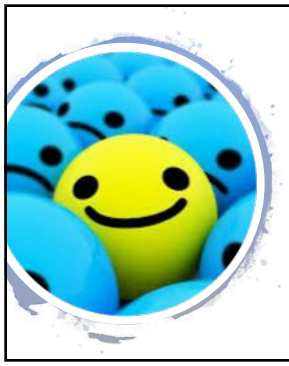
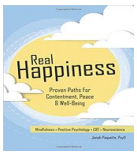


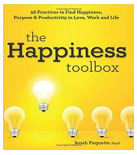
The Joyful Brain

Practical Neuroscience-Based Techniques for Happiness and Well-Being

Jonah Paquette, Psy.D.

Author of *Real Happiness, The Happiness Toolbox*, and *Awestruck (coming in 2020)*





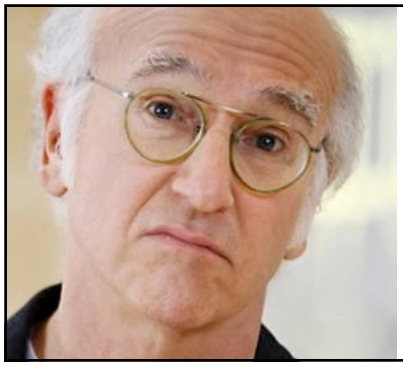
About Me

- Author of ***Real Happiness***, ***The Happiness Toolbox***, and ***Awestruck*** (coming 2020)
- International speaker and workshop trainer
- Assistant Director of Mental Health Training at Kaiser Permanente in Northern California
- Doctoral training at the PGSP-Stanford Psy.D. Consortium

Happiness is…

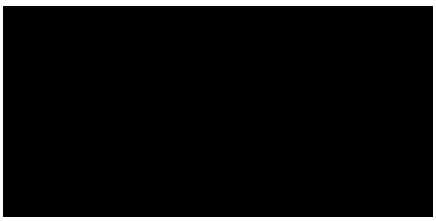
What we'll cover

- 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

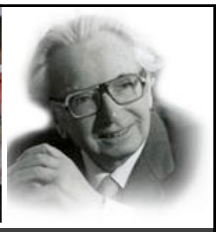


Words of Wisdom?

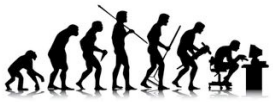
Words of Wisdom?







Happiness: A timeless and universal question

Happiness: A new "problem"

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.

PERMA Model of Well-Being
(Seligman, 2012)

Why Happiness?

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

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 Devine."

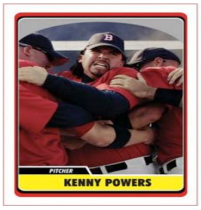
–Cecilia O'Payne

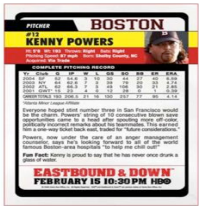
"I was born on September 26, 1909, the eldest of 7 children, 5 girls and 2 boys. My candidate year was spent in the motherhouse, teaching chemistry and 2nd year Latin at Notre Dame Institute. With God's grace, I intend to do my best for our Order, for the spread of religion and for my personal sanctification."

–Marguerite Donnelly

The Yearbook Study (Harker & Keltner, 2001)

The Baseball Card Study (Abel & Kruger, 2010)

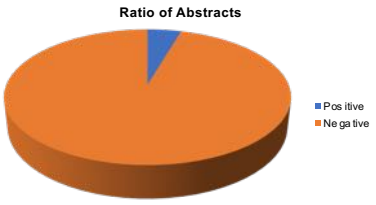




It's Good to be Happy

- **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

Mental Health Abstracts, 1968-2000



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.

Happiness Forecasting

12 months later (Gilbert, 2006)

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

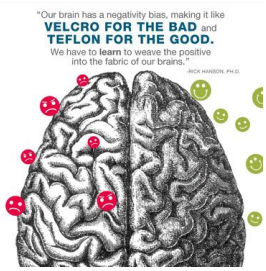
Barriers to Happiness

Barrier #1: Hedonic Adaptation

"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.

Barrier #2: Genetics



Barrier #3: A "Negative" Brain

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."

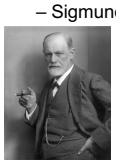
– Rick Hanson

The Brain Science of Positive Change

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

Why focus on the brain?

Helps us as clinicians to:

- 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

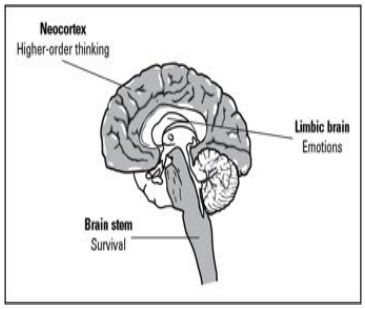
Helps our clients to:

- Understand why practicing certain skills is important
- Feel empowered that what they do matters
- Feel more "buy-in" for the approaches we might take

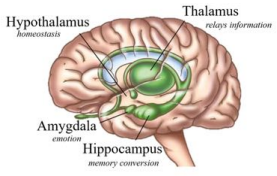
Nervous System Overview

- Comprised of 2 kinds of cells:
  - Neurons: 90-100 billion, each connected to approximately 10,000 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

Review of Key Regions and Systems



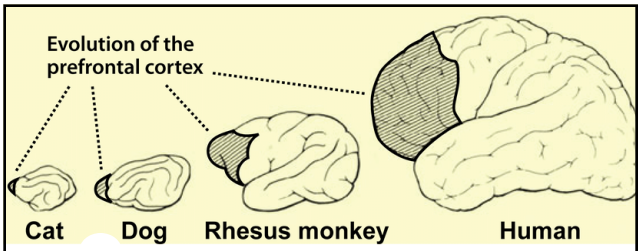
The Limbic System



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

Prefrontal Cortex (PFC)

- 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



Prefrontal Cortex (PFC)

Affect Asymmetry

Left PFC
- Positive Emotions
- Approach Behaviors
- Identifying/labeling thoughts and feelings
- Development of new narratives

Right PFC
- Negative Emotional States
- Withdrawal behaviors
- Behavioral inhibition
- Emotional overwhelm

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

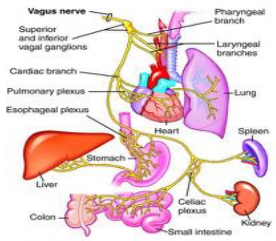
Peripheral Nervous System

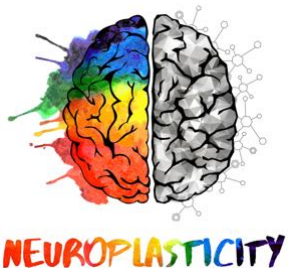
Sympathetic Nervous System (SNS)
- "Fight or Flight"
- Marked by over 1000 biochemical and physiological changes in the body
- Deactivates functioning in cortical areas of brain
- Chronic activation linked to a host of negative outcomes

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

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





Using the Mind to Change the Brain

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

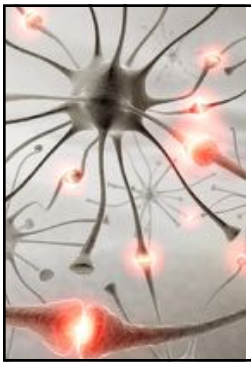
Take-home point for clients: "Positive actions (thoughts and behaviors) repeated over time changes your brain. This, in turn, makes us more likely to experience them again."

"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.

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



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

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)

Examples of Neuroplasticity

- **Cab Drivers** (McGuire, 2000)
  - Hippocampus
- **Meditating Monks**
  - Left PFC
  - Anterior Cingulate Gyrus
  - Insula
- **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)

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)

Core Habits of Well-Being

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

Awe

What do you feel when you…

Gaze up at the Milky Way?

See a beautiful sunrise or sunset?

Witness an act of great compassion or courage?

Watch a child learn to walk?

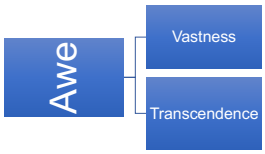
See a mind-blowing work of art?

Attend an incredible performance?

What is Awe?

The feeling we get in the presence of something vast that challenges our understanding of the world.

Defining Awe



- **Vastness**
  - Perceptual Vastness
  - Conceptual Vastness
- **Transcendence**
  - Challenges our Assumptions
  - Accommodation of new information

Who Experiences Awe?

- Personality factors
  - Extraversion, Openness to New Experiences
- Character Traits
  - Optimism, Gratitude, Creativity, Love of Learning, Appreciation of Beauty
- Spirituality and Religion
  - No differences found overall, though sources of awe may differ
- Social Class
  - Slight link to lower-SES individuals
- Differences in frequency of experiencing awe (Razavi, 2016)
  - Comparison of US, Poland, Malaysia, Iran
- Differences in sources of awe (Bai, 2017)
  - US/Europe: more likely to experience awe through nature or through themselves
  - East Asia: more likely to experience awe through another person

Challenges to Awe

- Technology
- Rise of Urban Living
- Increasing length of workday
- Rising levels of stress
- Constant worry and rumination
- Increased materialism
- Changing attention spans
- Decreased attendance for concerts, museums, and live performances

Why do we experience awe?

The Benefits of Awe

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)

Our Brain and Body on Awe

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

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

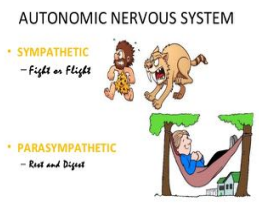
Note. β values for positive emotions predicting IL-6 and controlling for participant's BMI. In column 1, emotions are separately entered into regressions and in column 2 they are simultaneously entered.
* $p < .05$. ** $p < .01$. *** $p < .001$.

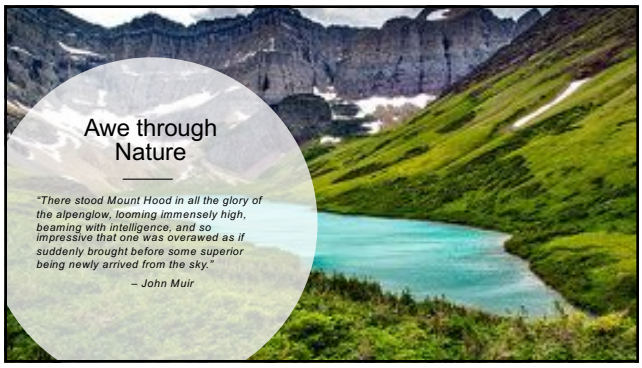
Your Brain on Awe (Newberg, 2016)

- Activation in areas linked to interpersonal bonding and release of oxytocin
- 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

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





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

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

Awe through Courage & Inspiration

"Awe is the best of man."

– Goethe

Awe through Timelessness

"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 Creativity & The Arts

"Beauty will save the world."

– Fyodor Dostoevsky

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

A Reflection on Gratitude

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

Benefits of Gratitude

Psychological	Other Benefits
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)

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)

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

Gratitude Letter/Visit (Seligman, 2005)

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

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

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

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

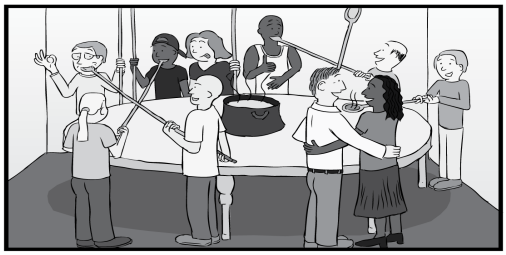
Grateful Reminiscence

- 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

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

Kindness and Compassion
"If you want to be happy, practice compassion." –The Dalai Lama



Reflections on Kindness

Benefits of Kindness

Psychological	Other
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)
Causal factor (Lyubomirsky, 2007)	Blue Zone Findings (Buettner, 2011)
	Closer relationships (Lyubomirsky, 2007)
	Romantic Relationships (Buss, 1989)

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)

5 Acts of Kindness (Lyubomirsky, 2008)

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

Recalling Kindness (Ortake, 2006)

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

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

Self-Compassion

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

Self-Compassion

Key Concepts:

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

Barriers to Self-Compassion

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

Benefits of Self-Compassion

Psychological

Lower rates of depression & anxiety (Neff, 2011)

Recovery from PTSD (Thompson & Waltz, 2008)

Eating Disorders (Leary & Adams, 2007)

Cigarette Smoking (Kelly, 2010)

Greater compassion towards others

Other

Alleviates chronic pain

Improved lower back pain (Carson, 2005)

Chronic Acne (Kelly, 2009)

Closer relationships (Germer, 2009)

Increased altruism (Crocker & Canavello, 2008)

Romantic Relationships (Neff, 2011)

School & Work (Neff, 2011)

The Physiology of Self-Compassion

Self-Criticism

- Increased amygdala response
- R Prefrontal Cortex
- Cortisol increases
- Adrenaline released

Self-Compassion

- L Prefrontal Cortex
- Increased PNS activation
- Breathing slows
- Insula activation
- Decreased cortisol
- Increased oxytocin

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

Compassionate Touch

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

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

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

Loving-Kindness Meditation

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)

Mindful Awareness

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

What is Mindfulness?

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

Jon Kabat-Zinn

- 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

Benefits of Mindfulness

Psychological

- 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)

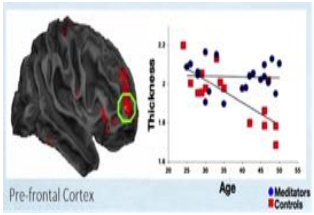
Physical

- 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)

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; Zhapiro & Izett, 2008)
- Increased compassion for others' suffering (Weng, 2013)



- 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

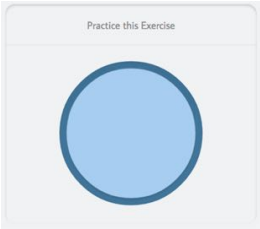
Mindfulness of the Breath

- 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

Everyday Mindfulness

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

Slow Exhale Breathing



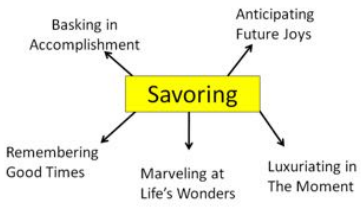
- Activates the vagus nerve, helping to activate our PNS
- Aim for 5-6 breaths per minute (versus 10-15)
- Elongate the exhale
- Breathe through nose

Mindfulness of our Senses

Awareness of Emotions

Savoring

5 Paths to Savoring



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

Savoring and the Brain

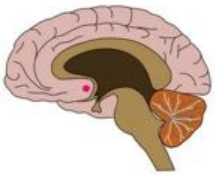
Ventral Striatum
- Linked to sustaining positive emotions and reward

Left Prefrontal Cortex

Dorsal Lateral Prefrontal Cortex (sp.)

Decreased Cortisol

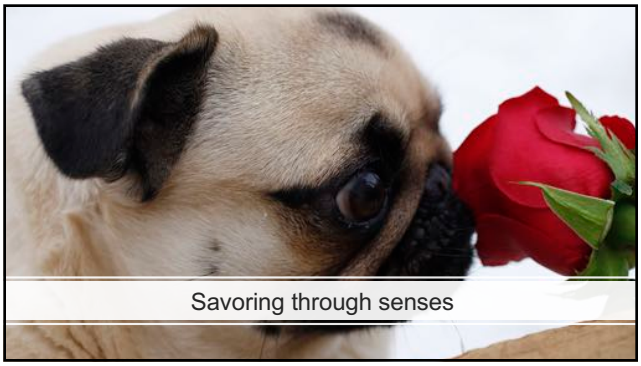
Increased serotonin, dopamine



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
- Ruminate on the Good

Savoring Walk



Savoring the everyday

Connection

"Happiness is love. Full stop." –George Vaillant

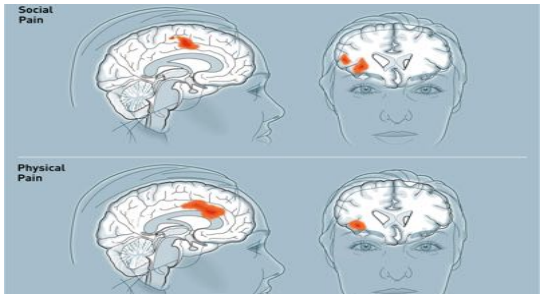
Connection

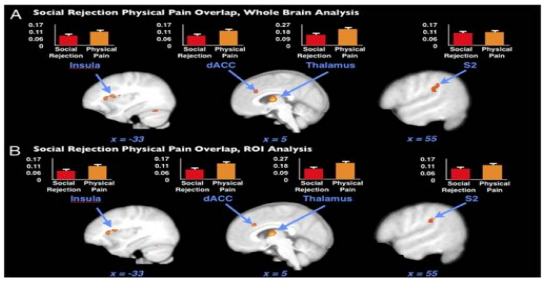
- "Wired" to connect (Lieberman, 2013)
  - "As basic of a need as food or shelter"
- "Social Brain" Hypothesis (Dunbar, 2003)
  - Brain size predicted by group size
- Born to Connect (Christakis & Fowler, 2013)
- Quality > Quantity

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 $$$

Lessons from "Cyberball"





Benefits of Connection

Psychological

- 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)

Physical

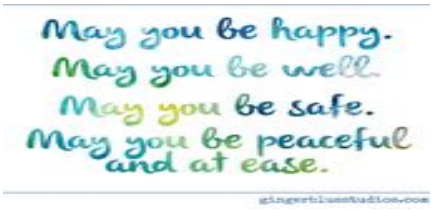
- Improved physical health/immune systems (Pressman, 2005)
- Longevity (House, 1988)
  - On par with smoking, substance, exercise
- "Blue Zone" findings (Beuttner, 2010)
  - Sardinia, Okinawa, Loma Linda, Icaria, Nicoya

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

Gratitude Letter and Visit

Loving-Kindness Meditation



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

Best Possible Self for Relationships

Strengths and Flow

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.authentichappiness.com

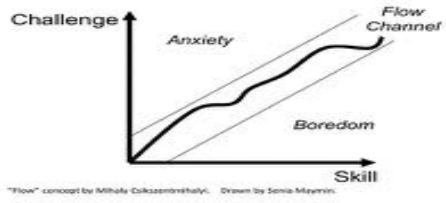
Examples of Items

- 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?

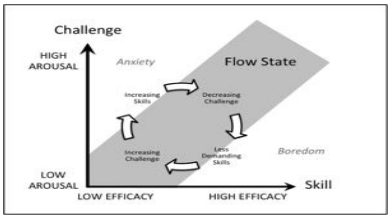
Identifying and Using Signature Strengths

- 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

Flow (Csikszentmihalyi)



Flow (Csikszentmihalyi)



Flow

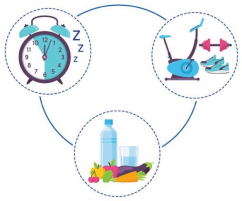
- A state of complete absorption in what one does
- Moments of peak performance
- Matching skills to challenge
- How to Increase Flow
  - Activities that engage our skills and strengths
  - Using Signature Strengths in new ways

Flow and the Brain

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

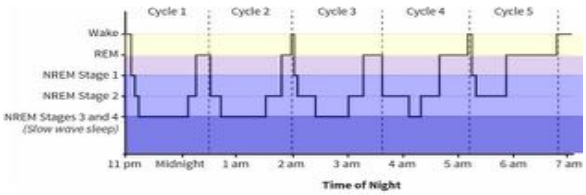
- Neurochemical Changes
  - Large quantities of norepinephrine, dopamine, serotonin, endorphins, anandamide
- Neuroelectrical Changes
  - Increased alpha waves to enhance focus & concentration

Lifestyle Factors



Sleep

Sleep Architecture



How much do I need?

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

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 ca eine 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

Exercise & Movement

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

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

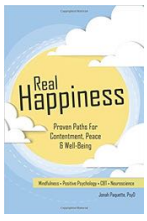
Food

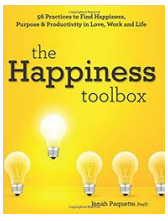
First the bad news…

- 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

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





My Books

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