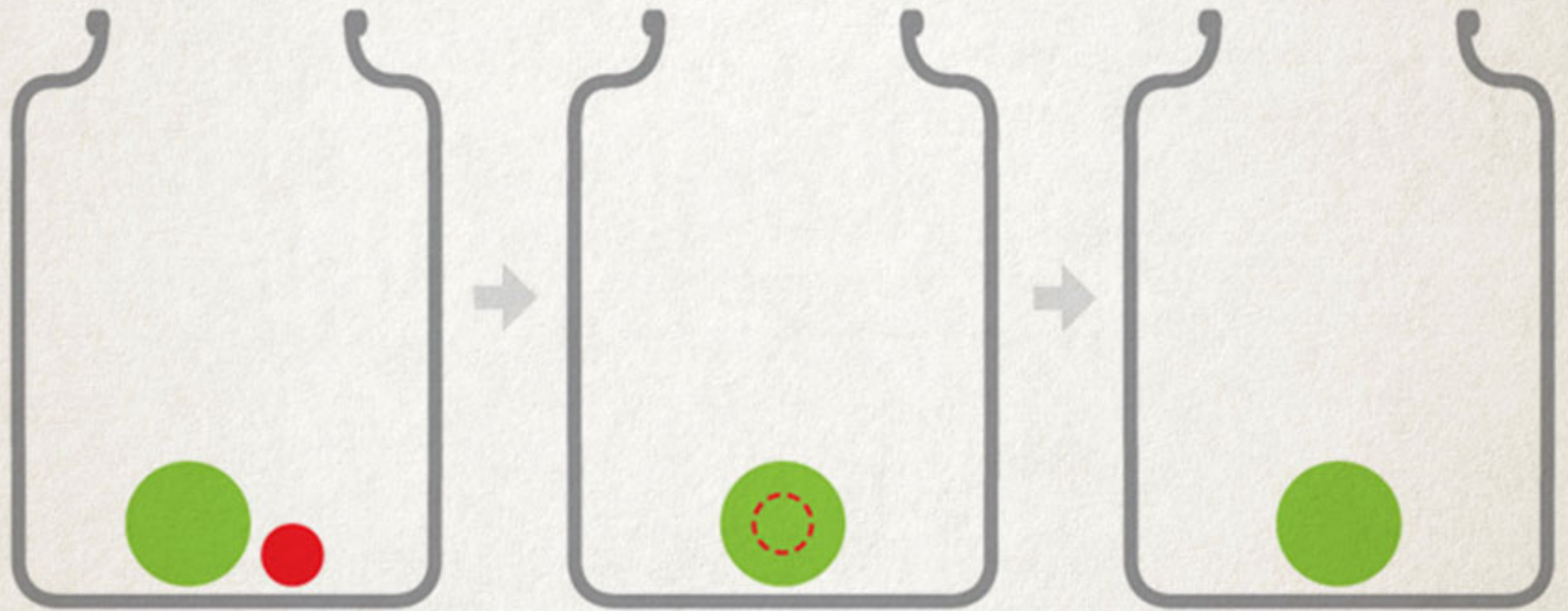
Enrich It



Absorb It

Like a Nice Fire





Link Positive & Negative Material

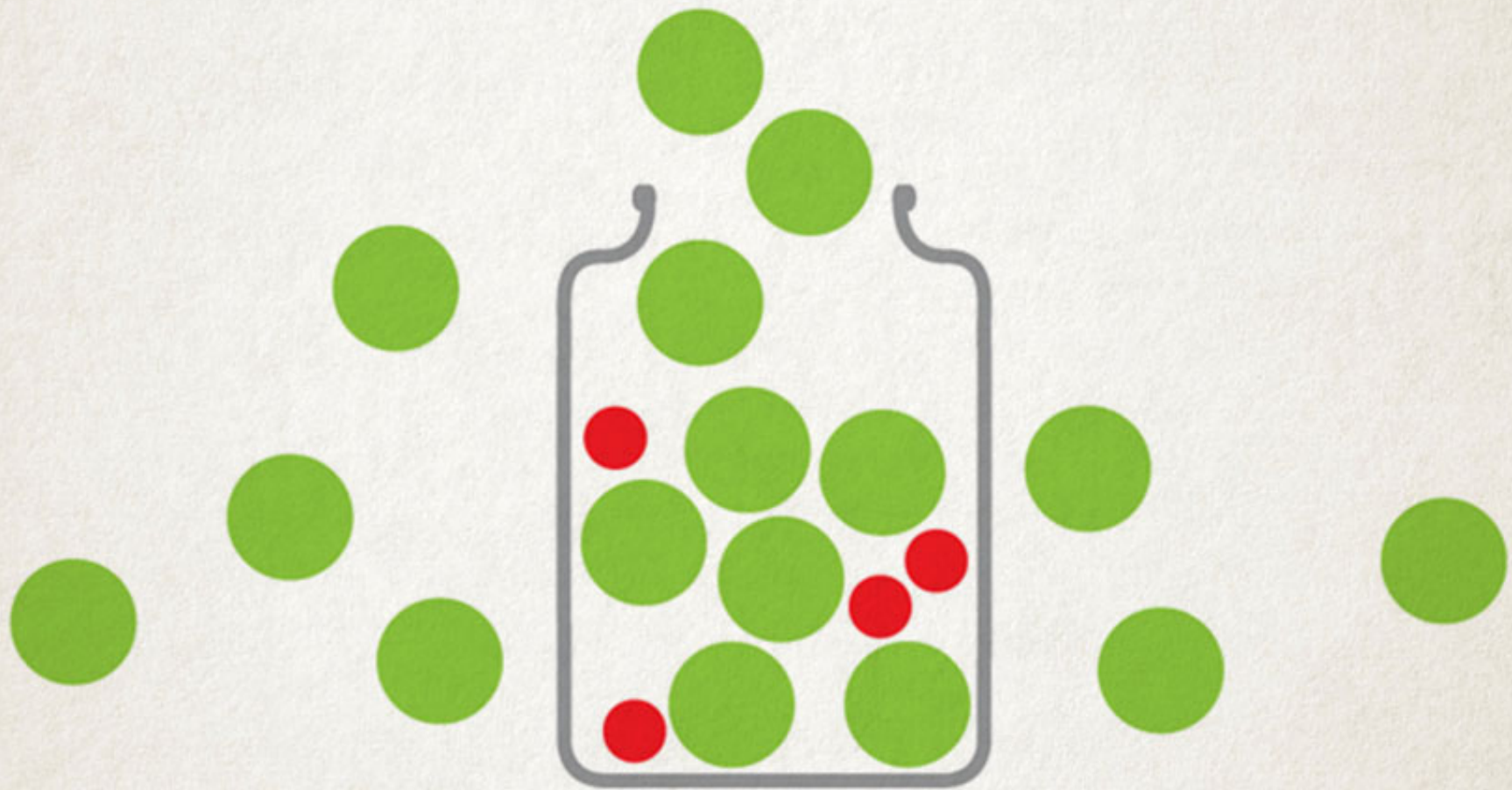
Neuropsychology of Learning

Activation

1. **Have** a beneficial experience.

Installation

2. **Enrich** it.
3. **Absorb** it.
4. **Link** positive and negative material.
(Optional)



Have It, Enjoy It

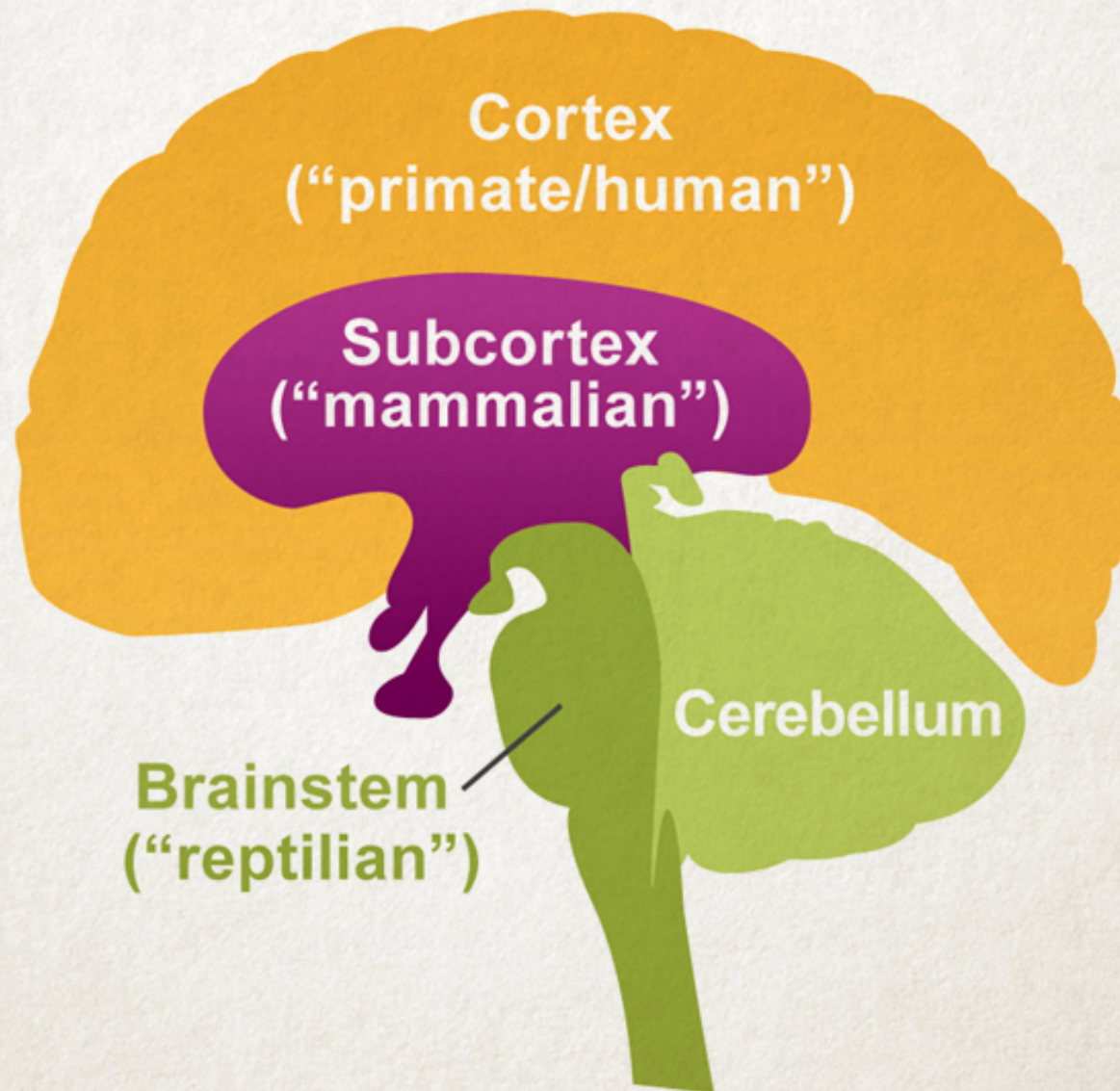


Key Resources for Fundamental Needs

What – if it were more present in the mind of a person – would really help with challenges, temperament, or inner wounds or deficits?

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

The Evolving Brain



Three Fundamental Needs



Safety

Avoid



Satisfaction

Approach



Connection

Attach

When Needs Feel Met

When there is a core sense of needs met – of **fullness** and **balance** – the brain defaults to its homeostatic resting state.

The body conserves resources, recovers from stress, refuels, and repairs itself.

In terms of safety, satisfaction, and connection, the mind is colored by a sense of **peace, contentment, and love.**

This is the body, brain, and mind in its Responsive mode – the “**Green Zone.**”

When Needs Do Not Feel Met

When there is a core sense of needs unmet – of **deficit** and **disturbance** – the brain is perturbed into an allostatic drive state (“craving”).

The body burns resources, agitates its systems, halts long-term building, and accumulates stress load.

In terms of safety, satisfaction, and connection, the mind is colored by a sense of fear and anger, frustration and drivenness, and hurt and aggression.

This is the body, brain, and mind in its Reactive mode – the **“Red Zone.”**

People have long asked, what is human nature? We have two natures: Responsive and Reactive.

The Reactive mode helped our species evolve in harsh settings, and may sometimes be needed today.

But most of the time, our Stone Age brain in the Red Zone causes much suffering, health problems, and conflict, even war.

Matching Resources to Needs

Safety

Alertness
Grit
Resolution
Protections
Calm
Relaxation

Peace

Satisfaction

Gratitude
Gladness
Capabilities
Restraint
Ambition
Enthusiasm

Contentment

Connection

Empathy
Compassion
Kindness
Assertiveness
Self-worth
Confidence

Love

Pet the Lizard



Feed the Mouse

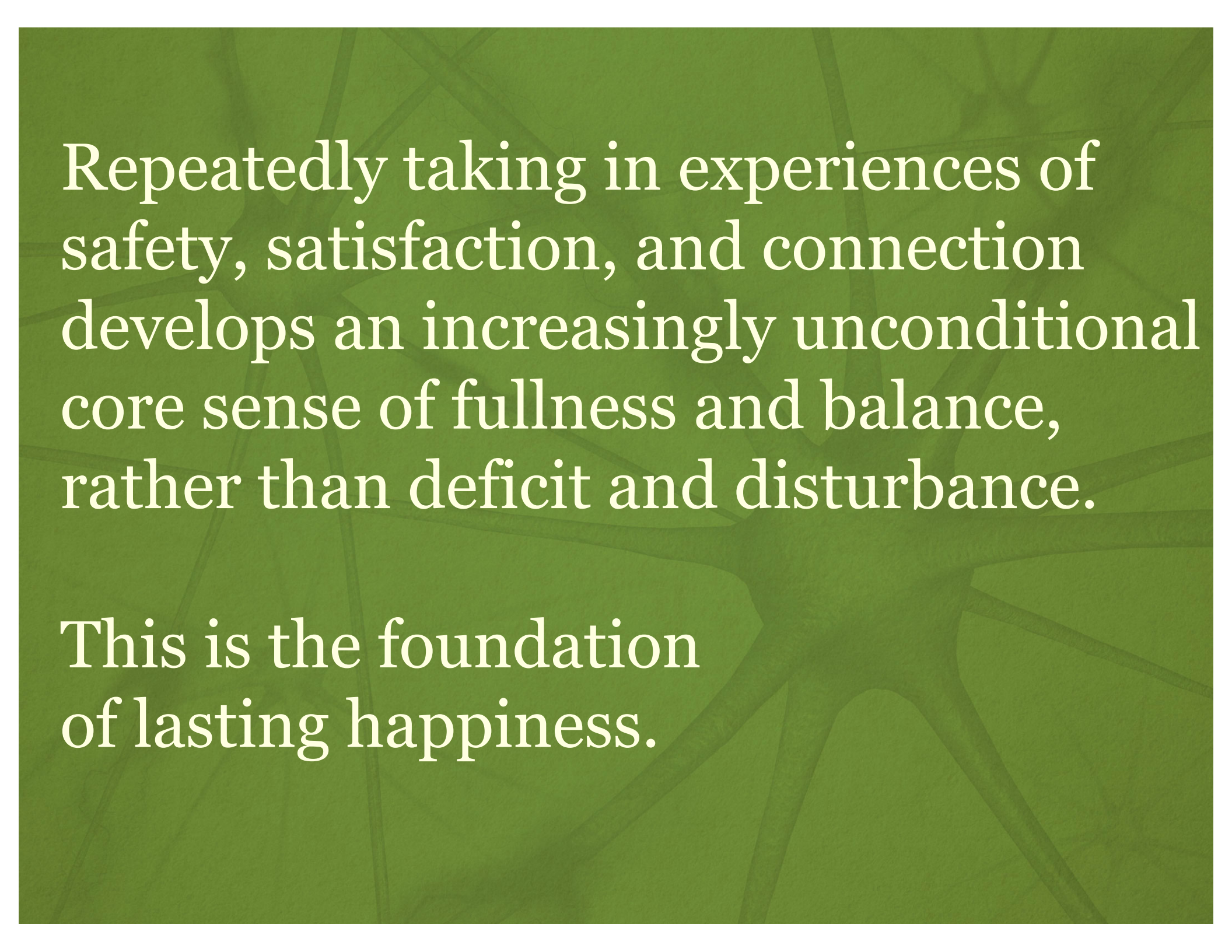


Hug the Monkey





Societal Implications



Repeatedly taking in experiences of safety, satisfaction, and connection develops an increasingly unconditional core sense of fullness and balance, rather than deficit and disturbance.

For individuals, this is the foundation of resilient happiness.

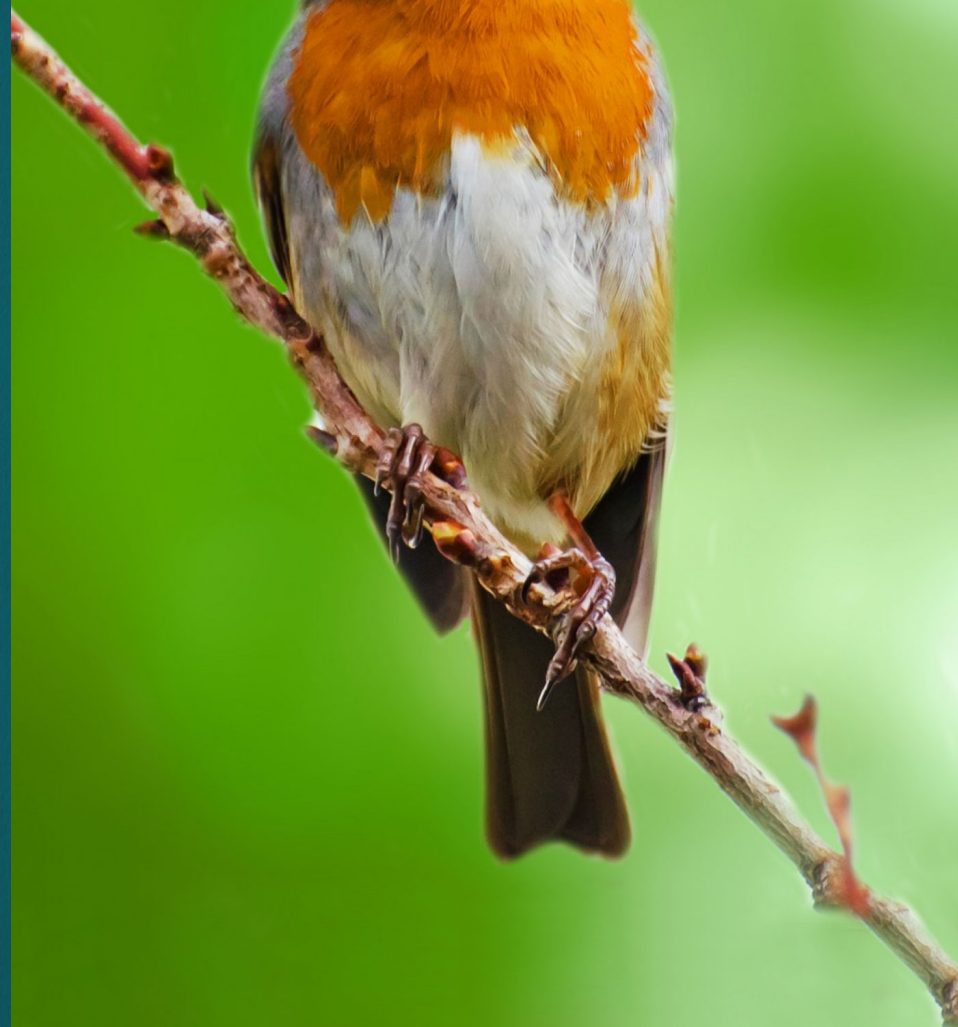
At the level of groups and countries,
with a stable internal sense
of fullness and balance,
of fundamental needs already met,

people are less vulnerable to
fear and anger,
greed and possessiveness,
and “us” against “them” conflicts.

”

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

Lao Tzu



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

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Supplemental Materials

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.”

Four Ways to Offer a Method

Doing it implicitly

Teaching it, leaving it up to others

Doing it explicitly with people

Asking people to do it on their own

HEAL in Trainings, Programs

Explain it and teach it early on

In the flow, encourage Enriching and Absorbing, using natural language

Encourage people to use HEAL on their own to deepen learning

Build in explicit internalization of beneficial experiences

Distal, Proximal Mental Learning Factors

Distal

Openness

Mindfulness

View of pos. exper.

Growth/Lrng mindset

Motivation

Self-efficacy

Self-esteem

Feeling supported

Sense of safety

Proximal

Personal relevance

Alertness, sense of novelty

Arousal

Valence, valuing, reward

Emotion

Granularity of attention

Interoception

Maintenance, repetition

Meaning, elaboration

Imagery, metaphor

Enacted, shared with others

Benefits of Mental Learning Factors

Benefits of both types of learning factors:

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

Proximal factors have additional benefits:

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

RESOURCES FOR AVOIDING HARMS

Challenge

Weakness

Helplessness

Freezing,
immobilization

Inflated threats

Alarm

Tension

Worry, fear

Irritation, anger

Resource

Strength

Agency

Action, venting

Accurate appraisal

Protection, calming

Relaxation

Feeling alright now,
making a plan

Big picture, peace

RESOURCES FOR APPROACHING REWARDS

Challenge

What I don't have

Scarcity

Disappointed, sad

Frustration, failure

Bored, numb

Grief

Giving up

Drivenness

Resource

What I do have

Enoughness,
fullness

Gratitude, gladness

Accomplishment

Pleasure, excitement

Loved and loving

Aspire, lived by good

Already satisfied

RESOURCES FOR ATTACHING TO OTHERS

Challenge

Left out, excluded
Inadequacy, shame
Ignored, unseen
Lonely

Resentment

Envy, jealousy

Feeling stifled

Resource

Belonging, wanted
Appreciated, respected
Receiving empathy
Friendship, caring
to others and oneself
Recognize it hurts you
Self-compassion, take
action, good will
Skillful assertiveness