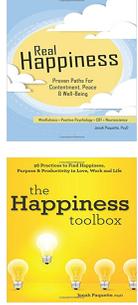




Positive Psychology
The Science of Happiness and Well-Being

Jonah Paquette, Psy.D.
 Author of *Real Happiness*, *The Happiness Toolbox*, and *Awestruck*

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About Me

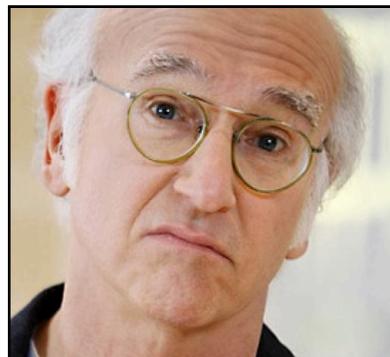
- Author of *Real Happiness*, *The Happiness Toolbox*, and *Awestruck* (coming June 2020)
- International speaker and workshop trainer
- Assistant Regional Director of Mental Health Training at Kaiser Permanente in Northern California

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What we'll cover

What is happiness?	Why happiness?	Can we increase happiness?
Key brain regions and systems	How to become happier	Tools for clinical change • Practical, Evidence-Based, Easy to Integrate

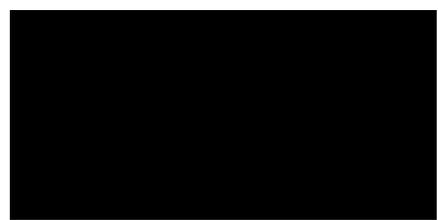
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Words of Wisdom?

4

Words of Wisdom?



5



Happiness: A timeless and universal question

6



Happiness: A new “problem”

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What is Happiness?

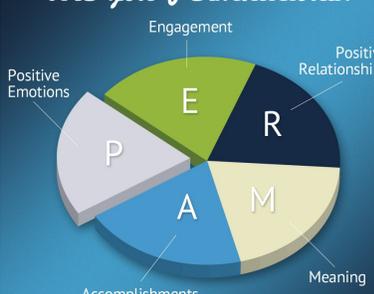
“The experience of joy, contentment, or positive well-being, combined with a sense that one’s life is good, meaningful, and worthwhile.”

– Sonja Lyubomirsky, Ph.D.

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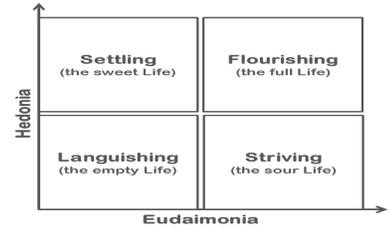
Are you Permalicious?

PERMA Model of Well-Being
(Seligman, 2012)



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The Best of Both Worlds



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Measuring Happiness

- Authentic Happiness Inventory
- General Happiness Scale
- Satisfaction with Life Scale
- Subjective Happiness Scale
- Optimism Scale
- Gratitude Survey
- Grit Scale
- Grit Scale
- VIA Strengths Test, Brief Strengths Test
- PERMA Questionnaire
- Meaning in Life Questionnaire
- Compassionate Love Survey

*Free through www.authentic happiness.org

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Subjective Happiness Scale
(Lyubomirsky)

- In general, I consider myself:

1	2	3	4	5	6	7
not a very happy person						a very happy person
- Compared to most of my peers, I consider myself:

1	2	3	4	5	6	7
less happy						more happy
- Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1	2	3	4	5	6	7
not at all						a great deal
- Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

1	2	3	4	5	6	7
not at all						a great deal

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Satisfaction with Life Scale (Diener)

The Statements

Rate your agreement with each statement using the scale 1 - 7.

- ___ In most ways my life is close to my ideal.
- ___ The conditions of my life are excellent.
- ___ I am satisfied with my life.
- ___ So far I have gotten the important things I want in life.
- ___ If I could live my life over, I would change almost nothing.

Add your ratings to produce the total score.

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Why Happiness?

What do **nuns**, **baseball players**, and **yearbook photos** have in common?

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The Nun Study (Danner, 2001)

"God started my life off well by bestowing me grace of inestimable value... The past year, which I spent as a candidate studying at Notre Dame has been a very happy one. Now I look forward with eager joy to receiving the Holy Habit of our Lady and to a life of union with Love Divine."
 —Cecilia O'Payne

"I was born on September 26, 1909, the eldest of 7 children, 5 girls and 2 boys. My candidate year was spent in the motherhouse, teaching chemistry and 2nd year Latin at Notre Dame Institute. With God's grace, I intend to do my best for our Order, for the spread of religion and for my personal sanctification."
 —Marguerite Donnelly

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The Yearbook Study (Harker & Keltner, 2001)



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The Baseball Card Study (Abel & Kruger, 2010)



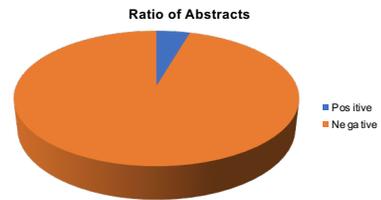
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It's Good to be Happy

- **Psychological:** Increased life satisfaction, lower rates of depression and anxiety, increased frequency of positive emotional states, increased resiliency, openness to new experiences
- **Physical:** Increased longevity, improved physical health, stronger immune system, decreased inflammation, improved coping with chronic illness
- **Life:** Higher income, stronger marriages, closer relationships, improved job performance

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Mental Health Abstracts, 1968-2000



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Happiness: Can we *really* increase it?

"I don't have one minute's regret. It was a glorious experience." – Moreese Bickham
 "It was the worst thing that ever happened to me." – Billy Bob Harrell, Jr.



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Happiness Forecasting



22

12 months later (Gilbert, 2006)



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Dead Ends to Happiness

- Money/Income
- Marriage
- Children
- Living in California
- Getting a Promotion
- Sports team winning
- Physical Attractiveness
- Years of Education
- Passing/Failing an Exam

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Barriers to Happiness

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Barrier #1:
Hedonic
Adaptation

27

"People are exposed to many messages that encourage them to believe that a change of weight, scent, hair color (or coverage), car, clothes, or many other aspects will produce a marked improvement in their happiness. Our research suggests a moral, and a warning: Nothing that you focus on will make as much difference as you think."
 – Daniel Kahneman, Ph.D.

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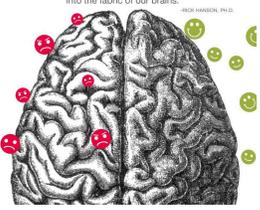
Barrier #2: Genetics

29



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"Our brain has a negativity bias, making it like **VELCRO FOR THE BAD** and **TEFLON FOR THE GOOD**. We have to learn to weave the positive into the fabric of our brains." -RICK HANSON, PH.D.



Barrier #3: A "Negative" Brain

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The "Negativity Bias"

- Greater focus on negative experiences
- Learn faster from pain than pleasure
- Hard to "undo" these effects
- Negative experiences stored longer in memory
- Great for survival, but...

"Most good experiences are wasted on the brain."
– Rick Hanson

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The Brain Science of Positive Change

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A long time coming...

"We must recollect that all of our provisional ideas in psychology will presumably one day be based on an organic substructure."
– Sigmund Freud

"The act of will activates neural circuits."
– William James




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Why focus on the brain?

<p><i>Helps us as clinicians to:</i></p> <ul style="list-style-type: none"> • Tailor interventions that impact specific brain regions and systems • Understand the neuroscience of well-being • Frame our interventions as they relate to key brain regions 	<p><i>Helps our clients to:</i></p> <ul style="list-style-type: none"> • Understand why practicing certain skills is important • Feel empowered that what they do matters • Feel more "buy-in" for the approaches we might take
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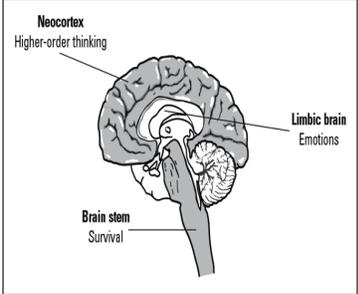
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Nervous System Overview

- Comprised of 2 kinds of cells:
 - Neurons: 90-100 billion, each connected to thousands more
 - Glia: roughly one trillion glial cells, providing support/scaffolding to neurons
- Together, these comprise our nervous system, which consists of 2 parts
 - Central Nervous System: Brain & Spinal Cord
 - Peripheral Nervous System: Somatic and Autonomic Nervous System
 - ANS: consists of Sympathetic and Parasympathetic Branches

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Review of Key Regions and Systems



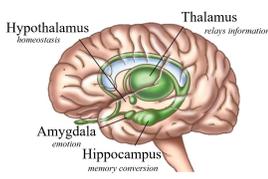
Neocortex
Higher-order thinking

Limbic brain
Emotions

Brain stem
Survival

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The Limbic System



Hypothalamus
homeostasis

Thalamus
relays information

Amygdala
emotion

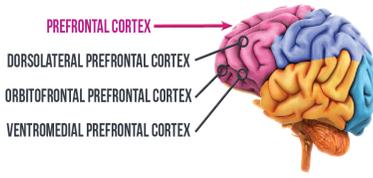
Hippocampus
memory conversion

The Limbic System

- Primarily associated with emotions and memory
- Deeper set of structures within the brain
- Sometimes called the "mammalian" brain

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Prefrontal Cortex (PFC)

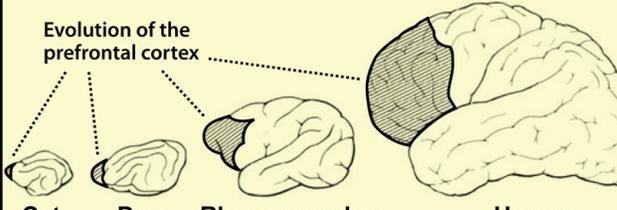


PREFRONTAL CORTEX

- Thinking, planning, cooperation, impulse control, emotional control
- The "CEO" of the brain
- Most evolutionarily advanced regions of the brain
- DLPFC: working memory, present-moment awareness
- OFC: social brain, emotion regulation

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Evolution of the prefrontal cortex



Cat Dog Rhesus monkey Human

Prefrontal Cortex (PFC)

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Affect Asymmetry

<p style="text-align: center;"><u>Left PFC</u></p> <ul style="list-style-type: none"> • Positive Emotions • Approach Behaviors • Identifying/labeling thoughts and feelings • Development of new narratives 	<p style="text-align: center;"><u>Right PFC</u></p> <ul style="list-style-type: none"> • Negative Emotional States • Withdrawal behaviors • Behavioral inhibition • Emotional overwhelm
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Key Neurotransmitter Systems

- Serotonin:** mood regulation, motivation, sleep, emotionality
- Dopamine:** reward, pleasure
- GABA:** calming
- Endorphins:** pleasure, pain relief, euphoria
- Norepinephrine:** focus/concentration, alertness, stress response
- Glutamate:** stimulation of brain cells, memory systems
- Oxytocin:** bonding, social connection

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Peripheral Nervous System

Sympathetic Nervous System (SNS)

- "Fight or Flight"
- Marked by over 1000 biochemical and physiological changes in the body
- Deactivates functioning in cortical areas of brain
- Chronic activation linked to a host of negative outcomes

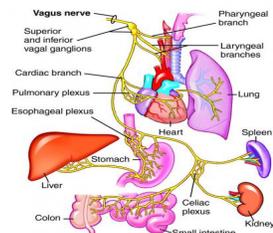
Parasympathetic Nervous System (PNS)

- "Rest and Digest," or "Feed and Breed"
- Relaxation response
- Returns us to homeostasis
- Marked by decreased blood pressure and heart rate, slowed breathing, and other aspects of relaxation

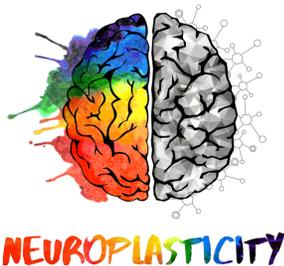
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Vagus Nerve

- 10th cranial nerve
- Feelings of safety, belonging, connection, attachment
- High vagal tone
 - Ability to self-soothe, attach, self-regulate
- Low vagal tone
 - Anxiety, irritability, poor impulse control



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Using the Mind to Change the Brain

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Positive Neuroplasticity

- Habits, Skills, Behaviors lead to *state* changes in the brain
- Repeated over time, short-term *states* become long-term *traits*
- A bidirectional process
 - Experiences change our brain, which in turn make those positive experience more accessible and likely to be repeated
- A "superpower" that can be used towards health or misery

Take-home point for clients: "Positive actions (thoughts and behaviors) repeated over time changes your brain. This, in turn, makes us more likely to experience them again."

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"The brain is shaped by experience. And because we have a choice about what experiences we want to use to shape our brain, we have a responsibility to choose the experiences that will shape the brain toward the wise and the wholesome."

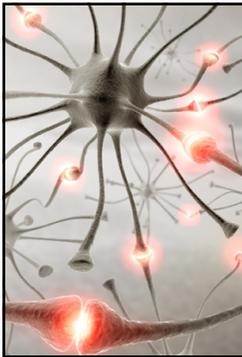
– Richard Davidson, Ph.D.

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Neuroplasticity in Action

- The Brain changes through experience – this occurs automatically
- The more we repeat a thought/behavior/action, the stronger the associated neuronal connections become
- Our brain is *soft-wired*, not hard-wired: conscious actions can change our brain for the better
- The key is practice...and then more practice
- Brain changes can appear on fMRI scans in as little as 2-3 months

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Creating Brain-Based Changes

- *Strengthening (LTP) or weakening* of synaptic connections
- *New* synaptic connections
- Increased *thickening* of glial cells
- *Dendritogenesis*: growth of new dendrites
- *Neurogenesis*: growth of new neurons
- Increased synaptic efficacy
- Increased blood cell density

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Brain-Derived Neurotrophic Factor (BDNF)

- Protein that plays a crucial role in neurogenesis and neuroplasticity
- Consolidates connections between neurons
- Promotes myelin growth to help neurons fire efficiently
- Facilitates new neuronal growth in the PFC and hippocampus
- Factors that *decrease* BDNF:
 - Aging
 - Stress
 - Depression
 - Obesity
 - Substance abuse
- Factors that *increase* BDNF:
 - Exercise
 - Decreased caloric intake
 - Intermittent fasting
 - Healthy fats (e.g. Omega-3's)

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Examples of Neuroplasticity

- **Cab Drivers** (McGuire, 2000)
 - Hippocampus
- **Meditating Monks**
 - Left PFC (positive emotions)
 - Anterior Cingulate Gyrus (attention)
 - Insula (peace & safety)
- **Pianists**
 - Motor Cortex
 - Posterior Precentral Gyrus
- **Jugglers** (Draginski, 2003)
 - Increased gray matter in mid-temporal lobes
- **String instrument musicians**
 - Enlarged areas of specific somatosensory strips
- **Trauma Survivors**
 - Amygdala
 - Hippocampus (decreased volume)

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Psychotherapy and Neuroplasticity

- Decreased amygdala response and sensitivity after undergoing treatment for panic disorder, social phobia, and specific phobia (Straube, 2006; Prasco, 2004)
- Increased ACC activation after treatment for PTSD (Felmingham, 2007)
- Treatment for depression increased activation and volume in the hippocampus (Goldapple, 2004)
- Decreased caudate activity for OCD patients (Baxter, 1992)

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Core Habits of Well-Being

- ❖ Gratitude
- ❖ Compassion
- ❖ Cultivating Strengths
- ❖ Meaning
- ❖ Connection
- ❖ Optimism
- ❖ Fostering Resilience
- ❖ Awe
- ❖ Self-Compassion
- ❖ Health & Wellness
- ❖ Forgiveness
- ❖ Mindfulness
- ❖ Savoring

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Awe



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Why do we experience awe?

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The Benefits of Awe

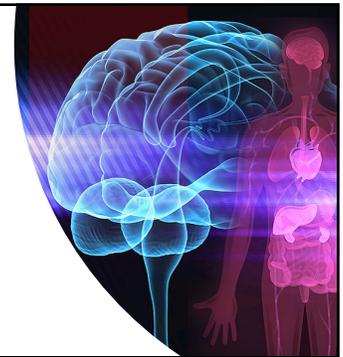
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Psychological Benefits of Awe

- Enhances Positive Emotions (Joye, 2015)
- Increases Life Satisfaction (Rudd, 2012)
- Lastingly Boosts our Mood (Stellar, 2017)
- The “Small Self” Effect (Bai, 2017)
- Decreases Materialism (Jiang, 2018; Rudd, 2012)
- Lowers Stress (Anderson, 2018)
- Decreases PTSD symptoms (Anderson, 2018)
- Expands our sense of time (Rudd, 2012)
- Increases Humility (Stellar, 2018)

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Our Brain and Body on Awe



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Awe and Inflammation (Stellar et al., 2015)

Short-Term/Acute

- Fights disease and infection
- Restores us to homeostasis
- Signals immune system to spring to action
- Heals and repairs damaged tissue
- Localized

Chronic

- Persistent, low-grade
- Widespread (rather than localized)
- Linked to heart disease, stroke, Alzheimers, depression, and much more

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Awe and Inflammation

DPES Subscale	IL-6	IL-6
Awe	-0.33***	-0.33**
Amusement	-0.02	0.16
Compassion	-0.09	0.05
Contentment	-0.20*	0.04
Joy	-0.23*	-0.11
Love	-0.10	-0.07
Pride	-0.21*	-0.009

Note. β values for positive emotions predicting IL-6 and controlling for participant's BMI. In column 1, emotions are separately entered into regressions and in column 2 they are simultaneously entered.
* $p < .05$. ** $p < .01$. *** $p < .001$.

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Your Brain on Awe (Newberg, 2016)

- Activation in areas linked to interpersonal bonding and release of oxytocin
- Decreased activation of Default Mode Network (DMN)
- Decreased activation in the parietal lobe
 - Contributes to sense of self, orients us to world around us
 - May explain the "out of body" experience many report during moments of awe
- Decreased activation of subgenual prefrontal cortex
 - Linked to anxious rumination
- Distinct "signatures" found on EEG readings during moments of awe

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Awe and our Nervous System

- Typically work in reverse of each other (like a hot and cold faucet)
- Awe appears to be a rare state in which both branches are activated simultaneously

AUTONOMIC NERVOUS SYSTEM

• SYMPATHETIC

– Fight or Flight



• PARASYMPATHETIC

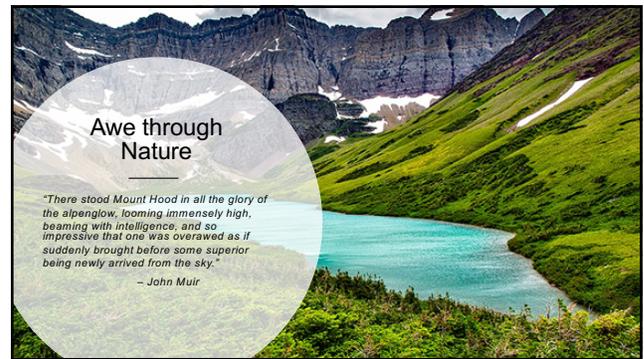
– Rest and Digest



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Awe through Vastness

"Look up at the stars and not down at your feet. Try to make sense of what you see, and wonder about what makes the universe exist. Be curious."

– Stephen Hawking



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Mind-Bending Awe

"The feeling of awed wonder that science can give us is one of the highest experiences of which the human psyche is capable."

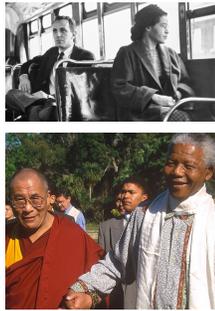
– Richard Dawkins



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Awe through Courage & Inspiration

"Awe is the best of man."
- Goethe



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"If spring came but once a century instead of once a year, or burst forth with the sound of an earthquake and not in silence, what wonder and expectation there would be in all hearts to behold the miraculous change."
- Henry Wadsworth Longfellow

Awe through Timelessness

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Awe through Creativity & The Arts

"Beauty will save the world."
- Fyodor Dostoevsky

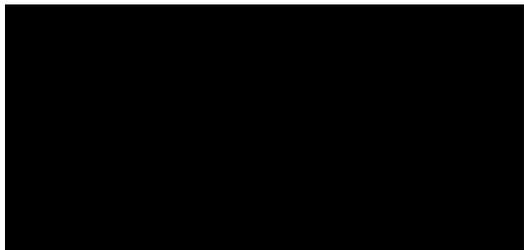
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Gratitude

"He is a wise man who does not grieve for the things which he has not, but rejoices for that which he has." -Epictetus



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A Reflection on Gratitude



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Gratitude

"A sense of wonder, thankfulness, and appreciation for life."
 – Robert Emmons

"An antidote to negative emotions, a neutralizer of envy, avarice, hostility, worry, and irritation."
 – Sonya Lyubomirsky

"Gratitude is an attitude, but it is much more. Gratitude has also been depicted as an emotion, a mood, a moral virtue, a habit, a motive, a personality trait, a coping response, and even a way of life."
 -Robert Emmons

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Benefits of Gratitude

<u>Psychological</u>	<u>Other Benefits</u>
Lower Depression, Anxiety, Stress (Seligman, 2005)	Overall health improved (Emmons, 2007)
Joy, enthusiasm, happiness, love, optimism (Emmons, 2007)	Better sleep (Wood, 2009)
Increased well-being, life satisfaction (Wood, 2010)	Increased immune system functioning
Recovery from PTSD (Kashdan, 2005)	Exercise (Emmons, 2007)
More able to forgive (Luskin, 2010)	Decreased physical pain
Improved perception of social support	Romantic relationships (Algoe, 2010)
	Social Bonds (McCullough, 2002)
	More forgiving (Rye, 2012)

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The Grateful Brain

- Left Prefrontal Cortex (Zahn, 2009)
- Anterior Cingulate Cortex (Fox, 2015)
 - Interpersonal bonding
- Pregenual Anterior Cingulate Cortex (pgACC) (Wong, 2016)
 - Links emotional and cognitive centers of brain
 - Lasting differences months later
- Hypothalamus
 - Sleep, Stress, Metabolism
- Increased gray matter functioning
- Ventromedial Prefrontal Cortex (reward circuitry)
- Serotonin, Dopamine (Zahn, 2008)

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Three Good Things (Seligman, 2005)

- 3 things that went well today
- Why they happened/your contribution
- Different every day; never repeat an item
- Every day for at least 2 weeks



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Gratitude Letter/Visit (Seligman, 2005)

- Identify someone who has helped you, but never properly thanked
- Write and deliver a detailed letter expressing thanks



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Gratitude for those who support us

(Graham, 2013)

"A hundred times every day, I remind myself that my inner and outer life depends on the labors of other people, and that I must exert myself in order to give in the same measure as I have received and am still receiving." – Albert Einstein

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Give it up (Coidbach, 2013)

- Identify a source of joy or pleasure in your life (one that you can easily access)
- First, allow yourself to indulge/enjoy it as you normally would
- Then, spend a week completely avoiding it altogether
- After a week, allow yourself to enjoy it once more – notice how it feels different from before

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Remembering the Bad (Emmons, 2007)

“Think of your worst moments, your sorrows, your losses and your sadness. Focus on how you got through the worst day of your life, the trauma, the trial. You endured the temptation, you survived the bad relationship. You made your way out of the dark. Remember this, and then look to see where you are now.”

– Robert Emmons

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Grateful Reminiscence

- Reflect back on an experience you've had that brings up feelings of gratitude
- Journal 1x per week reminiscing on a past experience of gratitude
- Savoring happy memories shown to increase serotonin production (Perreau-Linck, 2007)
- Thinking back on sad or painful memories shown to decrease serotonin production

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Mental Subtraction of Positive Events

(Koo et al, 2008)

- Mental Subtraction of positive aspect in life
- Can be person, relationship, opportunity, career, or other source of goodness
- Reflect on how easily this could NOT be a part of your life

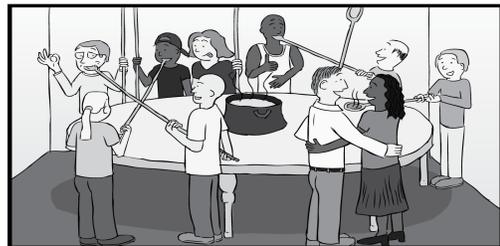
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Kindness and Compassion

“If you want to be happy, practice compassion.” –The Dalai Lama



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Reflections on Kindness



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Benefits of Kindness

<u>Psychological</u>	<u>Other</u>
Depression (Musick, 2003)	Increased longevity (Oman, 1999) 44% reduced mortality
Anxiety (Post, 2008)	Improved physical health (Post, 2008; Borgonovi, 2008)
Addiction (Pagano, 2009)	Helps with multiple sclerosis, HIV (Post, 2008)
Meaning/Purpose (Schwartz, 2003)	Work place success (Grant, 2013)
<u>Causal</u> factor (Lyubomirsky, 2007)	Blue Zone Findings (Buettner, 2011)
	Closer relationships (Lyubomirsky, 2007)
	Romantic Relationships (Buss, 1989)

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Your Brain and Body on Compassion

- Activation of pleasure centers in brain (Moll, 2006)
- Inferior Parietal Cortex (Weng, 2013)
- Anterior cingulate cortex
- Dorsolateral prefrontal cortex (Weng, 2013)
- Medial orbitofrontal cortex and ventral tegmental region (Klimecki, 2013)
- Vagus nerve stimulation (Keltner, 2010)
- Release of endorphins, dopamine, oxytocin
- 23% cortisol decrease
- Decreased stress hormones, strengthened immune response (Pace, 2009)
- Increased vagal tone (Kok, 2010)

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5 Acts of Kindness (Lyubomirsky, 2008)

- 5 kind acts on a single day (bunch up)
- Repeat for 4 weeks
- Write about impressions/experience



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Recalling Kindness (Ortake, 2006)

- Acknowledging and Savoring kindness we've already given
- Reflect on 5 from past week
- Repeat for 4 weeks

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Feeling Connection (Pavey, 2011)

- Reflect on a specific time when you felt a strong bond or connection to someone in your life
- Spend a few minutes writing and reflecting on this experience
- Repeat 1x/week

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Self-Compassion

"If your compassion does not include yourself, it is incomplete."
 –Jack Kornfield

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Self-Compassion

Key Concepts:

- 3 components (Neff, 2011)
 - Self-Kindness
 - Mindfulness
 - Shared Humanity
- Self-Compassion vs. Self-Esteem
 - "Contingent self-worth"
 - Unstable concept

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Barriers to Self-Compassion

- "It will make me weak"
- "It's selfish"
- "I won't achieve my goals"
- "A pity party"
- Others?

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Benefits of Self-Compassion

<u>Psychological</u>	<u>Other</u>
Lower rates of depression & anxiety (Neff, 2011)	Alleviates chronic pain
Recovery from PTSD (Thompson & Waltz, 2008)	Improved lower back pain (Carson, 2005)
Eating Disorders (Leary & Adams, 2007)	Chronic Acne (Kelly, 2009)
Cigarette Smoking (Kelly, 2010)	Closer relationships (Germer, 2009)
Greater compassion towards others	Increased altruism (Crocker & Canavello, 2008)
	Romantic Relationships (Neff, 2011)
	School & Work (Neff, 2011)

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The Physiology of Self-Compassion

Self-Criticism	Self-Compassion
• Increased amygdala response	• L Prefrontal Cortex
• R Prefrontal Cortex	• Increased PNS activation
• Cortisol increases	• Breathing slows
• Adrenaline released	• Insula activation
	• Decreased cortisol
	• Increased oxytocin

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Self-Compassion Break

- Reflect on something causing you stress
- Feel the feelings, call it to mind
- In the moment, saying to yourself:
 1. This is a moment of suffering
 2. Suffering is a part of life
 3. May I be kind to myself

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A Letter of Self-Compassion

- Envision receiving kindness from a trusted loved one
- Identify perceived problem/ flaw
- Letter written to yourself from this perspective
- Allow the feelings to sink in

"The curious paradox is that when I accept myself just as I am, then I can change." – Carl Rogers

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Self-Compassion Journal

- 1x/day for 1 week
- Writing about one event from the day that caused you pain, that created negative self-judgment, or that you felt bad about.
- For each event or situation, use the 3 pillars of self-compassion to reframe the experience

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Self-Appreciation

- Recognizing and savoring the positive aspects of ourselves
- The importance of recognizing the whole picture
- 5 aspects of self you are proud of
- Savoring the experience

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Loving-Kindness Meditation



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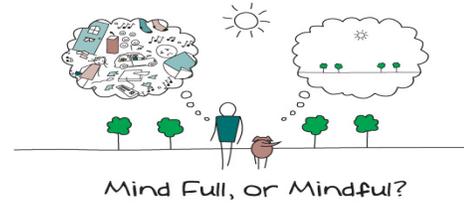
Benefits of Loving-Kindness

- Increased positive emotions (Frederickson, 2008)
- Increased Vagal Tone (Kok, 2013)
- Reduced Migraines (Tonelli, 2014)
- Improves lower-back pain (Carson, 2005)
- PTSD symptoms (Kearney, 2013)
- Increased gray matter (Leung, 2013)
- Prosocial behaviors increased (Leiberg, 2011)
- Increased empathy (Klimecki, 2013)

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Mindful Awareness

"The present moment is filled with joy and happiness. If you are attentive, you will see it." -Thich Nhat Hanh



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What is Mindfulness?

"Mindfulness means paying attention in a particular way; On purpose, in the present moment, and non-judgmentally."

Jon Kabat-Zinn

112

- Mindfulness vs. Mindlessness
- The toll of a wandering mind (Killington & Gilbert, 2010)
- Barriers to Mindfulness
 - Modern Culture
 - What mindfulness is not
- A way of being in the world



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Benefits of Mindfulness

- | | |
|---|--|
| <p><u>Psychological</u></p> <ul style="list-style-type: none"> • Depression (Keng, 2011) • Reduced stress & anxiety (Hofmann et al., 2010; Bowden, 2010) • Buffers against future depressive episodes (Williams & Penman, 2011) • Happiness, Well-Being (Shapiro, 2008) • Problem-solving, attention & focus (Moore, 2012) • Enhanced cognitive ability (Xion & Doraiswamy, 2009) • Disordered Eating • Decreased negative emotions (Erisman, 2010) | <p><u>Physical</u></p> <ul style="list-style-type: none"> • Fewer doctor's visits, fewer hospital days (Williams & Penman, 2011) • Immune system (Davidson & Kabat-Zinn, 2003) • HIV (Creswell, 2009) • Chronic Pain • Reduced insomnia (Bowden, 2012) • Improved heart rate variability (Miu, 2009) |
|---|--|

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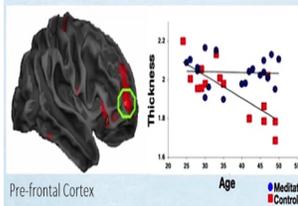


Benefits of Mindfulness

Life/Relationships

- > Improved job performance & retention (Dane, 2013)
- > Less aggression, improved behavior in schools for students
- > Lower BP for teachers (Flook, 2013)
- > Increased altruism (Condon, 2013)
- > Increased empathy (Fulton, 2005; Z Shapiro & Izett, 2008)
- > Increased compassion for others' suffering (Weng, 2013)

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Pre-frontal Cortex

Thickness

Age

● Meditators
● Controls

- Left PFC (Davidson, 2003)
- Activation of memory and learning centers (Holzel, 2011)
- Decreased amygdala response (Davis, 2008; Lieberman, 2007)
- Increased left hippocampal volume
- Offsets cortical thinning (Lazar, 2005)
- Structural changes can occur in as little as 12-16 weeks

Mindfulness and the Brain

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Mindfulness of the Breath



- Find a comfortable and relaxed position
- Tune into the breath – the rise and fall of your abdomen, the sensations, one breath at a time
- Notice when mind wanders, and redirect to the breath
- 5-7 minutes

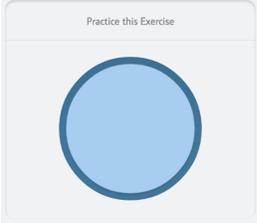
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Everyday Mindfulness

- Choose 1 "autopilot" activity per day
- Cultivate present moment, nonjudgmental awareness
- Examples include:
 - Eating
 - Walking
 - Showering
 - Cleaning Dishes
 - Gardening
 - Others?

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Slow Exhale Breathing



- Activates the vagus nerve, helping to activate our PNS
- Aim for 5-6 breaths per minute (versus 10-15)
- Elongate the exhale
- Breathe through nose

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Mindfulness of our Senses



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Awareness of Emotions



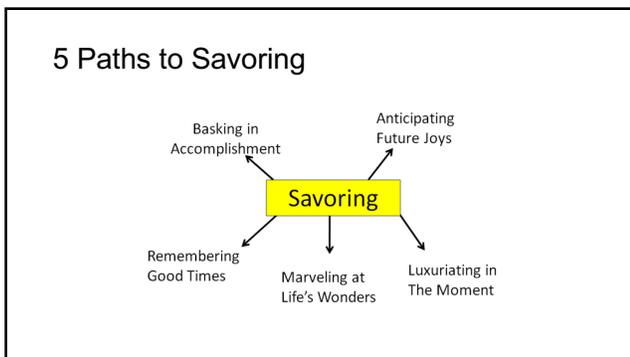
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Savoring



How The Simple Act of Savoring Can Make You Happier

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Savoring

Why

- Negativity Bias
- Positive experiences come and go
- Using the mind to change the brain
 - Increased neural firing
 - Long-term changes

How

- 3 A's
 - Attend
 - Notice or Create
 - Amplify*
 - Enrich the experience
 - 5-10 seconds or more
 - Absorb
 - Let it sink in

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Savoring and the Brain

Ventral Striatum

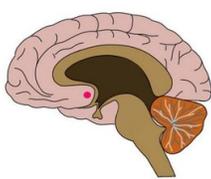
- Linked to sustaining positive emotions and reward

Left Prefrontal Cortex

Dorsolateral Prefrontal Cortex

Decreased Cortisol

Increased serotonin, dopamine



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Tips for Savoring (Fred Bryant)

- Share the Experience with others ("Capitalizing")
- Memory Building
 - Mental Notes, Photos/Souvenirs
- Self-Congratulate
- Pay attention to our senses
- Avoid multitasking
- Absorption
- Ruminant on the Good

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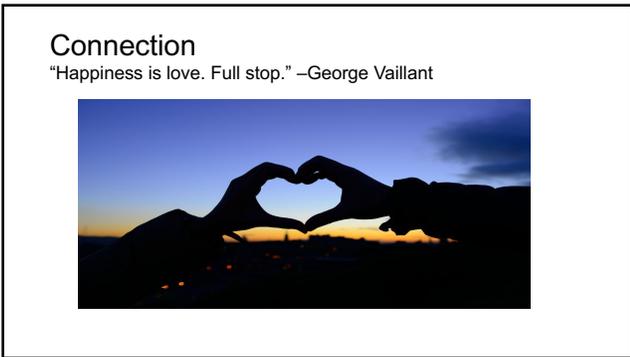
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Connection

- “Wired” to connect (Lieberman, 2013)
 - “As basic of a need as food or shelter”
- “Social Brain” Hypothesis (Dunbar, 2003)
 - Brain size predicted by group size
- Born to Connect (Christakis & Fowler, 2013)
- Quality > Quantity

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Alarming Trends

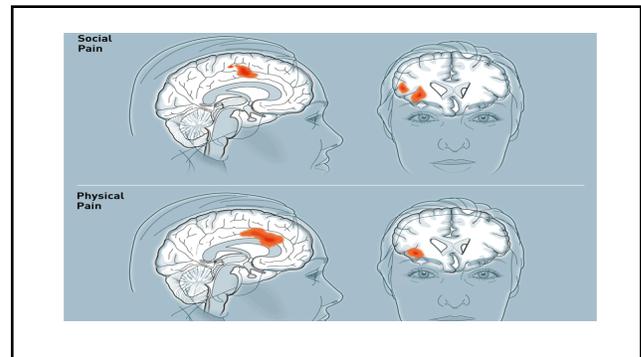
- Increased loneliness (McPherson, 2006)
- Influence of technology
- Decreased volunteerism
- Fewer and fewer close friends
- College Student Surveys:
 - 1965: Helping others > \$
 - 2012: Top goal (81%)=earning \$\$\$

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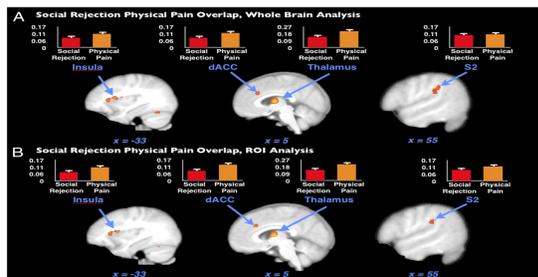
Lessons from “Cyberball”



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Benefits of Connection

- | | |
|--|---|
| <p><u>Psychological</u></p> <ul style="list-style-type: none"> • Happiness and Well-Being (King & Diener, 2005) • Bi-directional relationship • Lower levels of depression and anxiety (Lyubomirsky, 2007) • Decreased anxiety (Cohen, 2004) • Improved sleep (Cohen, 2004) | <p><u>Physical</u></p> <ul style="list-style-type: none"> • Improved physical health/immune systems (Pressman, 2005) • Longevity (House, 1988) <ul style="list-style-type: none"> • On par with smoking, substance, exercise • “Blue Zone” findings (Beutner, 2010) <ul style="list-style-type: none"> • Sardinia, Okinawa, Loma Linda, Icaria, Nicoya |
|--|---|

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Our Brain and Body on Connection

- Poor Social Support linked to:
 - Activation of the pain centers of our brain
 - Cingulate gyrus activation in social pain experiences
 - Increased activation of amygdala
 - Telomere shrinkage (Epel, 2009)
 - Cortisol dysregulation
 - Seeing others' pain activates our own pain centers (Botvinick, 2005)
- Good Social Support linked to:
 - Decreased cardiovascular reactivity (Lepore, 1993)
 - Decreased blood pressure (Spitzer, 1992)
 - Decreased cortisol (Kiecolt-Glaser, 1984)
 - Improved immune system functioning (Cohen, 2003)
 - Slows cognitive decline (Bassuk, 1999)
 - Vagus nerve stimulation
 - Increased release of oxytocin

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Gratitude Letter and Visit



140

Loving-Kindness Meditation

May you be happy.
 May you be well.
 May you be safe.
 May you be peaceful
 and at ease.

gingerbluestudios.com

141

Active-Constructive Responding (Gable, 2004)

- 4 types of communication styles
 - Active-Constructive
 - Passive-Constructive
 - Active-Destructive
 - Passive-Destructive
- Only A-C responding associated with positive relationships

142

Best Possible Self for Relationships



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Strengths and Flow



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Signature Strengths

- 24 Signature Strengths, 6 core virtues (Seligman & Peterson)
 - Character Strengths and Virtues – Classification Handbook (Peterson & Seligman)
 - Assessing/Testing strengths
 - VSI (Values and Strengths Inventory)
 - BST (Brief Strengths Test)
 - Utilizing strengths in new ways
- www.viacharacter.org
www.authentic happiness.com

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Examples of Items

- Love of Learning
 - Do you feel an adrenaline rush from learning new things?
- Kindness
 - Have you done good deeds for strangers on a regular basis?
- Appreciation of Beauty
 - Does a sense of awe sweep over you as you contemplate the vastness of nature?
- Creativity
 - Is your mind constantly challenging the status quo and looking for a better way?

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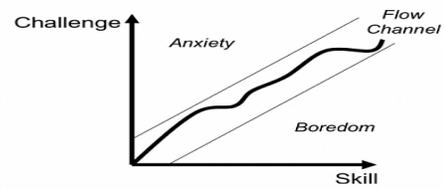
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Identifying and Using Signature Strengths

- Take the VSI or BST to identify core strengths
 - Ensure that identified strengths resonate with the individual
- Identify 3-5 core "signature" strengths that are both resonant and high scoring
- Choose 1 signature strength per day
- Use it in a way that is outside your normal routine

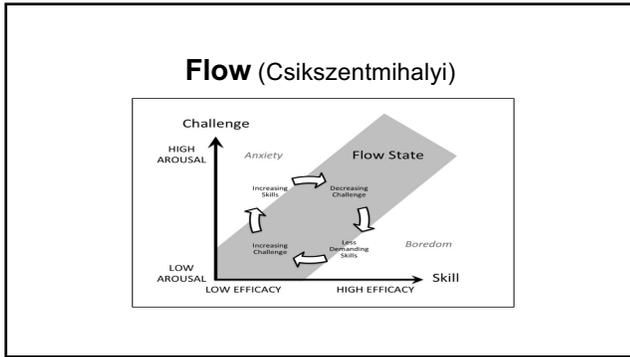
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Flow (Csikszentmihalyi)



"Flow" concept by Mihaly Csikszentmihalyi. Drawn by Senia Maymin.

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Flow

- A state of complete absorption in what one does
- Moments of peak performance
- Matching skills to challenge
- How to Increase Flow
 - Activities that engage our skills and strengths
 - Using Signature Strengths in new ways

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Flow and the Brain

Neuroanatomical changes

- transient hypo-frontality
- temporary deactivation of the prefrontal cortex

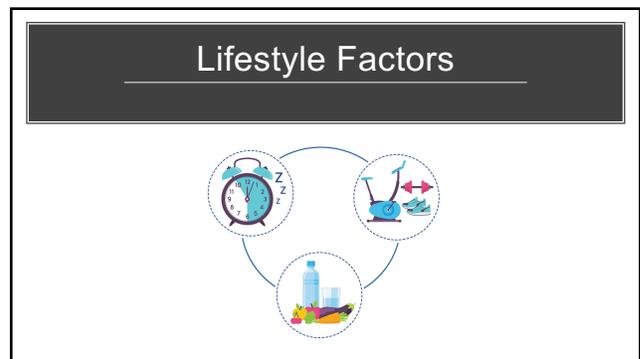
• Neurochemical Changes

- Large quantities of norepinephrine, dopamine, serotonin, endorphins, anandamide

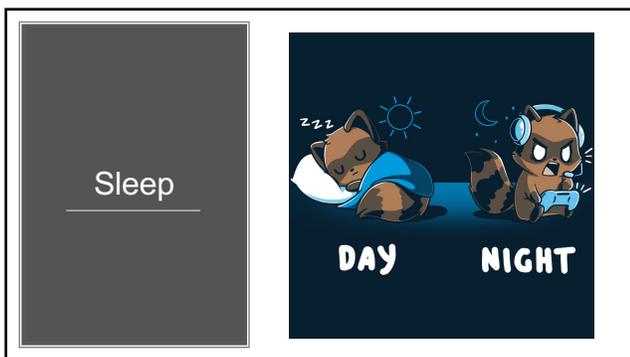
• Neuroelectrical Changes

- Increased alpha waves to enhance focus & concentration

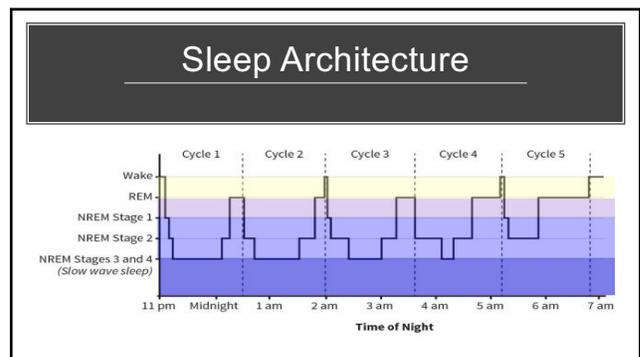
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How much do I need?

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The Importance of Good Sleep

- Poor Sleep Quality:**
 - Linked to depression, anxiety, stress, and risk of mania/hypomania
 - Decreases impulse control and affect regulation
 - Increases risk of numerous health conditions
 - Decreases cognitive function
 - Greater sensitivity to pain
 - Decreases prefrontal activity (Altena, 2008)
- Good Sleep Quality:**
 - Cleans away metabolic waste via cerebrospinal fluid (Xie, 2013)
 - Improves cognitive functioning
 - Decreases depression and anxiety
 - Reduces reward response to unhealthy behaviors
 - Reduces feelings of loneliness
 - Increases empathy
 - Improves emotion regulation

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Healthy Sleep Tips

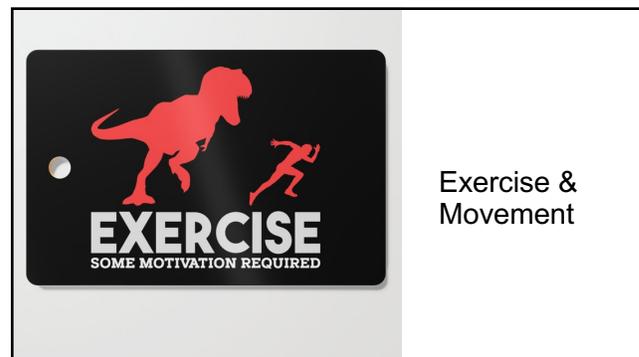
Do's

- Keep a regular schedule
- Exercise regularly—but not within 3 hours of bedtime
- Keep a comfortable sleep environment—consider temperature, bedding, lighting, etc.
- Shut off all bright screens—including phones and televisions—at least 1 hour before bedtime
- Establish a relaxing pre-bedtime routine—this can include things like taking a warm bath, listening to soft music, or drinking chamomile tea
- Use your bed only for sleep or sex

Don'ts

- Take daytime naps—these can interfere with your ability to sleep well at night
- Use stimulants such as caffeine or nicotine (especially within 6 hours of bedtime)
- Go to bed too hungry or too full
- Exercise vigorously within 3 hours of bedtime
- Drink alcohol—especially within 3 hours of bedtime
- Stay in bed when you can't sleep—if you cannot fall asleep within 30 minutes, get out of bed and try a low-stimulation activity
- Watch TV in bed, eat in bed, talk on the phone in bed—these can make it harder to sleep at night
- Watch the clock

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Exercise

- Mood benefits after 20 minutes can last 12 hours
- Reduces cortisol and adrenaline
- Improves sleep quality and quantity
- Increases blood flow to PFC
- Improved memory, concentration, and focus
- Release of BDNF
 - Low levels linked to depression, memory and learning impairment
 - Critical for brain health
- Increases Serotonin, Norepinephrine, Dopamine, and endocannabinoids
- Similar effect sizes as medication and psychotherapy for low/moderate depression
- Countless benefits for physical and mental health

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Exercise Keys & Tips

- Make it aerobic: 55-90% max heart-rate
 - Max HR=220 minus your age
- Make it sustainable
 - Choose activities that fit with your lifestyle and that you enjoy
- It's OK to keep it short
 - 20 minutes can go a long way
- Make it a habit

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First the bad news...

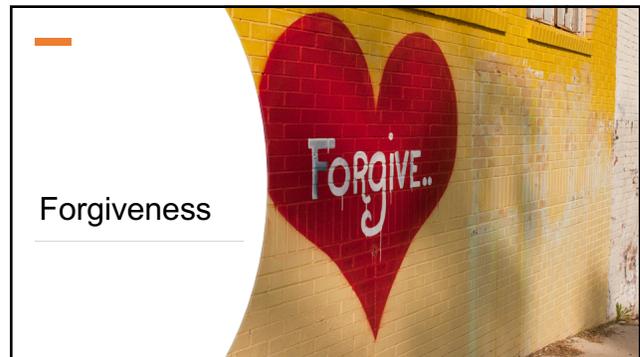
- **Excess belly fat:**
 - Increases chronic inflammation
 - Decreases BDNF
 - Increases risk of dementia
 - Increases risk of depression
- **Excess glucose:**
 - Slows neural communication
 - Interferes with synaptic transmission
 - Increases chronic inflammation
- **Trans fats:**
 - Increases inflammation
 - Decreases blood supply to brain
 - Increases LDL and decreases HDL

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Nutrients for Mental Wellness

- **Omega 3's**
Combats Depression, fatigue, mood swings
Salmon, Spinach, Herring
- **Magnesium**
Improves fatigue, stress, irritability, TRD
Spinach, Edamame, Cashews, Almonds
- **Vitamin D**
Improves depression, enhances cell generation
Eggs, Salmon, Swordfish, Milk
- **Zinc**
Low levels linked to depression
Beef, Pumpkin seeds, Peanuts, Kidney Beans
- **Chromium**
Increased serotonin & norepinephrine
Broccoli, Grapefruit, Turkey
- **Folate**
Serotonin regulation & brain cell regeneration
Spinach, Avocado, Brussels sprouts

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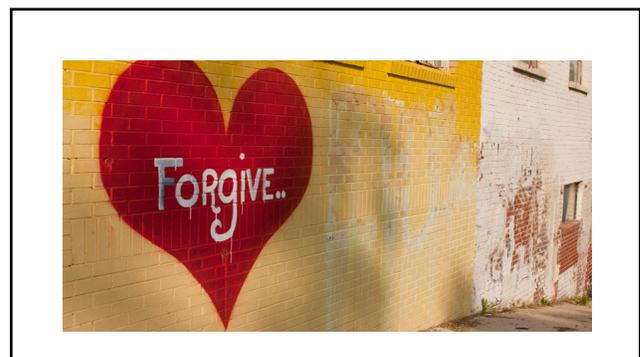


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“Resentment is like drinking poison and then hoping it will kill your enemies.”

—Nelson Mandela

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Forgiveness

- The toll of resentment
 - The second arrow
- Defining Forgiveness
- What forgiveness is not:
 - Forgetting
 - For the other person's sake
 - Condoning or Minimizing
 - Reconciliation
 - A quick fix

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Benefits of Forgiveness

- Psychological
 - Lower rates of depression & stress (Worthington, 2007)
 - Well-Being (Luskin, 2002)
- Physical
 - Impact of anger/resentment
 - Stress-related illness
 - Heart disease
 - Recovery from cancer (Luskin, 2002)

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Benefits of Forgiveness

- Life/Relationships
 - Improved relationships
 - More likely to volunteer, donate to charity (Karremans, 2005)
- Brain/Body
 - fMRI findings (Ricciardi, 2013)
 - Inferior parietal cortex
 - Precuneus
 - Calming of the Amygdala
 - L>R prefrontal activation

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Forgiveness Letter

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Recalling Forgiveness



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Drawing Strength from Adversity

- (Gently) explore the benefits that occurred from the setback
- Journal about the ways in which you grew, changed, or learned from the experience

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Cultivating Empathy

- Exploring alternative perspectives
 - Perspective of the transgressor
 - Perspective of a neutral party
- Visualizing remorse

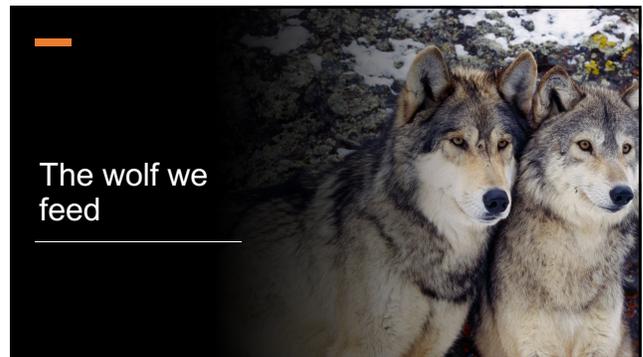
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Tips for Practice

- Remember it's a process
- Recognize small milestones
- Timing is everything
- Get support
- Feel the Feelings
- No shortcuts

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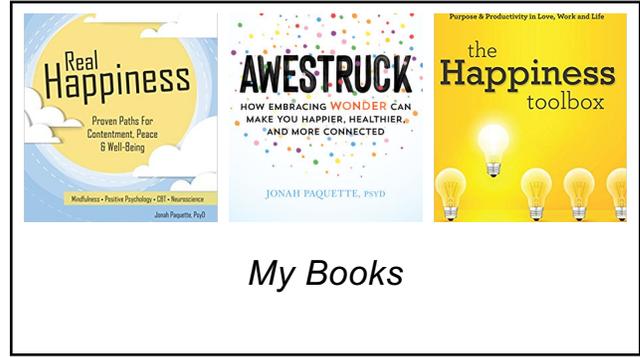
The wolf we feed



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Facebook: www.facebook.com/doctorpaquette
Twitter: [@doctorpaquette](https://twitter.com/doctorpaquette)

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