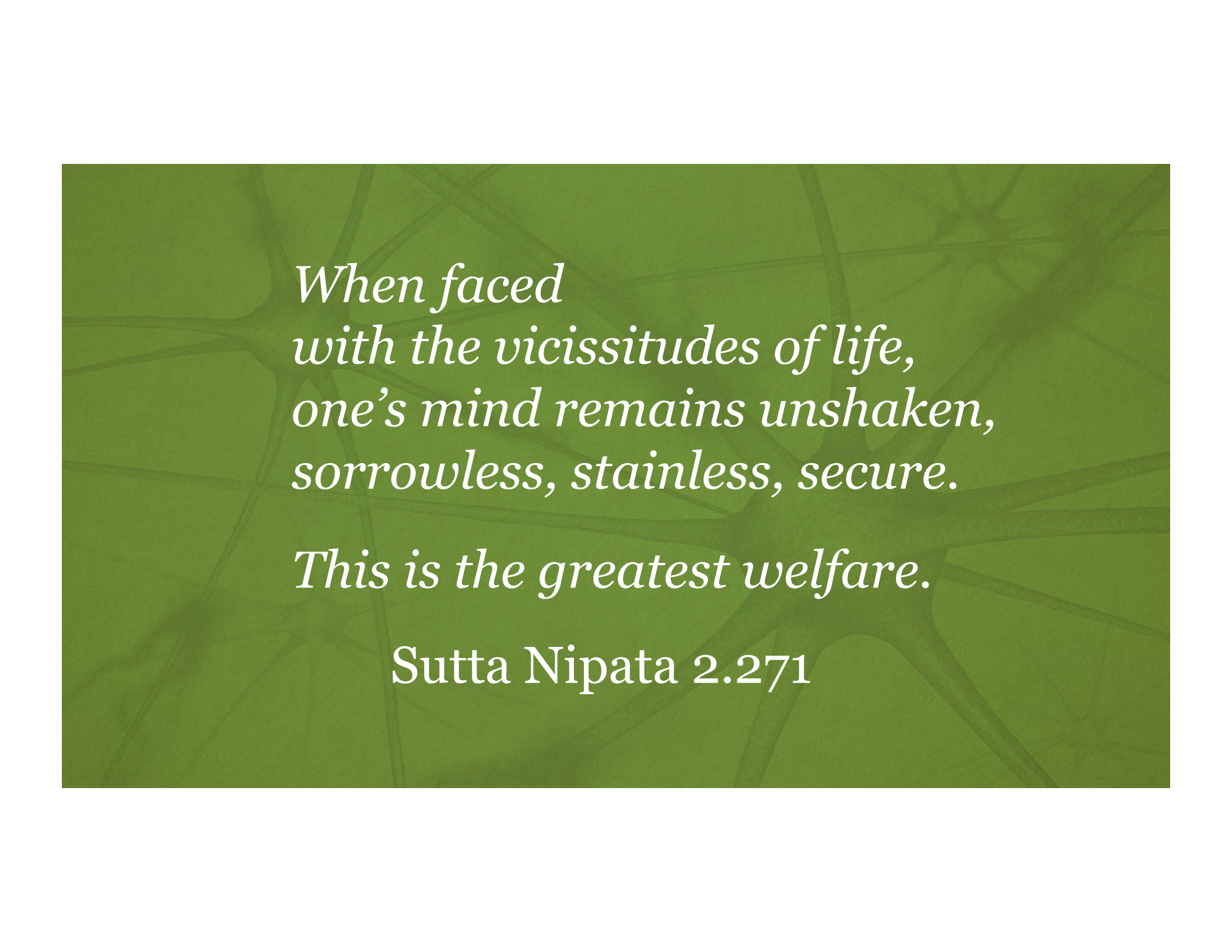




*When faced
with the vicissitudes of life,
one's mind remains unshaken,
sorrowless, stainless, secure.*

This is the greatest welfare.

Sutta Nipata 2.271

Resilient:

Cultivating an Unshakable Core of Calm, Strength, and Happiness



Spirit Rock Meditation Center, May 5, 2019

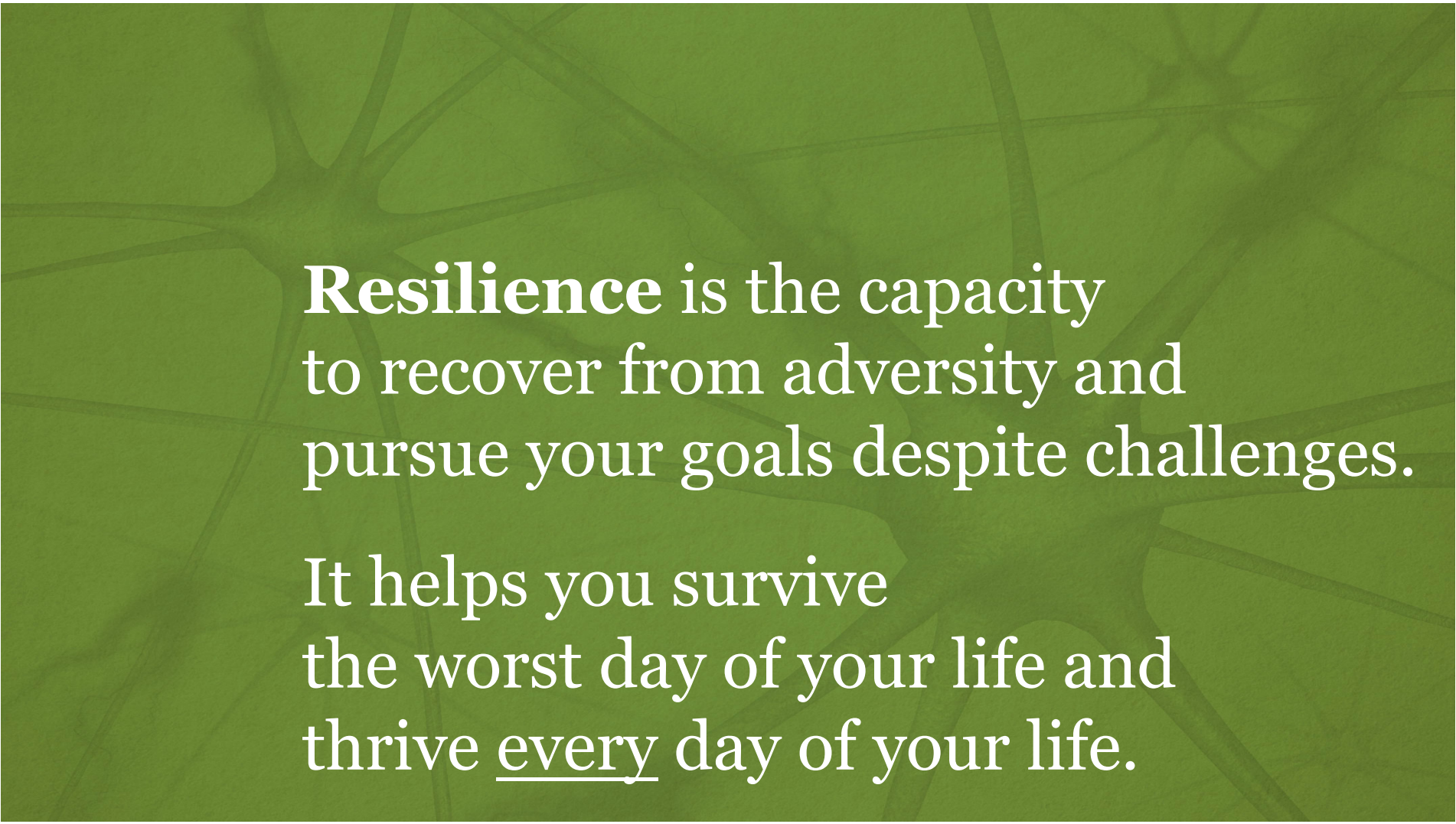
Rick Hanson, Ph.D.

Wellspring Institute for Neuroscience and Contemplative Wisdom

www.RickHanson.net

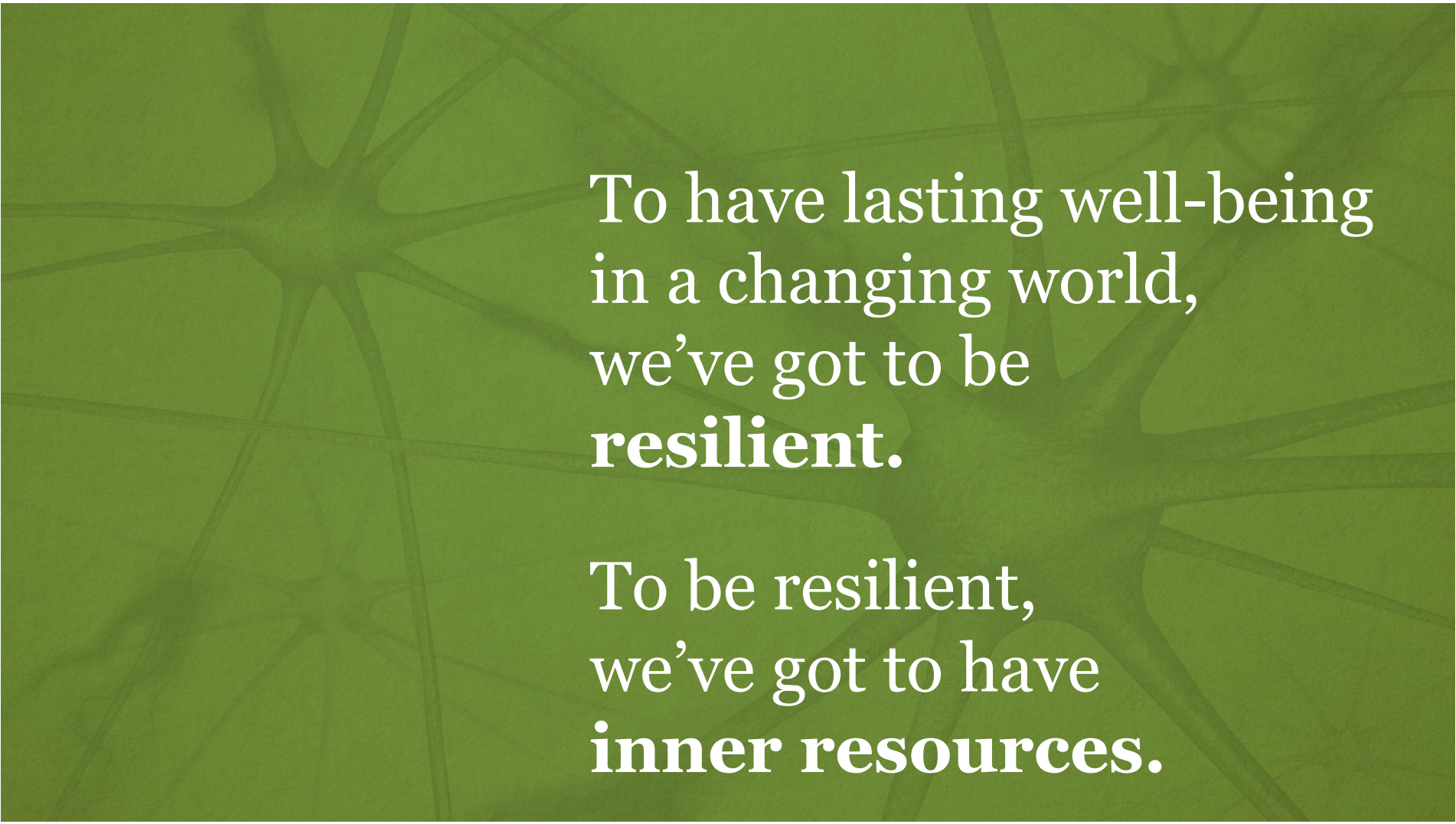


The Inner Resources Of Resilient Well-Being



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.



To have lasting well-being
in a changing world,
we've got to be
resilient.

To be resilient,
we've got to have
inner resources.

Some Inner Resources

Wisdom, Concentration, Virtue

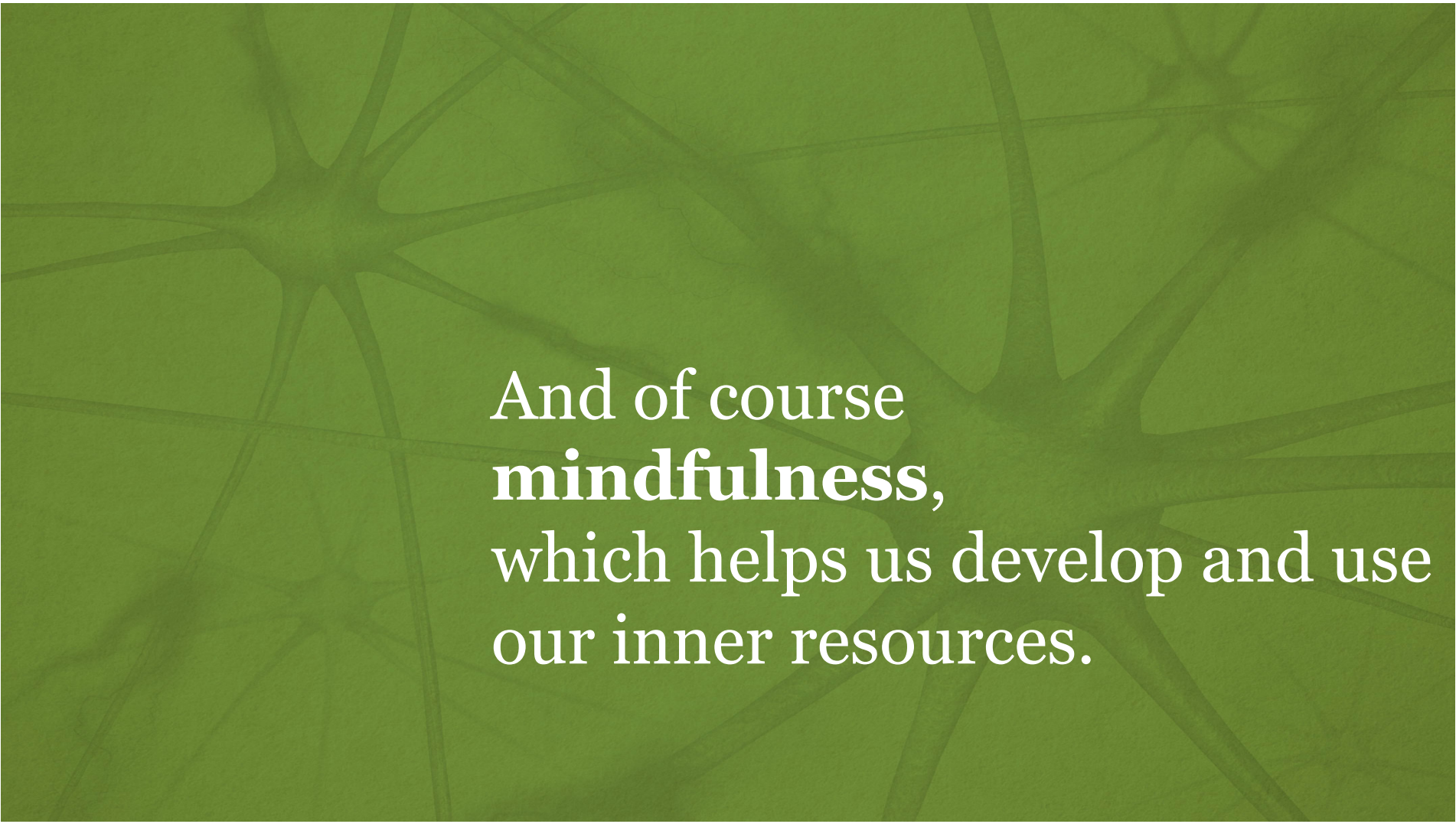
Compassion, Kindness, Love

Emotional Intelligence

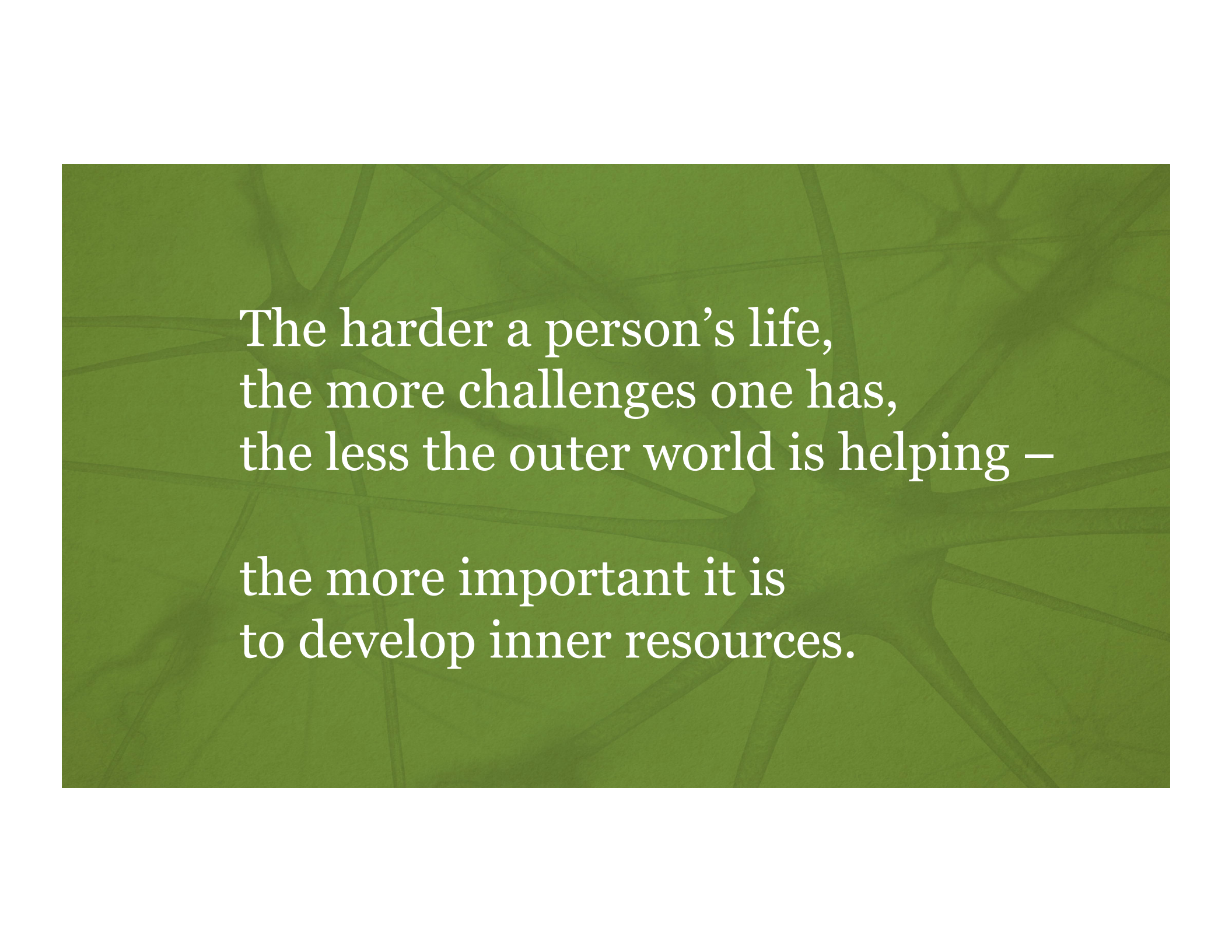
Gratitude, Satisfaction, Happiness

Interpersonal Skills

Patience, Determination, Grit



And of course
mindfulness,
which helps us develop and use
our inner resources.



The harder a person's life,
the more challenges one has,
the less the outer world is helping –

the more important it is
to develop inner resources.

Key Resources for Today

Cultivation

Calm

Contentment

Confidence



Cultivating Inner Resources



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.

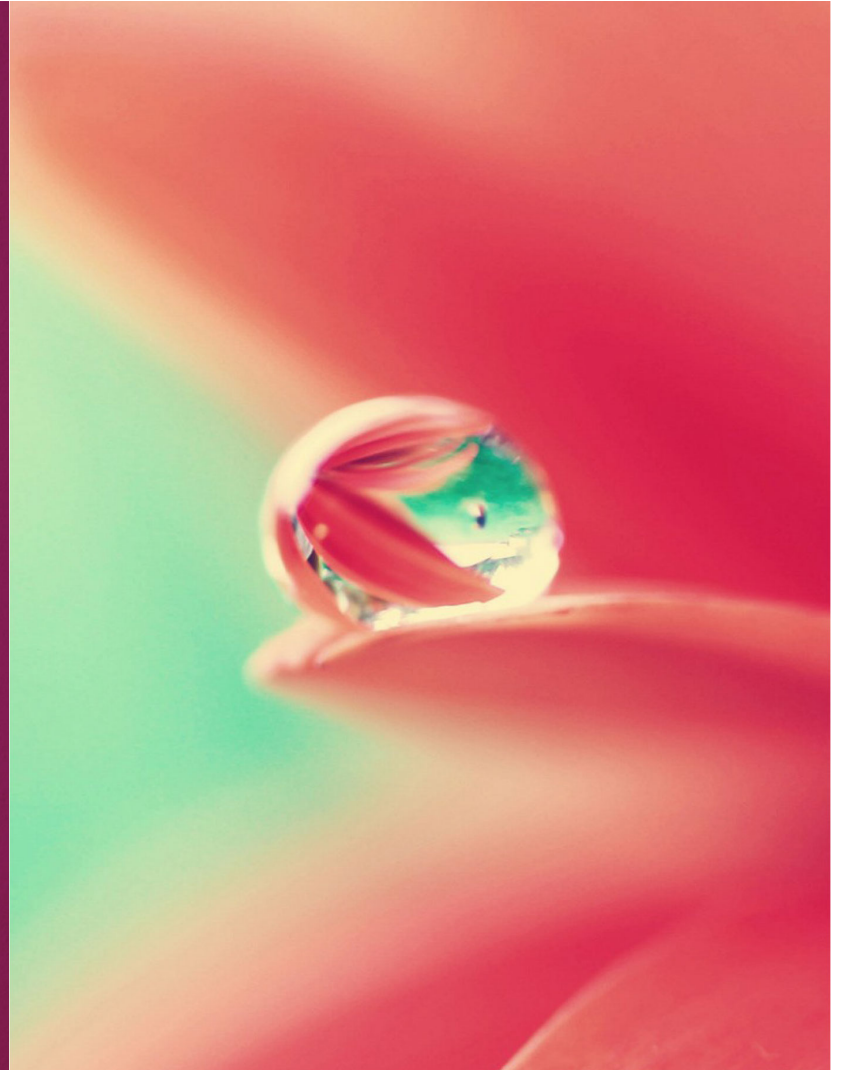
(Photo by Ed Ritger)

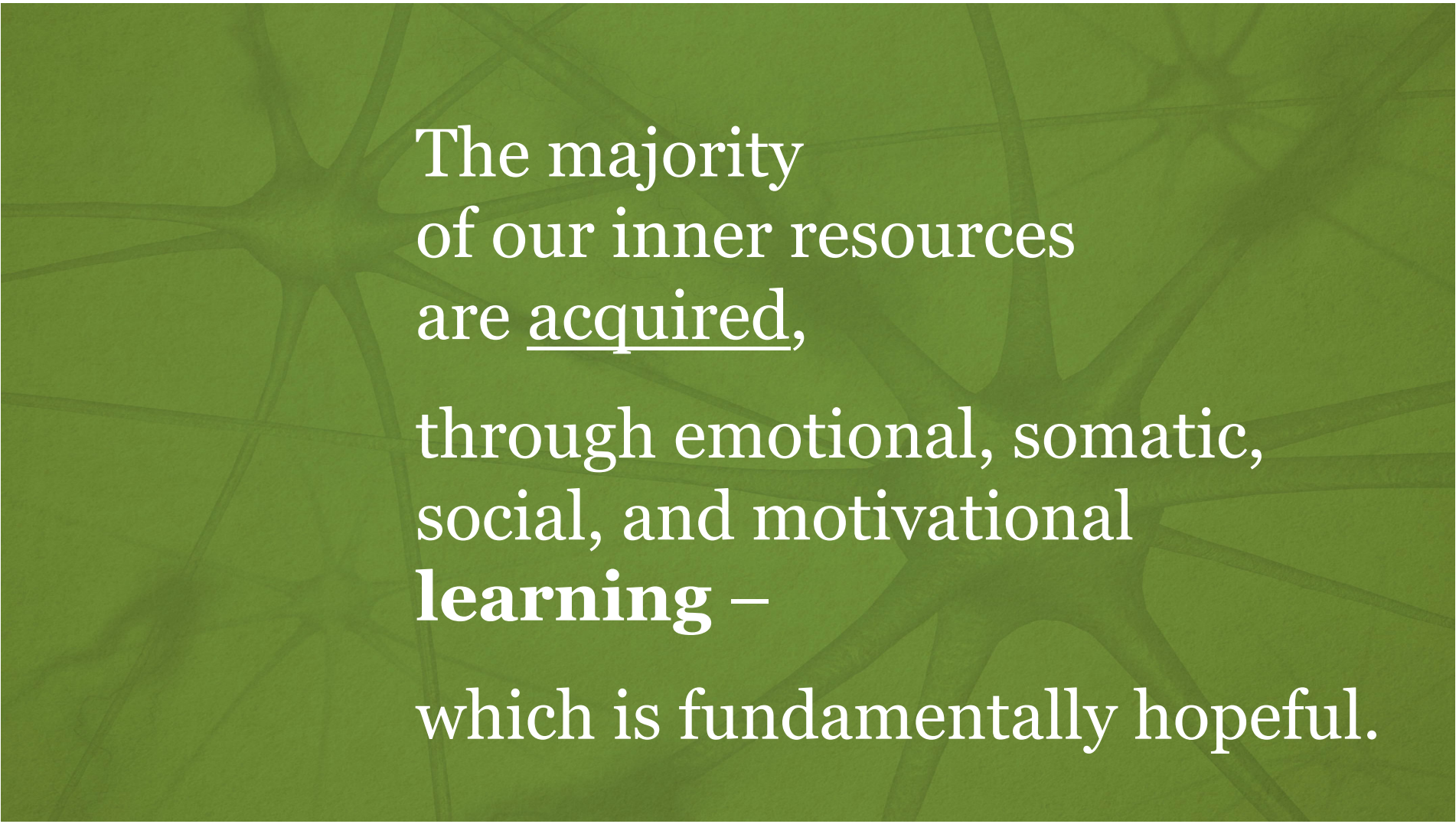
*Think not lightly of good, saying,
“It will not come to me.”*

*Drop by drop is
the water pot filled.*

*Likewise, the wise one,
Gathering it little by little,
Fills oneself with good.*

Dhammapada 9.122



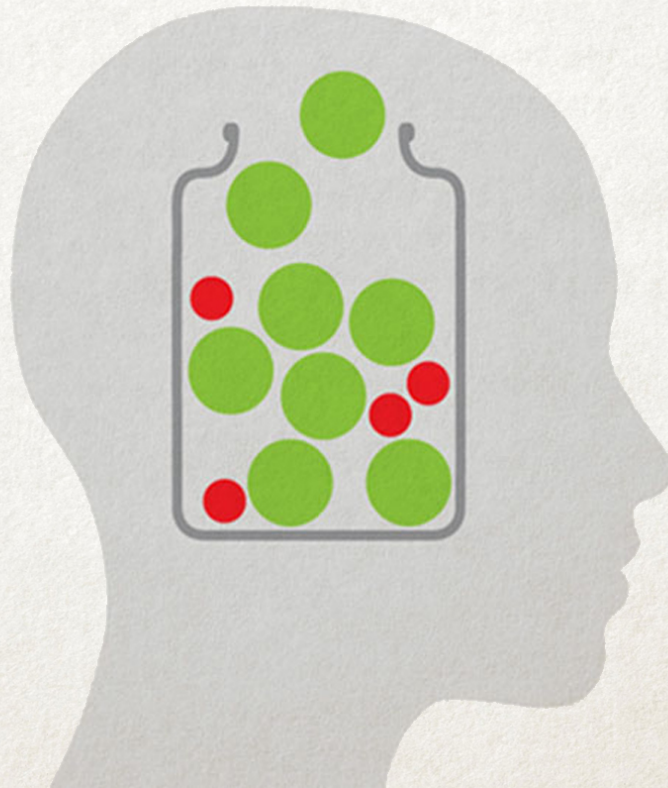


The majority
of our inner resources
are acquired,

through emotional, somatic,
social, and motivational
learning –

which is fundamentally hopeful.

And Which Means Changing the Brain For the Better





Inner resources are acquired in two stages:

Encoding



Consolidation

Activation



Installation

State



Trait

A detailed illustration of a neural network. Numerous yellow, thread-like axons crisscross the frame, connecting various cell bodies. In the center, a single neuron is highlighted with a bright green nucleus and a glowing green cell body, making it stand out from the rest of the network. The background is dark, emphasizing the luminous quality of the neural structures.

Neurons that fire together,

wire together.

Mechanisms of Neuroplasticity

- (De)Sensitizing existing synapses
- Building new synapses
- Altered gene expression
- Building and integrating new neurons
- Altered ongoing activity in a region
- Altered connectivity among regions
- Altered neurochemical activity
- Information from hippocampus to cortex
- Modulation by stress hormones, cytokines
- Slow wave and REM sleep

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

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

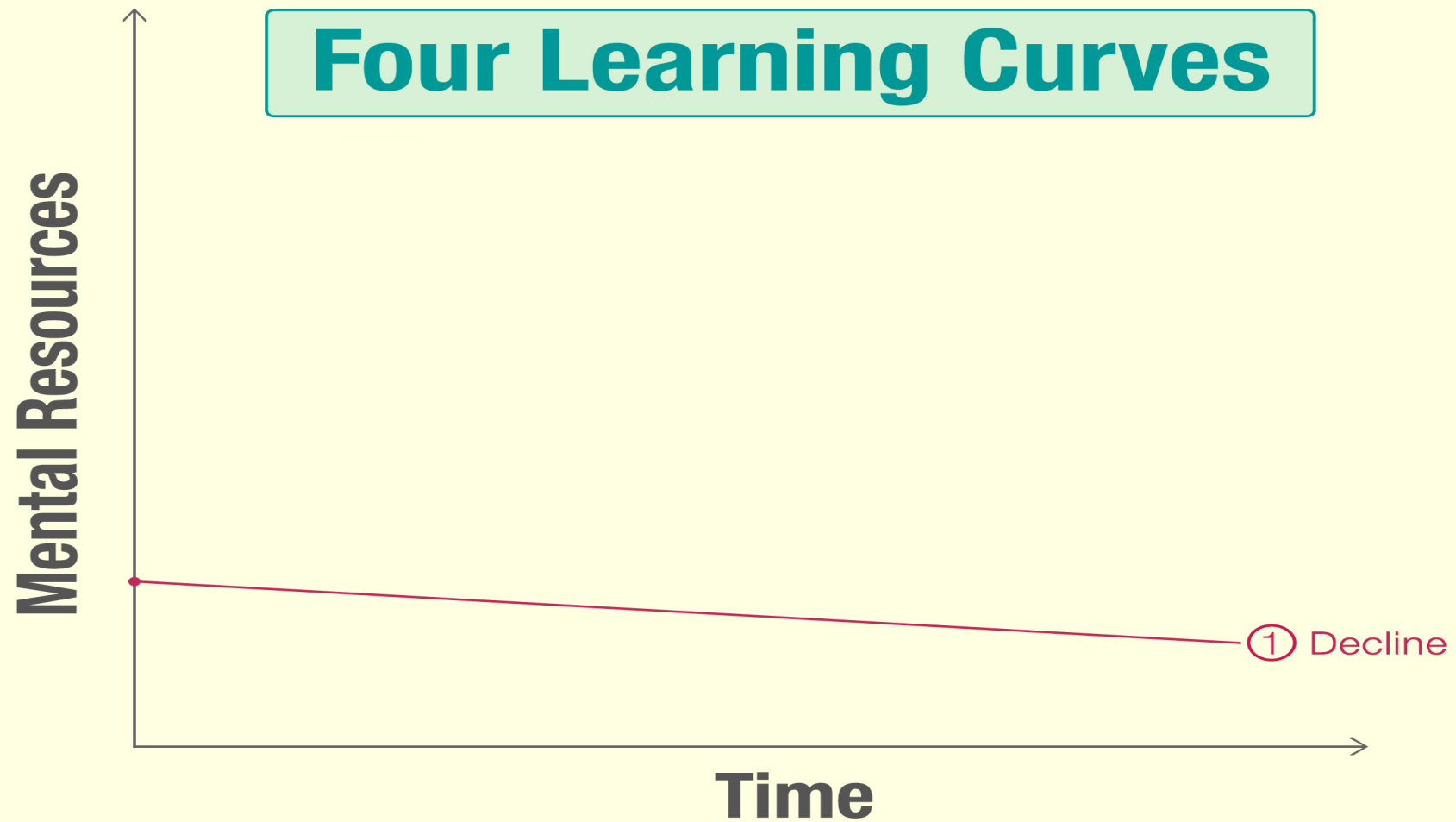
We become more **mindful** by repeatedly installing experiences of mindfulness.

But – experiencing doesn't equal learning.

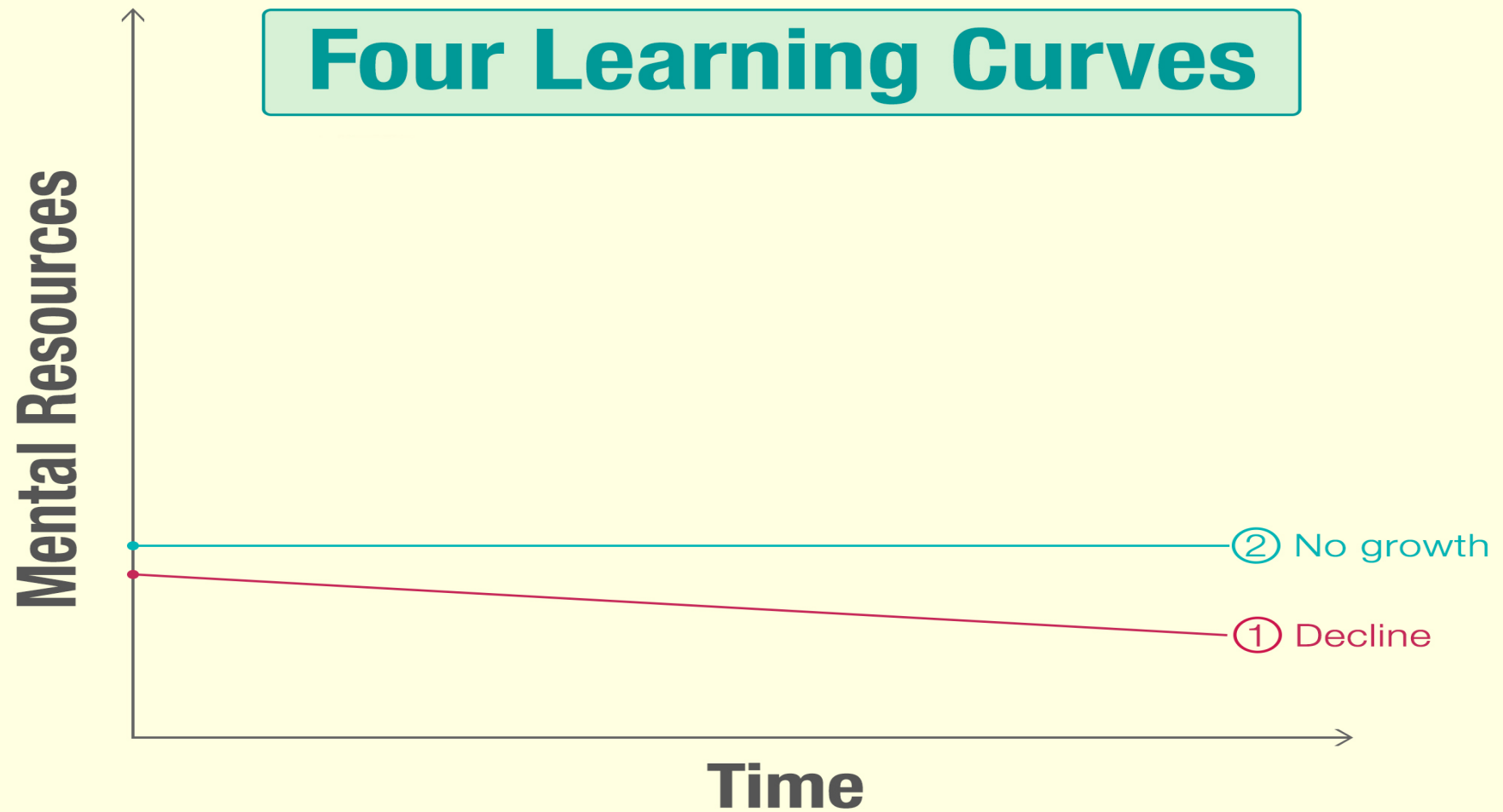
**Activation without installation
may be pleasant,
but no trait resources are acquired.**

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

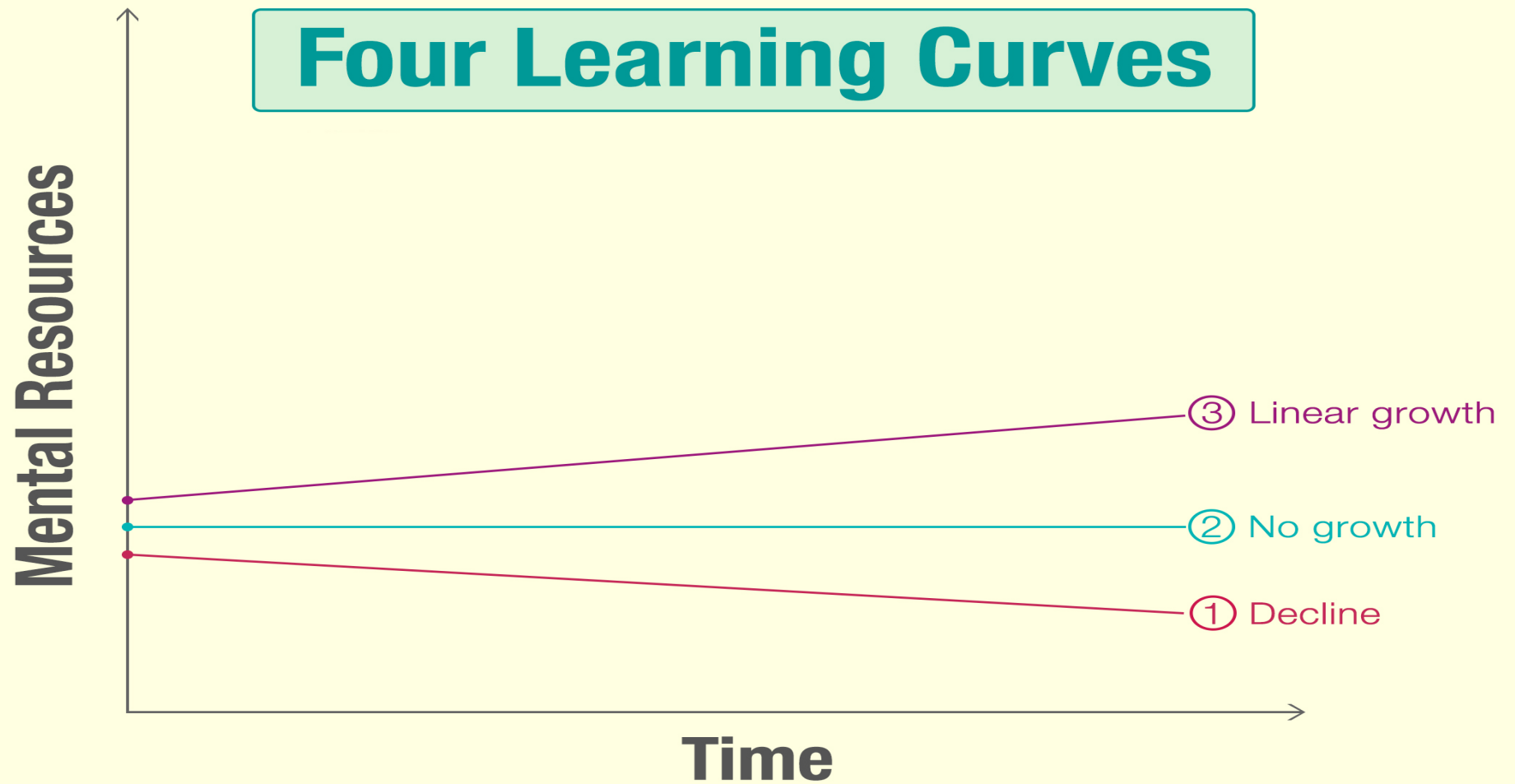
Four Learning Curves



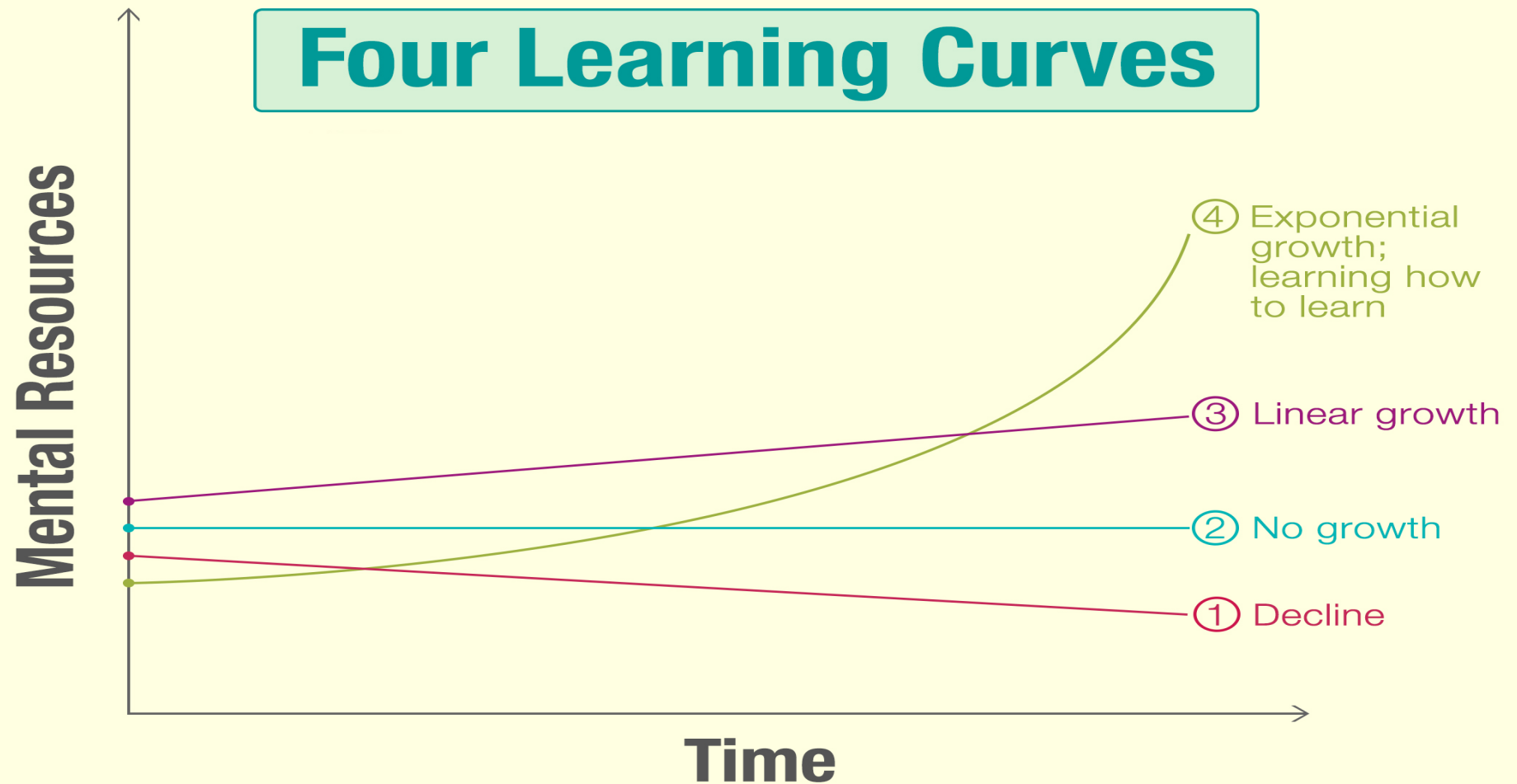
Four Learning Curves



Four Learning Curves

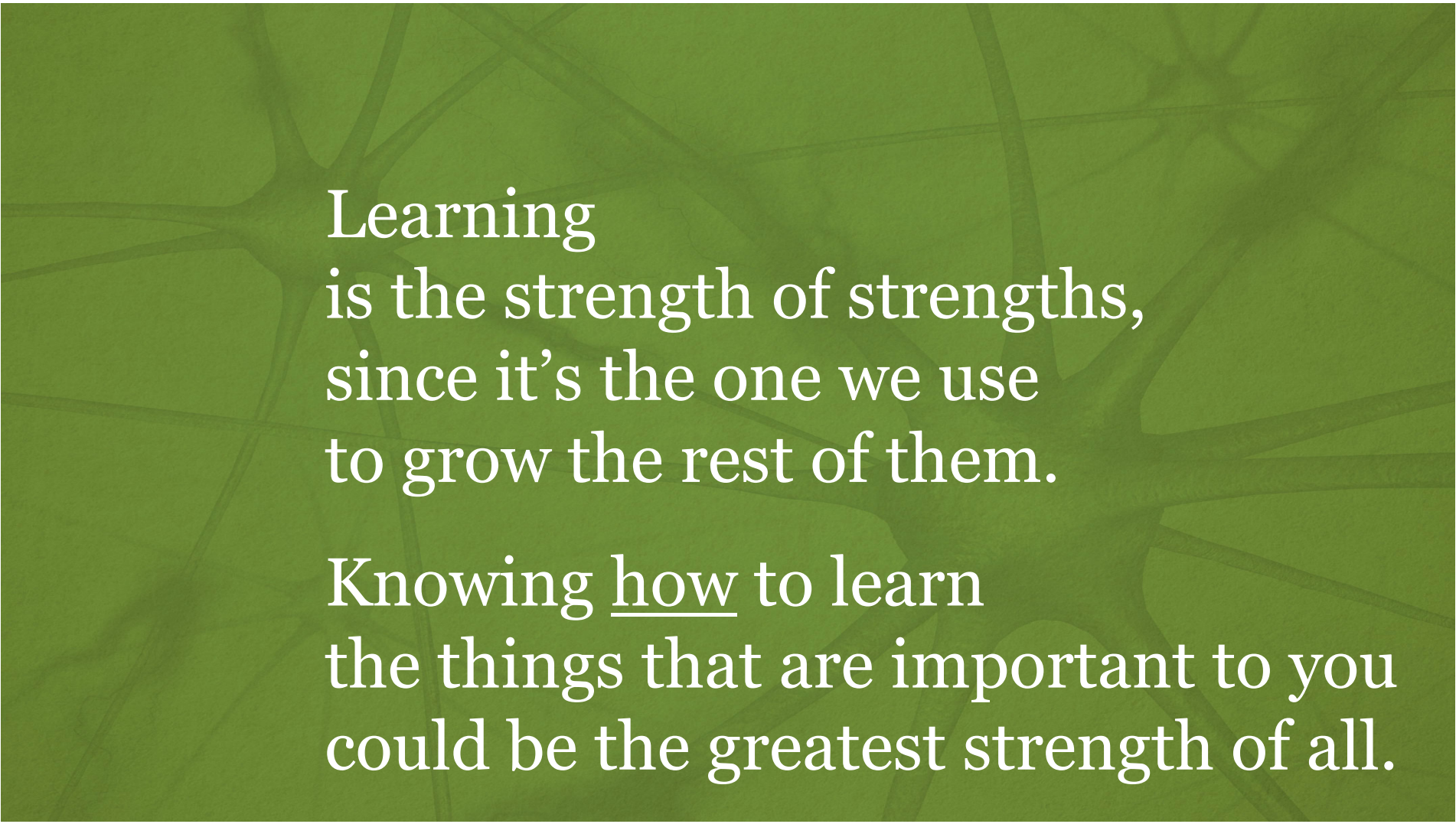


Four Learning Curves





What can you do
to steepen
your growth curve?



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.

Let's Try It

Notice

Something
beneficial

Create

Gratitude,
gladness

Create

Compassion,
kindness

For each of the above:

Have the experience. Enrich it. Absorb it.

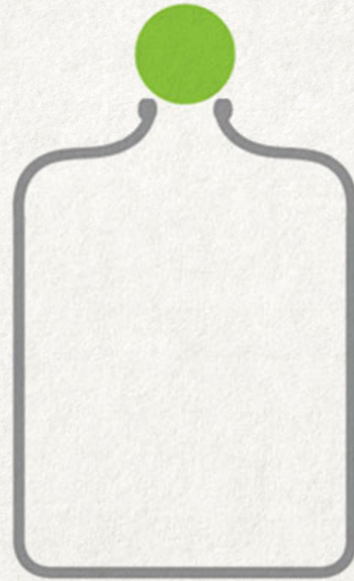
HEAL: Turning States into Traits

Activation

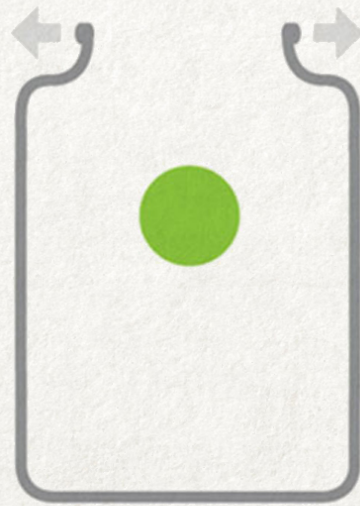
1. **Have** a beneficial experience

Installation

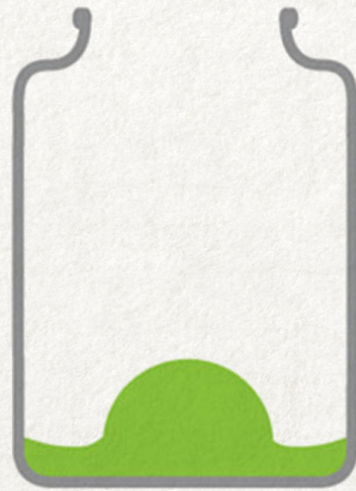
2. **Enrich** the experience
3. **Absorb** the experience
4. **Link** positive and negative material
(Optional)



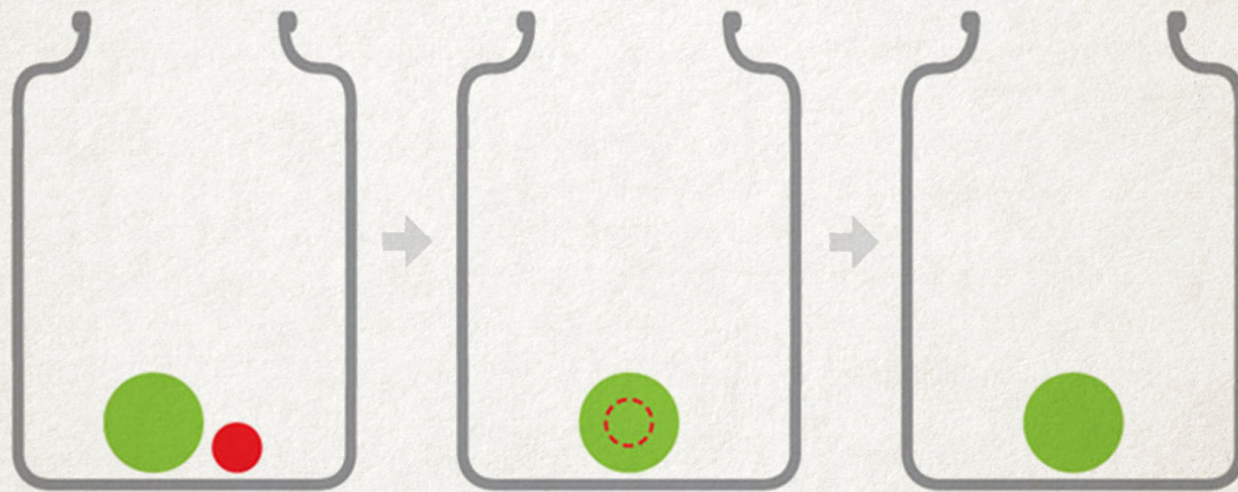
Have a Beneficial Experience



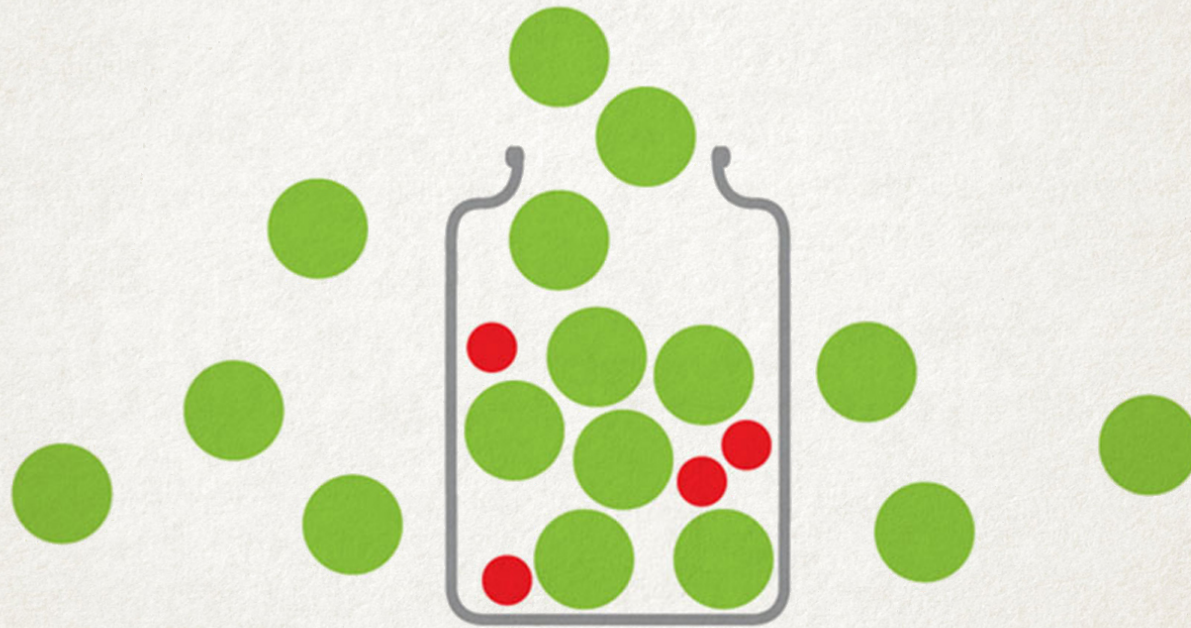
Enrich It



Absorb It



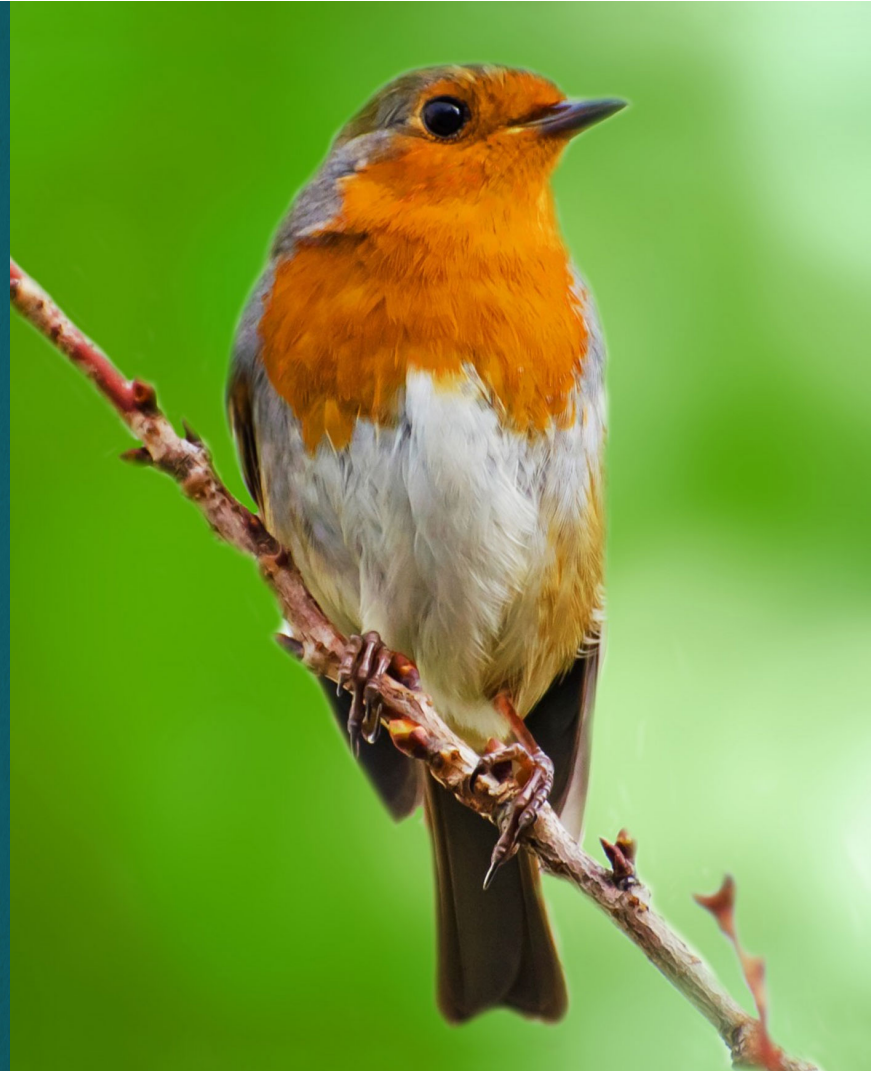
Link Positive & Negative Material



Have It, Enjoy It

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

Lao Tzu





Craving and Suffering

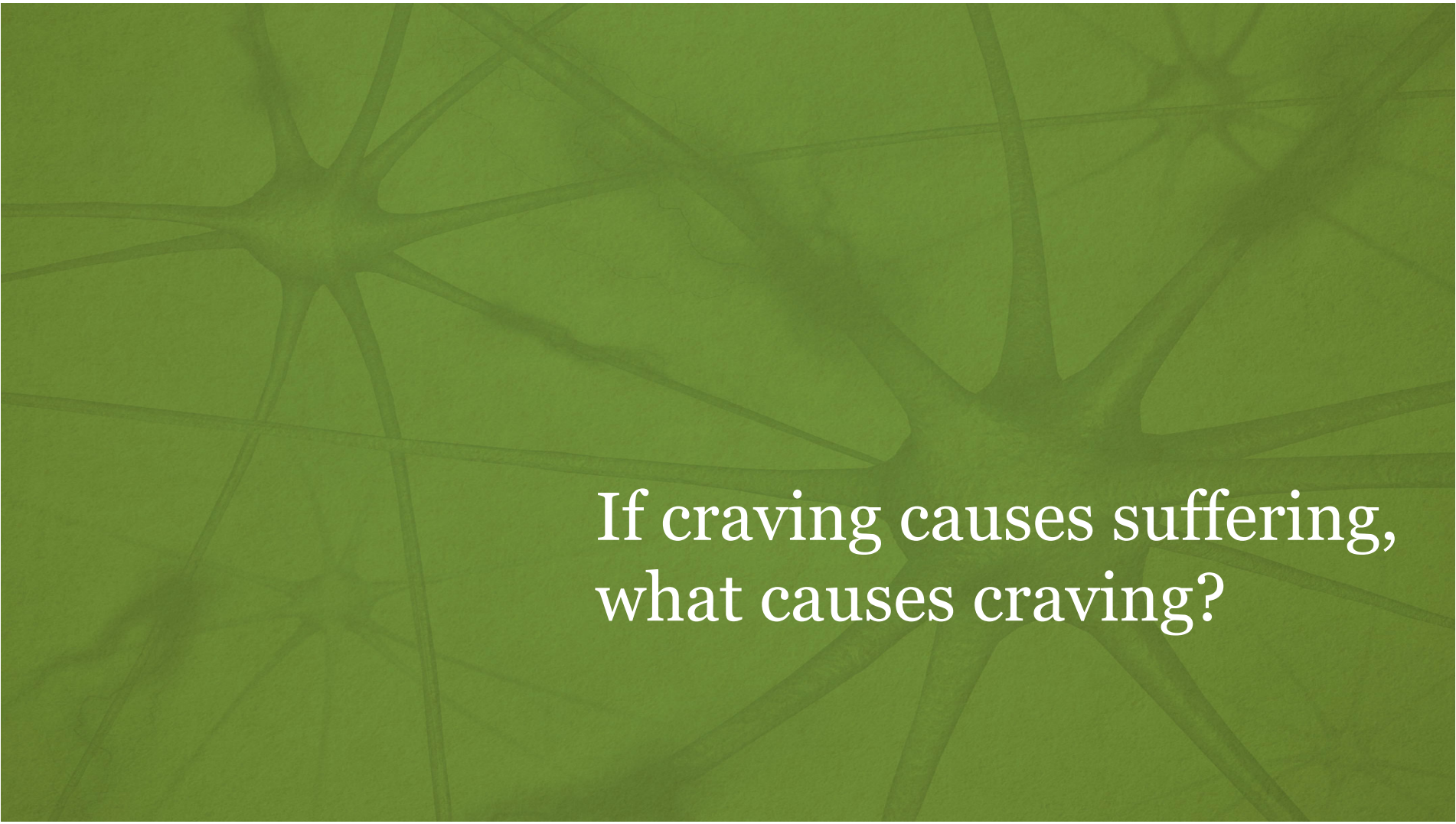
Four Ennobling Truths

There is suffering.

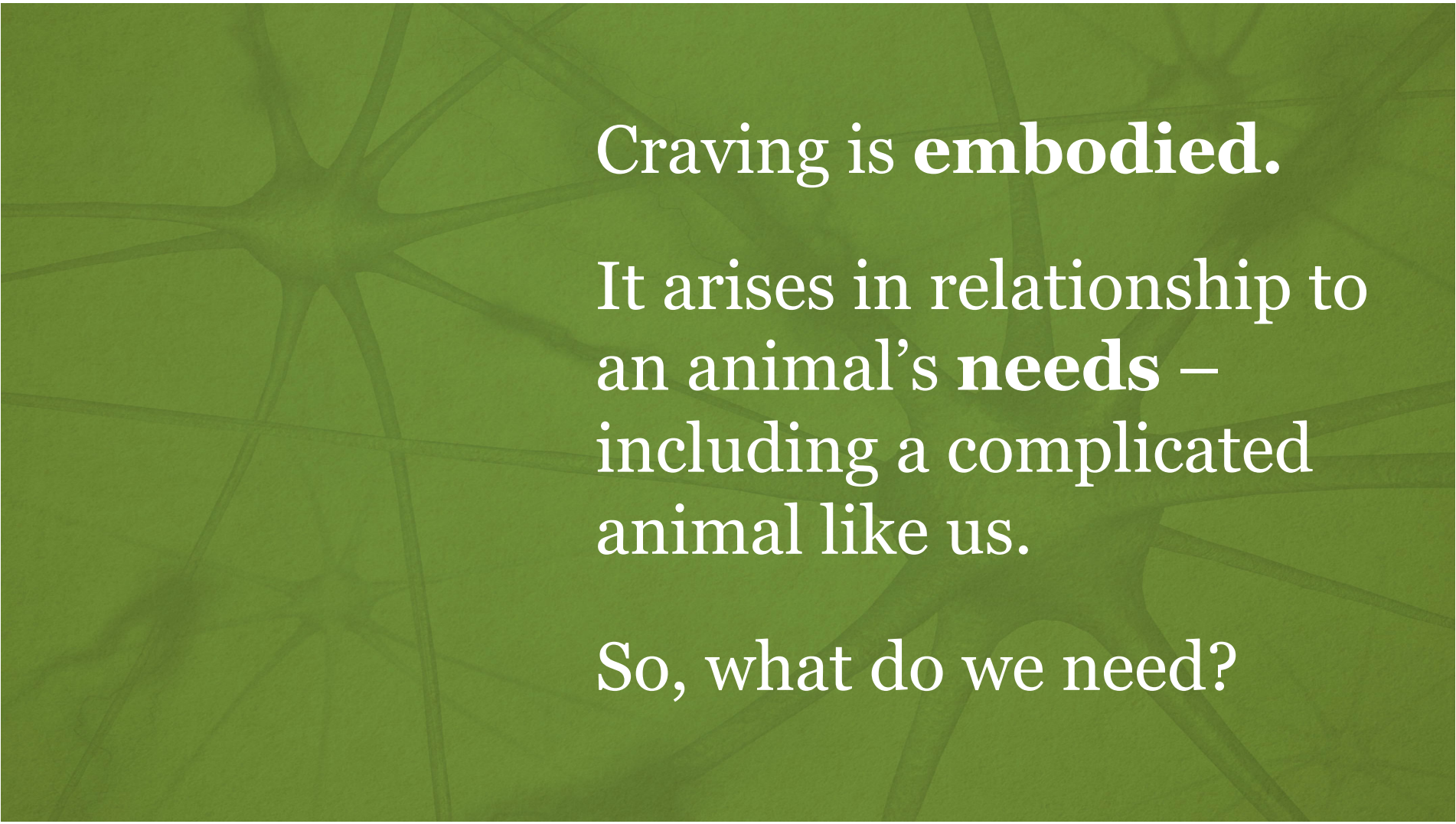
As craving increases, so does suffering.

As craving decreases, so does suffering.

There is an eight-part path that embodies
and leads to the ending of craving.



If craving causes suffering,
what causes craving?



Craving is **embodied**.

It arises in relationship to
an animal's **needs** –
including a complicated
animal like us.

So, what do we need?

Our Three Fundamental Needs



Safety



Satisfaction



Connection

Meeting Our Three Fundamental Needs



Safety

Avoiding
harms

(threat response)



Satisfaction

Approaching
rewards

(goal pursuit)

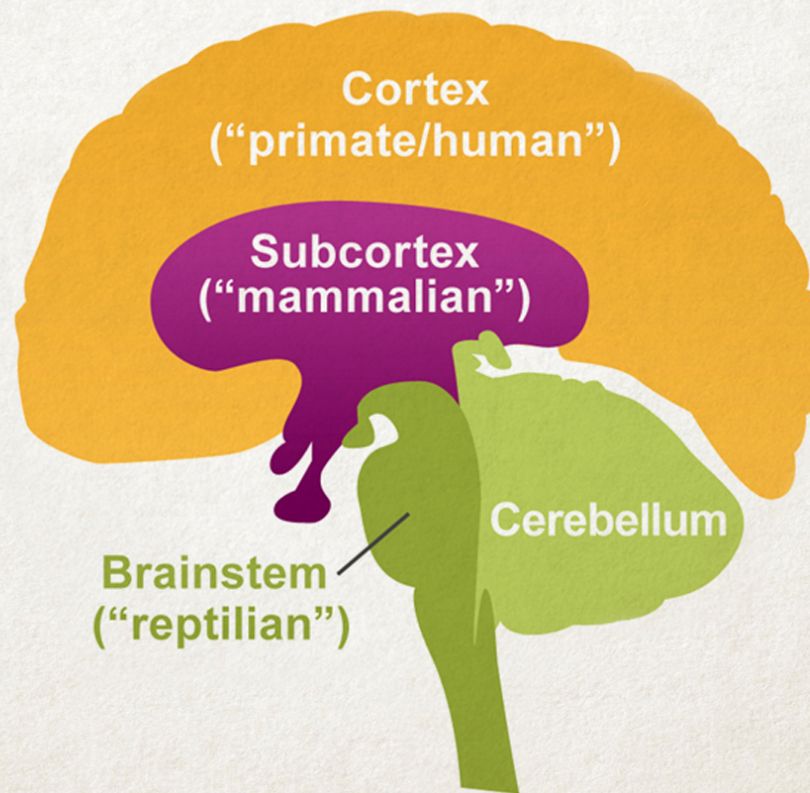


Connection

Attaching
to others

(social engagement)

The Evolving Brain



When Needs Don't Feel Sufficiently Met



When we feel
unsafe –
disturbed by threat –
the Avoiding system
goes Reactive,
with a sense
of **fear**.



When we feel
dissatisfied –
disturbed by loss –
the Approaching
system goes Reactive,
with a sense of
frustration.



When we feel
disconnected –
disturbed by
rejection – the
Attaching system goes
Reactive, with a sense
of **heartache**.

When Needs Do Feel Sufficiently Met



When we feel **safe** enough – the Avoiding system goes Responsive, with a sense of **peace**.



When we feel **satisfied** enough – the Approaching system goes Responsive, with a sense of **contentment**.



When we feel **connected** enough – the Attaching system goes Responsive, with a sense of **love**.

People commonly experience an underlying sense of deficit and disturbance that produces the “craving” – broadly defined – which causes suffering and harm.

Internalizing experiences of needs met builds up a sense of fullness and balance – so we can meet the next moment and its challenges feeling already strong, happy, compassionate, and at peace.

Self-Compassion

- Bring to mind beings who care about you . . . Focus on feeling cared about. . . Use HEAL to take in this experience.
- Bring to mind beings for whom you have compassion . . . Receive the sense of compassion into yourself . . . Know what compassion feels like.
- Be aware of your own burdens, stresses, and suffering – and bring compassion to yourself . . . Get a sense of caring, warmth, support, compassion sinking deeply into you.



Growing Key Resources

Matching Resources to Needs

Safety

See actual threats
See resources
Grit, fortitude
Feel protected
Alright right now
Relaxation
Calm

Peace

Satisfaction

Gratitude
Gladness
Feel successful
Healthy pleasures
Impulse control
Aspiration
Enthusiasm

Contentment

Connection

Empathy
Compassion
Kindness
Wide circle of “us”
Assertiveness
Self-worth
Confidence

Love

Pet the Lizard



Feed the Mouse



Hug the Monkey





Resources for Safety

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



Resources for Satisfaction

Gratitude and Gladness

- Bring to mind some of the things you have received and are thankful for . . . Good fortune, the kindness of others, the gift of life . . . The universe itself . . . Letting gratitude sink into you and spread inside you.
- Bring to mind some of the things you are glad about . . . Happy times with friends, challenges put behind you, recent successes, good things happening for others . . . Letting gladness sink into you and spread inside you.

Enoughness Already

- Focus on the sense of having received so much already . . .
- Get a sense of the fullness in the present moment . . . So much texture, so many sensations, sights, thoughts, feelings . . . Almost overwhelming, why seek anything more . . .
- Find a contentment in the moment as it is, moment after moment . . . Not wishing it to be different than it is . . . Drivenness and grasping and discontent falling away . . . Already satisfied.



Resources for Connection

Feeling of Worth

- It is natural and important to feel that you have worth as a person – which does not mean arrogance or ego.

You develop this sense of worth through:

- Others including, appreciating, liking, and loving you
- You respecting yourself

Take in experiences of being:

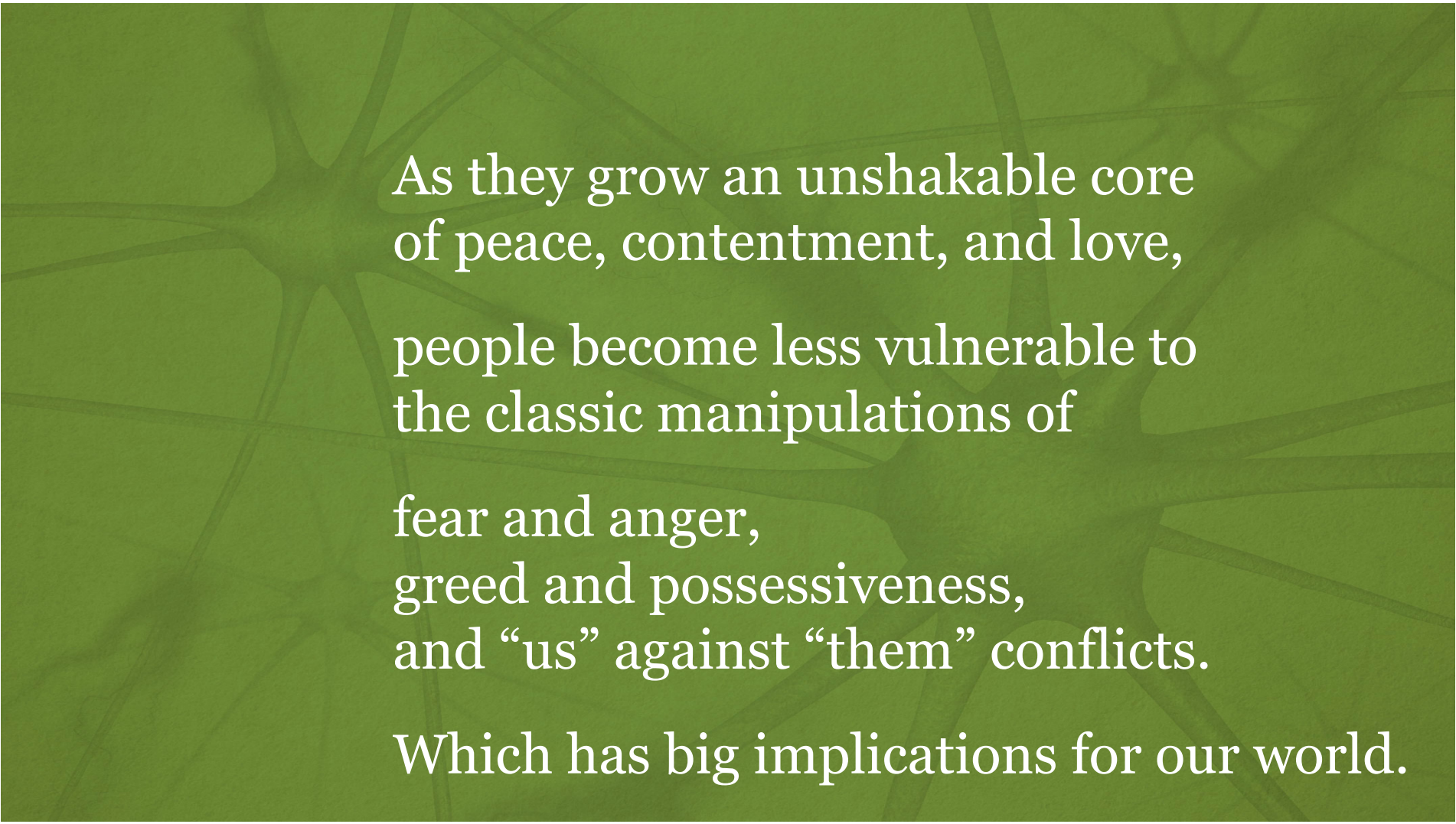
- Capable, skillful, talented, helpful
- Included, wanted, sought out
- Appreciated, acknowledged, respected
- Liked, befriended, supported
- Loved, cherished, special

A Confident Heart

- Feeling caring . . . And cared about.
- Stepping back and seeing yourself objectively . . . Recognizing your capabilities . . . Your good intentions . . . What you have been through and dealt with and overcome.
- Finding the respect for yourself that you would have for a person just like you . . . Letting go of needing to prove yourself or impress anyone . . . Recognizing your decency and efforts . . . Your good heart . . .



Fullness and Balance



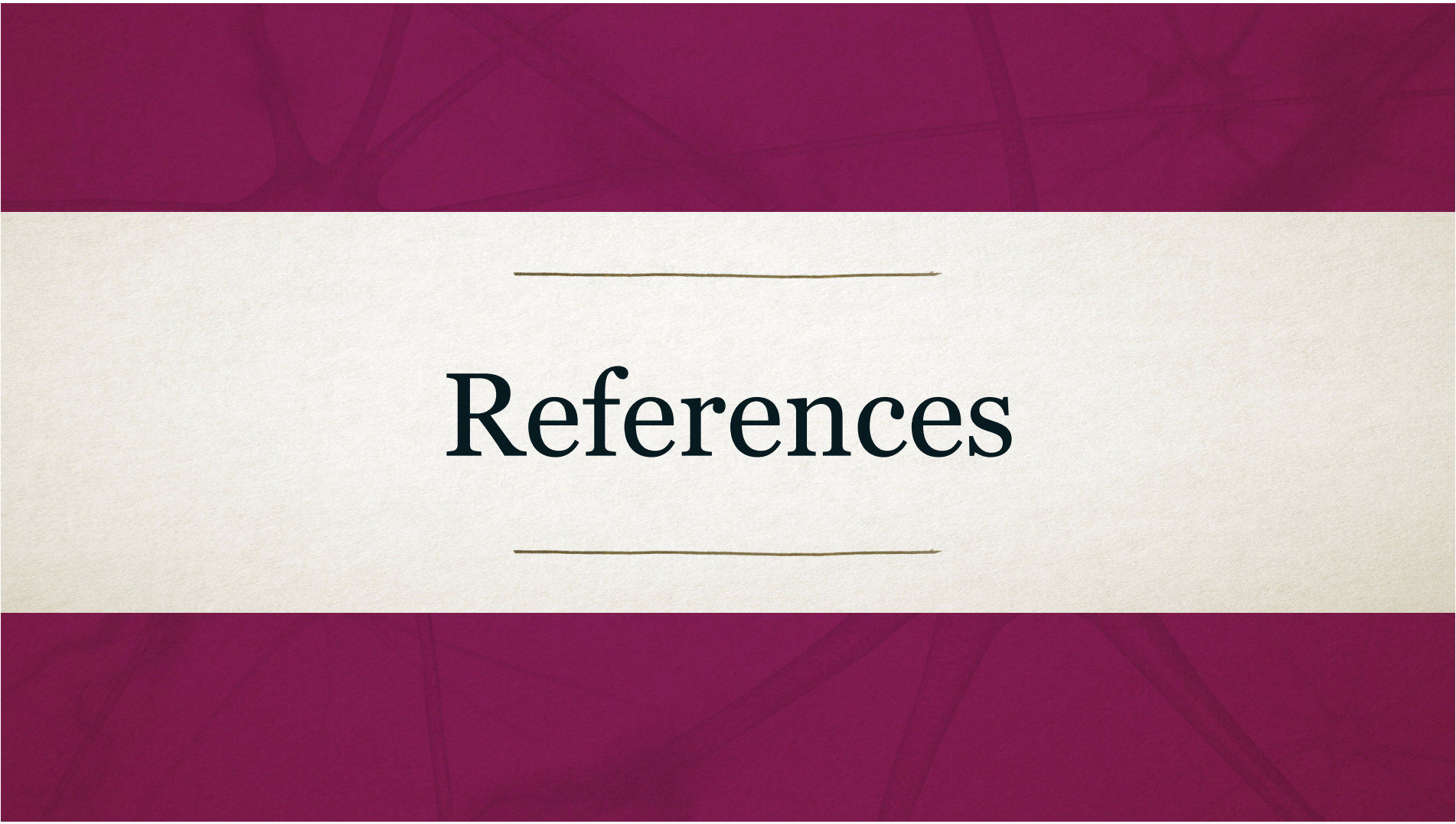
As they grow an unshakable core
of peace, contentment, and love,
people become less vulnerable to
the classic manipulations of
fear and anger,
greed and possessiveness,
and “us” against “them” conflicts.
Which has big implications for our world.

Coming Home

Peace

Contentment

Love



References

Suggested Books

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

Selected References - 1

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

- Atmanspacher, H. & Graben, P. (2007). Contextual emergence of mental states from neurodynamics. *Chaos & Complexity Letters*, 2, 151-168.
- Bailey, C. H., Bartsch, D., & Kandel, E. R. (1996). Toward a molecular definition of long-term memory storage. *PNAS*, 93(24), 13445-13452.
- Baumeister, R., Bratlavsky, E., Finkenauer, C. & Vohs, K. (2001). Bad is stronger than good. *Review of General Psychology*, 5, 323-370.
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Erlbaum.
- Casasanto, D., & Dijkstra, K. (2010). Motor action and emotional memory. *Cognition*, 115, 179-185.
- Claxton, G. (2002). Education for the learning age: A sociocultural approach to learning to learn. *Learning for life in the 21st century*, 21-33.
- Clopath, C. (2012). Synaptic consolidation: an approach to long-term learning. *Cognitive Neurodynamics*, 6(3), 251-257.

Suggested References - 2

- Craik F.I.M. 2007. Encoding: A cognitive perspective. In (Eds. Roediger HL I.I.I., Dudai Y. & Fitzpatrick S.M.), *Science of Memory: Concepts* (pp. 129-135). New York, NY: Oxford University Press.
- Davidson, R.J. (2004). Well-being and affective style: neural substrates and biobehavioural correlates. *Philosophical Transactions of the Royal Society*, 359, 1395-1411.
- Dudai, Y. (2004). The neurobiology of consolidations, or, how stable is the engram?. *Annu. Rev. Psychol.*, 55, 51-86.
- Dweck, C. (2006). *Mindset: The new psychology of success*. Random House.
- Fredrickson, B. L. (2013). Positive emotions broaden and build. *Advances in experimental social psychology*, 47(1), 53.
- Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clinical psychology review*, 30(7), 849-864.

Suggested References - 3

- Hamann, S. B., Ely, T. D., Grafton, S. T., & Kilts, C. D. (1999). Amygdala activity related to enhanced memory for pleasant and aversive stimuli. *Nature neuroscience*, 2(3), 289-293.
- Hanson, R. 2011. *Hardwiring happiness: The new brain science of contentment, calm, and confidence*. New York: Harmony.
- Hölzel, B. K., Ott, U., Gard, T., Hempel, H., Weygandt, M., Morgen, K., & Vaitl, D. (2008). Investigation of mindfulness meditation practitioners with voxel-based morphometry. *Social cognitive and affective neuroscience*, 3(1), 55-61.
- Hölzel, B. K., Carmody, J., Evans, K. C., Hoge, E. A., Dusek, J. A., Morgan, L., ... & Lazar, S. W. (2009). Stress reduction correlates with structural changes in the amygdala. *Social cognitive and affective neuroscience*, nsp034.
- Jamrozik, A., McQuire, M., Cardillo, E. R., & Chatterjee, A. (2016). Metaphor: Bridging embodiment to abstraction. *Psychonomic bulletin & review*, 1-10.
- Kensinger, E. A., & Corkin, S. (2004). Two routes to emotional memory: Distinct neural processes for valence and arousal. *Proceedings of the National Academy of Sciences of the United States of America*, 101(9), 3310-3315.

Suggested References - 4

- Koch, J. M., Hinze-Selch, D., Stingele, K., Huchzermeier, C., Goder, R., Seeck-Hirschner, M., et al. (2009). Changes in CREB phosphorylation and BDNF plasma levels during psychotherapy of depression. *Psychotherapy and Psychosomatics*, 78(3), 187–192.
- 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.
- Lee, T.-H., Greening, S. G., & Mather, M. (2015). Encoding of goal-relevant stimuli is strengthened by emotional arousal in memory. *Frontiers in Psychology*, 6, 1173.
- Lutz, A., Brefczynski-Lewis, J., Johnstone, T., & Davidson, R. J. (2008). Regulation of the neural circuitry of emotion by compassion meditation: Effects of meditative expertise. *PLoS One*, 3(3), e1897.
- Madan, C. R. (2013). Toward a common theory for learning from reward, affect, and motivation: the SIMON framework. *Frontiers in systems neuroscience*, 7.
- Madan, C. R., & Singhal, A. (2012). Motor imagery and higher-level cognition: four hurdles before research can sprint forward. *Cognitive Processing*, 13(3), 211-229.

Suggested References - 5

- McEwen, B. S. (2016). In pursuit of resilience: stress, epigenetics, and brain plasticity. *Annals of the New York Academy of Sciences*, 1373(1), 56-64.
- McGaugh, J.L. 2000. Memory: A century of consolidation. *Science*, 287, 248-251.
- Nadel, L., Hupbach, A., Gomez, R., & Newman-Smith, K. (2012). Memory formation, consolidation and transformation. *Neuroscience & Biobehavioral Reviews*, 36(7), 1640-1645.
- Pais-Vieira, C., Wing, E. A., & Cabeza, R. (2016). The influence of self-awareness on emotional memory formation: An fMRI study. *Social cognitive and affective neuroscience*, 11(4), 580-592.
- Palombo, D. J., & Madan, C. R. (2015). Making Memories That Last. *The Journal of Neuroscience*, 35(30), 10643-10644.
- Paquette, V., Levesque, J., Mensour, B., Leroux, J. M., Beaudoin, G., Bourgouin, P. & Beaugard, M. 2003 Change the mind and you change the brain: effects of cognitive-behavioral therapy on the neural correlates of spider phobia. *NeuroImage* 18, 401-409.
- Rozin, P. & Royzman, E.B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review*, 5, 296-320.

Suggested References - 6

- Sneve, M. H., Grydeland, H., Nyberg, L., Bowles, B., Amlien, I. K., Langnes, E., ... & Fjell, A. M. (2015). Mechanisms underlying encoding of short-lived versus durable episodic memories. *The Journal of Neuroscience*, 35(13), 5202-5212.
- Talmi, D. (2013). Enhanced Emotional Memory Cognitive and Neural Mechanisms. *Current Directions in Psychological Science*, 22(6), 430-436.
- Thompson, E. (2007). *Mind in life: Biology, phenomenology, and the sciences of mind*. Harvard University Press.
- Wittmann, B. C., Schott, B. H., Guderian, S., Frey, J. U., Heinze, H. J., & Düzel, E. (2005). Reward-related FMRI activation of dopaminergic midbrain is associated with enhanced hippocampus-dependent long-term memory formation. *Neuron*, 45(3), 459-467.
- Yonelinas, A. P., & Ritchey, M. (2015). The slow forgetting of emotional episodic memories: an emotional binding account. *Trends in cognitive sciences*, 19(5), 259-267.