



Hardwiring Recovery with Mindfulness and Neuroscience

Applications for Mood,
Trauma, & Addictions

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PhD, C-IAYT*

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Artists' Credits

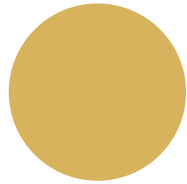
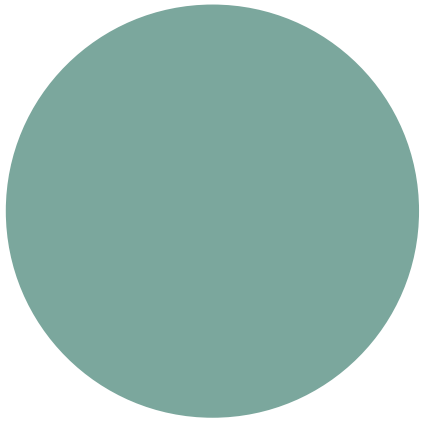
- Greg Dunne - *visual neuroscience*
 - James Hoffman – *insect photography*
 - Frank Hunter - *photographs*
 - Rich Panico - *pastels, charcoal*
 - Mary Porter – *acrylics*
 - Barbara Pritchard – paintings, photos
 - Robert Sturman – *yogic photographs*
 - James Valentine – *nature photography*
- * *Images used with the artists' blessings*





Exploring Cutting Edge, Neuroscientific Research

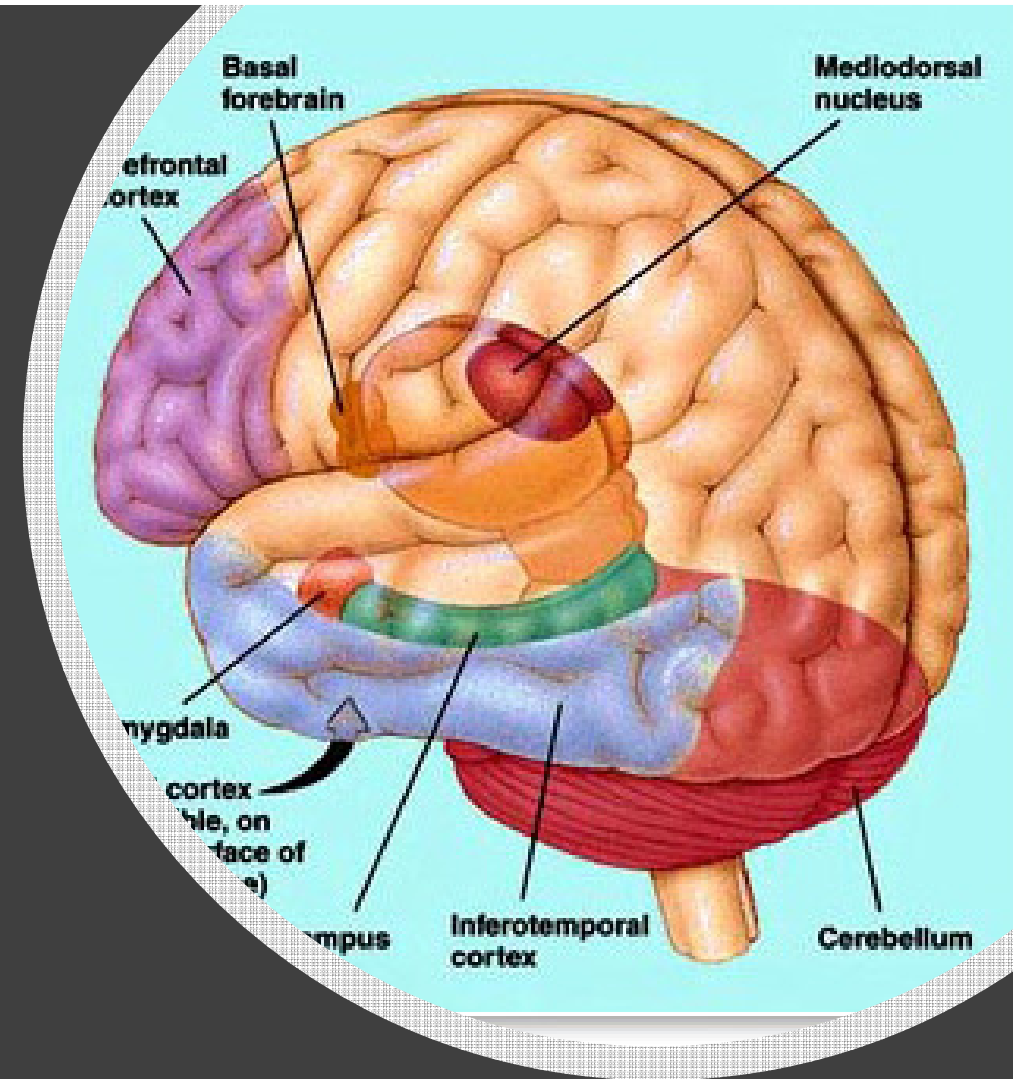
Mood and Mindfulness

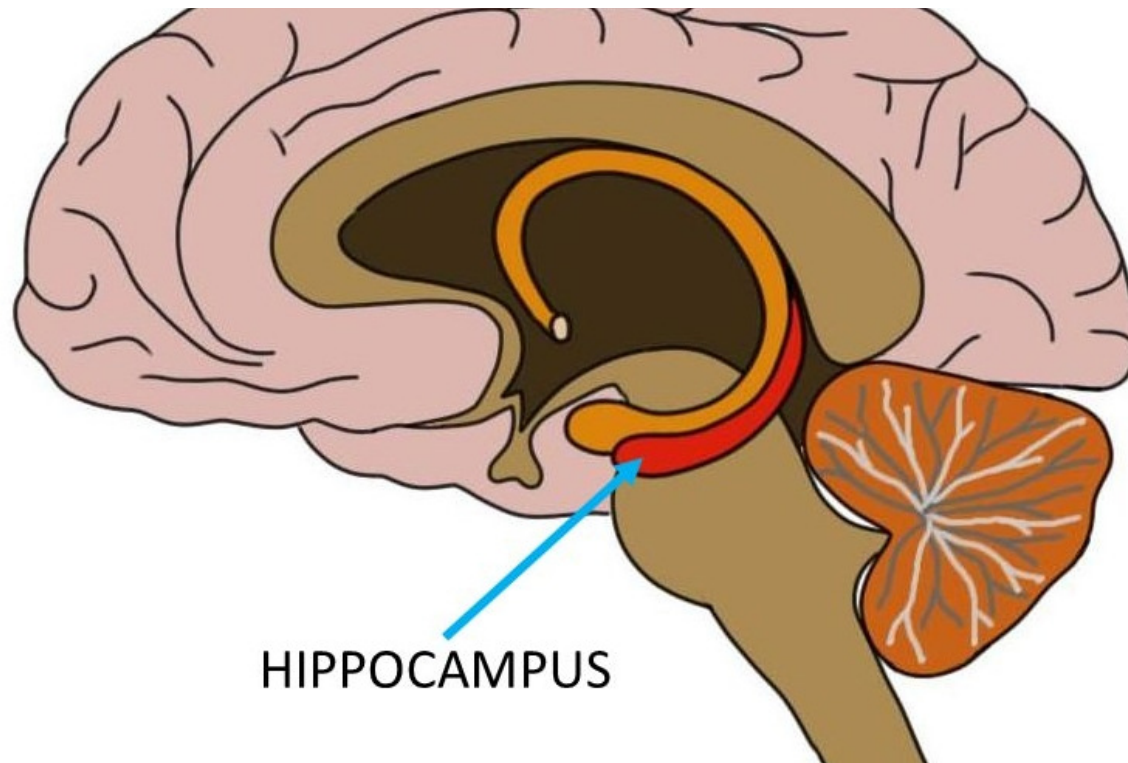


Hardwiring clinical changes for mood disorders – Research findings, clinical applications

Hardwiring Mood Change: Neuroplasticity & Mindfulness Meditation

- Prefrontal Cortex
 - Attention
- Insula
 - Tuning in to self & others
- Hippocampus
 - Learning, memory, emotional regulation, visual/spatial memories
- Amygdala
 - Associated w/ fear





Brain structure atrophy, neuroplasticity - current evidence

- Hippocampal shrinkage w/ PTSD & Major Depression
Jatzko, 2006; Sheline, 2003
- Neuroplasticity - Hozel & Lazar
 - 2005, Brain regions associated with attention, sensory processing
 - Thicker in meditators than non-meditators
 - Differences greatest w/ older participants
 - 2011, 8 week MBSR, measurable brain changes

A Meditation for Re-growing Atrophied Brain Structures

- Mindfulness – thoughts as coming and going in the mind
- Meditation – noting & labeling categories of thoughts
 - Remembering
 - Planning
 - Judging
- On and off the cushion – label thoughts, identify feelings

Benefits of interoceptive awareness

Farb et al, 2015

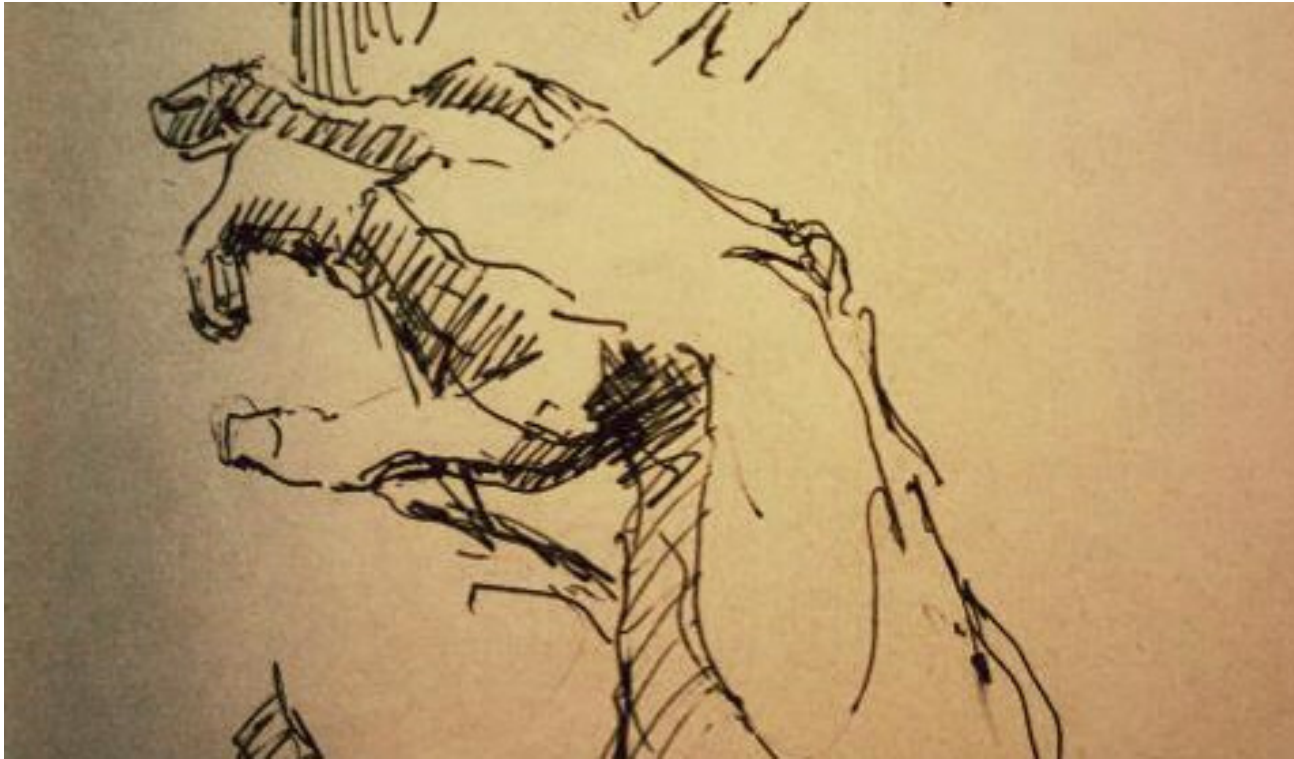
- Enhanced:
 - Sensitivity
 - Non-Reactivity
 - Regulation
 - Insight
 - Presence and Agency
- Increased:
 - Positive Experiences



Putting interoceptive awareness into practice

- Individualizing the body scan
- Body mapping
- Gentle yoga postures





Individualizing the Body Scan

- Alter pacing
- Identify safe areas
- Work with chronic pain or sensation



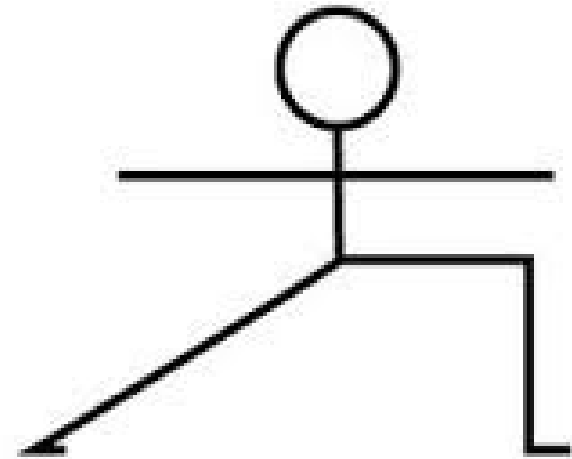
Body Mapping: Finding the Feeling

Chodron, 2013

- We don't have to attach so much meaning to what arises, we also don't have to identify with our emotions so strongly. All we need to do is allow ourselves to experience the energy – and in time it will move through you. It will. But we need to experience the emotion – not think about the emotion.

- Pema Chodron

The Peaceful Warrior



Virabhadrasana 2

The Peaceful Warrior

Establish a standing posture or mountain pose

Bring the feet shoulder distance or more apart

Turn the right toes in

On the exhalation bend the left knee

Align the knee with the ankle

On the inhalation, raise the arms to shoulder height

Look out over the front fingertips

As is comfortable, allow the pelvis to relax downward

Complete the same movements with the opposite side

Findings - mindfulness and emotional regulation

Experienced meditators Fisher, 2018

- Greater dispositional mindfulness
- Fewer emotional regulation challenges
- Less negative self-thinking
- Reduced uncontrolled eating tendencies

Dispositional mindfulness through association w/ emotional regulation Hafner, Naula, 2018

- Lower rejection sensitivity
- Less withdrawal following rejection

On-line Mindfulness Program

Ma, 2018

- Emotional regulation mediator between mindfulness & psychological distress (anxiety & depression)



Build emotional regulation skills step by step

- Psychoeducational tools for enhancing emotional awareness
- RAIN – a four step process for developing responsiveness
- Cool the flames of anger
 - Simple gestures for working with anger
 - Develop awareness of underlying emotions
 - Step out of the trance of anger – telling a new story
- Walking meditation for addressing intense energy



RAIN: A Four-Step Process for Developing Emotional Responsiveness

- Recognize
- Accept/Acknowledge
- Investigate
- Non-Attachment



Cooling the Flames of Anger: Develop an Awareness of Underlying Emotions

- **Recognize anger**
- **Acceptance the situation**
- **Identify the hurt, fear, and judgment**
- **Offer loving kindness & self-forgiveness**
- **Non-Attachment**

Simple Gestures for Working With Anger: Willing Hands



Cultivate patience/ reduce
irritability & reactivity

- Recognize impatience: awareness of mind/body cues
- Support patience through contemplative practice
- Establish & honor limits



Build effective decision-making tools

- Guide choices through values clarification
 - Choosing and consulting 'advisors'
 - Tap into inner knowledge



Values and Decision Making

Clarify what is
important

Guides choices

Increases
meaning and life
purpose



Walking Meditation for addressing intense energy

- Builds awareness
- Emotional regulation strategy
- http://www.youtube.com/watch?v=KL_OT3NkuNE



Cultivate
Patience: A
Key to
Emotional
Regulation

The Science of Patience

Schnitker & Emmons,
2007

Inverse relationships:

- Negative emotions
- Depression

Positive relationship:

- Self-reported health concerns

Patience – Additional Science

Tangney, Baumeister, & Boone, 2004

- Self Control (strong correlate) predicted:
 - Better grades
 - Less psychopathology
 - Higher self-esteem
 - Less shame



Finding Patience

Assess impact of impatience - handout

Assess ability to identify specific feelings

Develop self-compassion (leads to
compassion for others)

Kind words & smiles

What is the bigger picture here?



Build Effective Decision-Making
Skills |

Choose & Consult Advisors – Tap Into Inner Wisdom



Invite 4-6 people who represent your highest values to join your board – the sky's the limit!



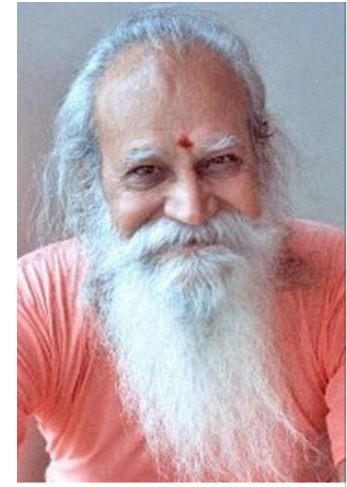
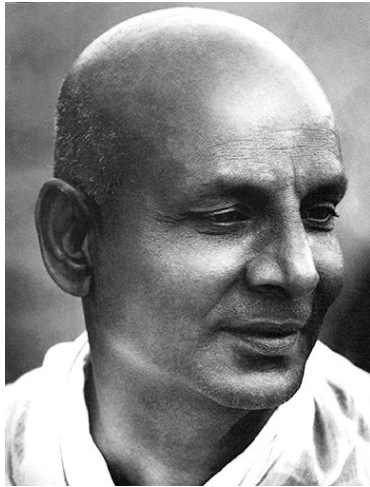
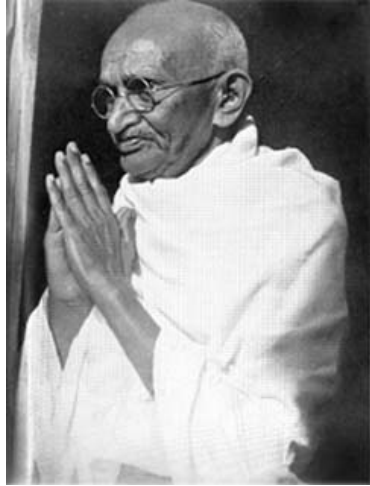
Create a board or poster with BOA images



Consult each board member



Post the board in a highly visible place





Guide Choices Through Values Clarification

- Clarify what is important
- Guides choices
- Increases meaning and life purpose
- See handout

Are the Dalai Lama's monks happier? - Findings on mindfulness & positive emotions



- Mindfulness & self-compassion w/ emotional flexibility
Benshai, 2018
- Mindfulness positive association w/ emotional regulation
Wang, 2016
 - Mechanism - Emotional resilience
 1. Ability to generate positive emotions
 2. Ability to recover from negative emotions
- Mindfulness & relaxation training
Jain, Shamini 2007
Reduce distress; increase positive emotions
Mindfulness reduces distractive & ruminative thoughts, behaviors

So, your clients aren't monastics? -
brief neuroplasticity strategies for
creating balanced mood

- A three step, awareness process
for rewiring towards happiness
- Self-directed neural feedback
- Calming and energizing breathing
practices
- Gentle yogic movements
- Grounding practices





Savoring

To appreciate fully, enjoy or relish

Savoring O'Hanlon & Bertolino, 2012

- Present
- Past
- Future
- Full attention
- Use senses
- Avoid multi-tasking
- Don't overdo - avoid adaptation

Savoring Gifts

- Simple pleasures
- Personal strengths, talents
- Natural beauty
- Kindness

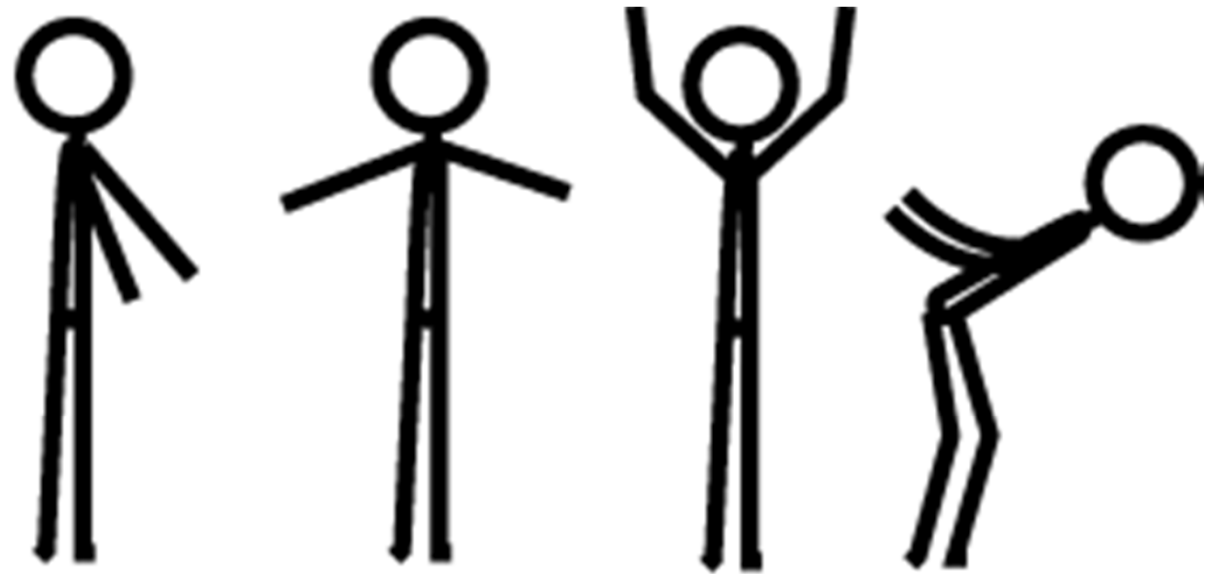


Self-Directed Biofeedback

Korb,
2015

- Yoga – positive emotions
 - Change posture- mom was right!
 - Splash cold water on face
 - Music – favorite songs, dancing
 - Smile – Smiling breath
 - Laugh – fake it till you make it
-
- Wear sunglasses – avoids frowning
 - Relax jaw
 - Change breathing
 - Relax muscles
 - Clench and relax
 - Massage

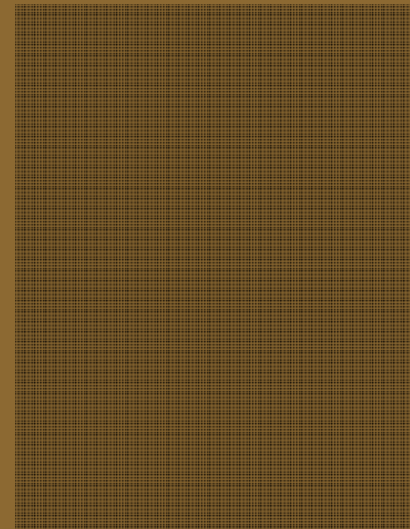
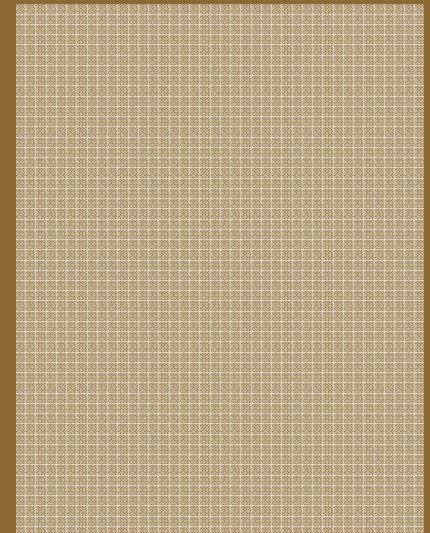
Breath of Joy



Front - Side - Up - Ha!
Inhale - Inhale - Inhale - Exhale

Energized, Empowered, Grounded: The Goddess Posture – Ukata Konasana

- Inhale
- Active Exhalation – HA!
- While moving into squat position w/ cactus arms
- Inhale, returning to standing
- Nine rounds



“To be able to bring the ‘wiser parent,’ the frontal cortex, the prefrontal cortex, online and integrate it with those lower levels of the brain that have more to do with reactivity, and perception of threat, and all of those things that can often hijack us, such as in traumatic situations or even in just an argument with the spouse.”

Marsha Lucas

Healthy Self-Attachment

Slide 40

DA1 Debra Alvis, 26/10/2017

DA2 Debra Alvis, 26/10/2017

The Power of Compassion – Loving Kindness According to Science

- ↑ positive emotions; ↓ social isolation
(Kearney, 2013)
- ↑ life resources & satisfaction; ↓ illness symptoms
(Fredrickson et al, 2008)
- ↑ therapist in training - self-care & compassion
(Boellinghaus et al, 2013)
- longer telomeres in females; ↓ chronic stress
(Hoge et al, 2013)



Living openheartedly – formal and informal kindness practices

- Increase thank you and smiles
 - Smiling breath
- Deity or Sacred being practice
- Japa
- Reliving moments of kindness

A Loving Kindness Meditation

Kok, 2017

May I be peaceful

May I be happy

May I be free from suffering

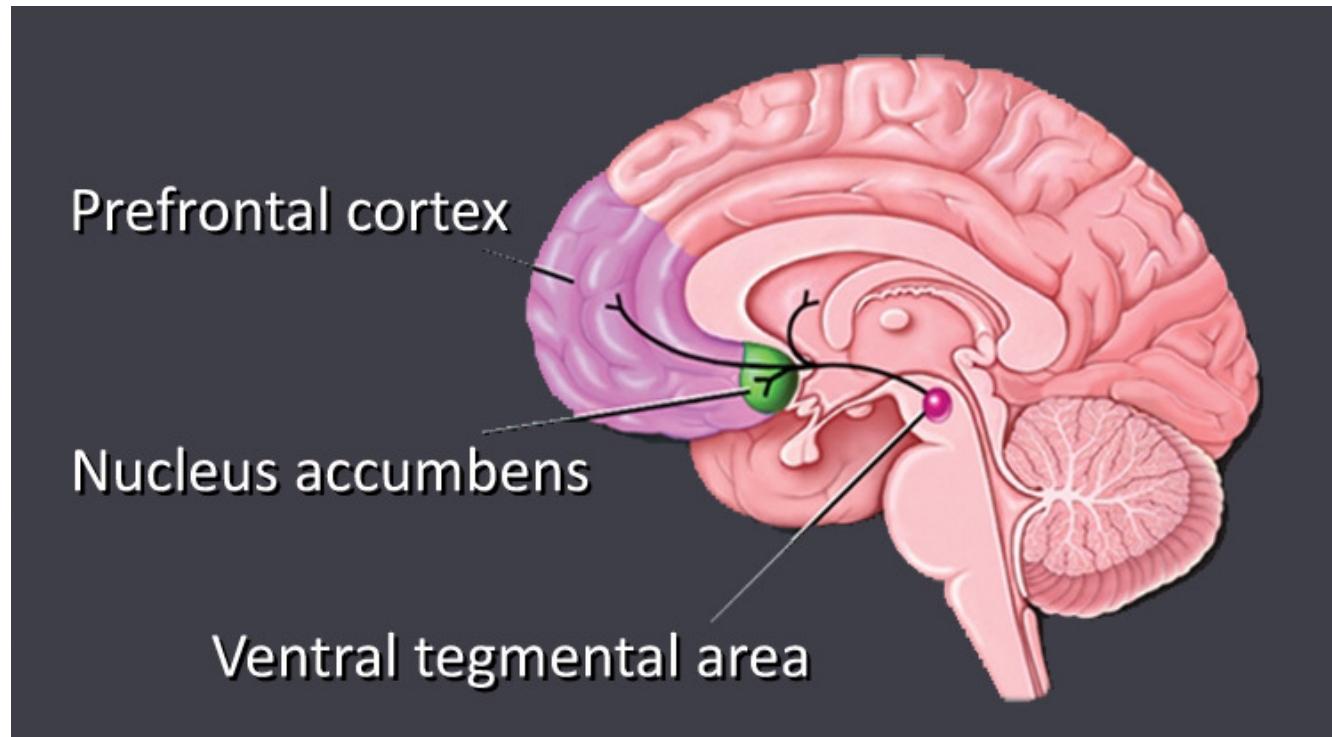
- Image someone who loves you
- Repeat loving kindness mantra to yourself silently
- Offer to others
- Develop individualized LKM mantras



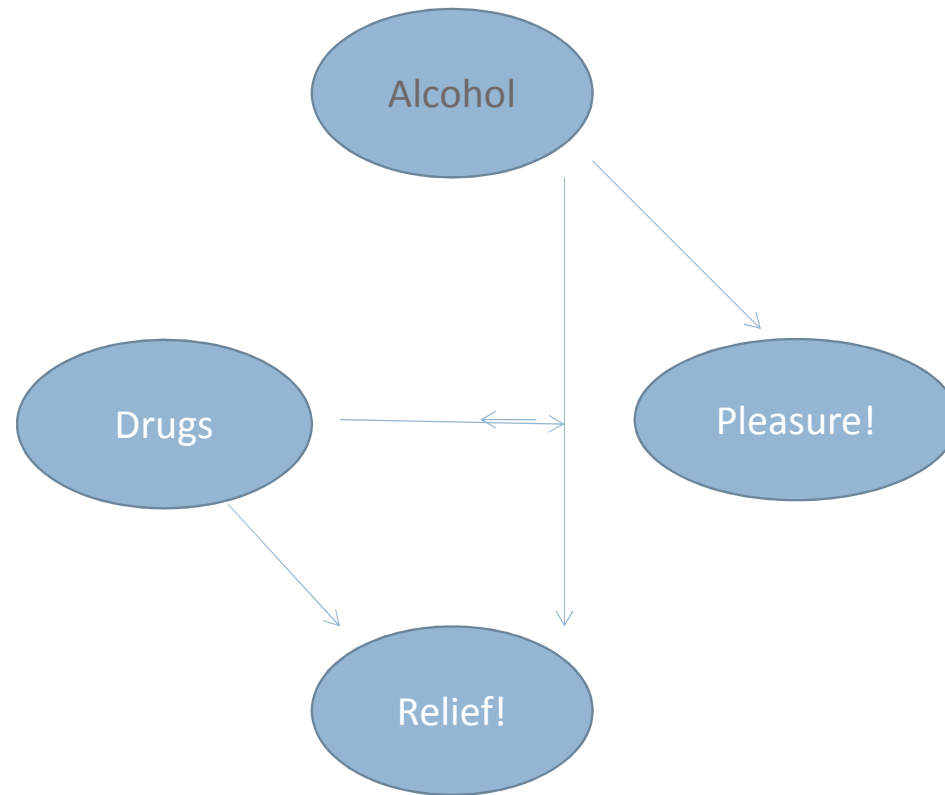
Rewiring the Addicted Brain:

How It Happened and What to do About It

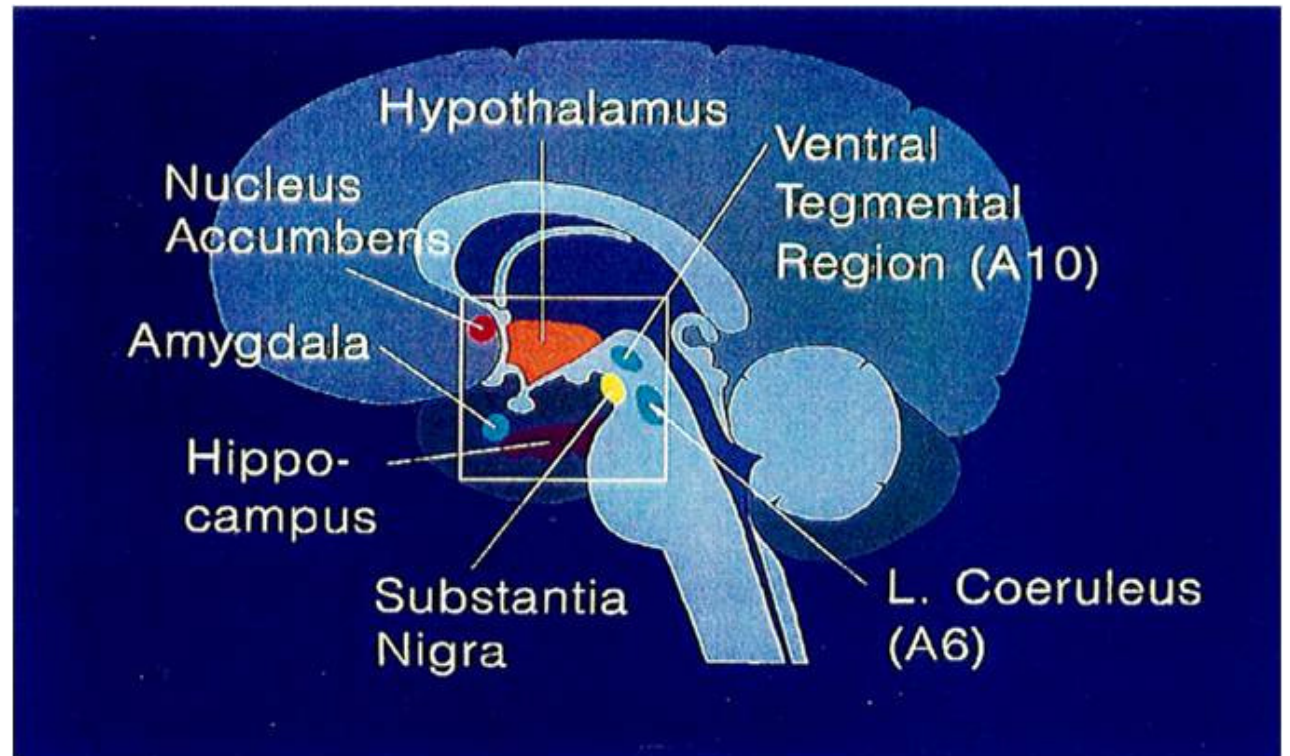
The Reward Center



The mal-wired the reward center - neurophysiology



The Addiction Compromised Reward Pathway



Mindfulness and Substance Abuse Relapse Prevention

Grow et al, 2015

- AOD frequency
- Each additional hour HP– 53% lower AOD use
- Cravings
- Cravings & HP – inverse relationship





Emotional regulation & substance abuse: A Reciprocal relationship

Weiss, 2017

- Daytime Emotional Regulation Use predicts:
 - Lower evening substance use
- Higher evening substance use predicts:
 - higher next day avoidance
 - Lower next day problem solving

Reducing cravings with mindfulness & rewiring the reward center

- RAIN for cravings
- Urge surfing
- Clarifying values
- Creating intentions
- Self-compassion – kind words towards self and others
- Returning to the true self
- Identifying healing narratives
- Resetting the nervous system after trauma
- Identifying false sanctuaries and false beliefs
- Overcoming conflict and risk avoidance
- Yogic deep relaxation

Working with Cravings

- Recognize - wanting
- Accept
- Investigate- Seeing chocolate
- Non-attachment -Offer to others
 - “May all have enough to eat.”



A Mindfulness Perspective: The Separate Self

Brach, T.
2018

- The trance of unworthiness
 - Cut off from our source – perception of separateness
 - Primal mood is fear
 - Something wrong
 - Some thing missing
 - Not enough
- Leads to grasping & aversion
 - Strategies to make it work out
- Family as message carrier
- Monitoring
 - How am I doing now?
 - The gap between what we think we should be and our self-evaluation

Identifying False Sanctuaries

Brach, 2013

- Rumination/obsessing
- Judging
- Performing
- Proving ourselves
- Addictions
- Avoiding risk
- Overly accommodating





Returning to the True Self: Remembering the Gold

- The power of naming
 - Noting activates left prefrontal cortex; quiets limbic system
- Training in presence & compassion
 - Acknowledging truth of the moment
 - Bringing light of awareness to what has been pushed away
- Connection

Non-Dual Inquiry for Identifying Healing Narratives

1. Begin w/ challenging belief or emotion.
 2. Reflect back client's words.
 3. Identify core belief through continued reflection.
 4. Identify where core belief is in body.
 5. Identify whether core belief has a color.
 6. Identify whether core belief has a shape.
 7. Identify extreme opposite belief or feeling.
 8. Move between opposites (1-2 minutes each) reflecting back
 9. Identify middle ground.
 10. Client repeats middle ground using name.
- *Reflect back client's words & use breath each time.



Bringing Heart and Breath to Non-Dual Inquiry

Fay, D. 2017

- Hold the belief in one palm
- Get felt sense using breath
- Bring opposite belief into the other palm
- Develop felt sense with breath
- Bring palms together at heart center
- Notice any shifts tuning into middle ground

Yogic Deep Relaxation



Research Across Populations & Eastern Views

iRest, R. Miller



Evidenced based benefits:

stress
anxiety
depression
PTSD
insomnia
neuroplasticity
Heart rate variability

Research Limitations & Risks

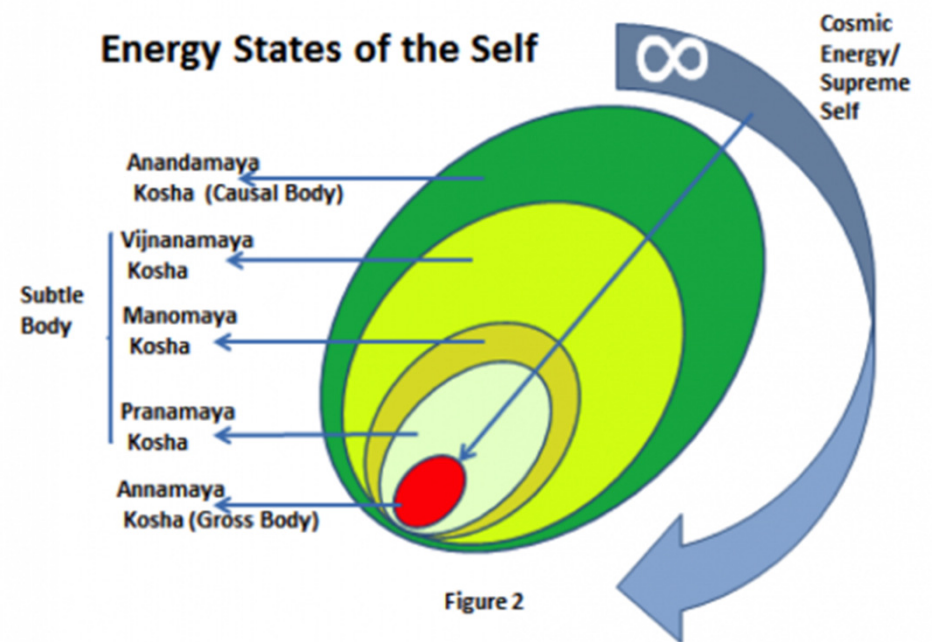
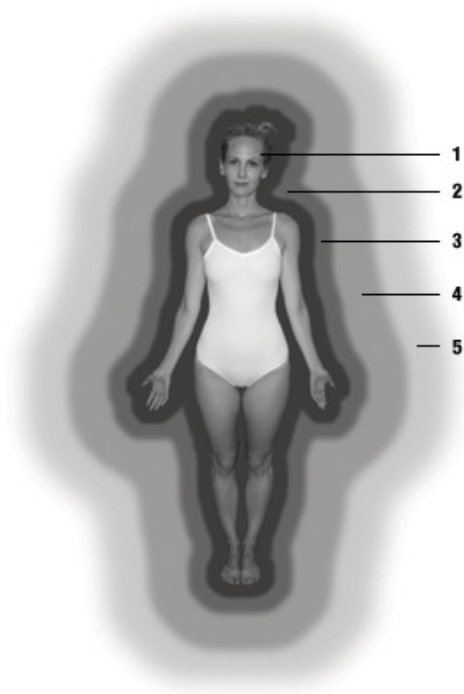
Yogic based benefits:


connection w/ true self
integration of practices & concepts
emotional regulation
transform personality structure
release stored impressions (samskaras)

iREST, Yoga Nidra Basic Steps

- Intention
- Heartfelt prayer
- Inner resource
- Awareness of:
 - Bodily sensation
 - Breath & energy
 - Feelings & emotions
 - Thoughts, images, beliefs
 - Joy, bliss, love
- Return to:
 - Heartfelt prayer
 - Breath
 - Sensation

Integral Yoga View: Subtle Layers of the Body



A glowing blue brain is held in the palms of two cupped hands. The hands are illuminated from below, creating a warm, golden glow. The background is dark blue.

Healing the Traumatized Brain:

From Recovery to
Thriving

After intense efforts to ward off reliving the trauma, therapists cannot expect that the resistances to remember will suddenly melt away under their empathic efforts. The trauma can only be worked through when a secure bond is established with another person; this can then be utilized to hold the psyche together when the threat of physical disintegration is re-experienced.

- van der Kolk

I wish I could
show you when
you are lonely or
in darkness the
astounding light
of your own
being.

- Hafiz



The Neuroscience & Epigenetics of Adverse Childhood Experiences

Less nurturing/ reduced stress resiliency

- Fewer cortisol receptors
- Less able to nurture

Maternal depression effects on children

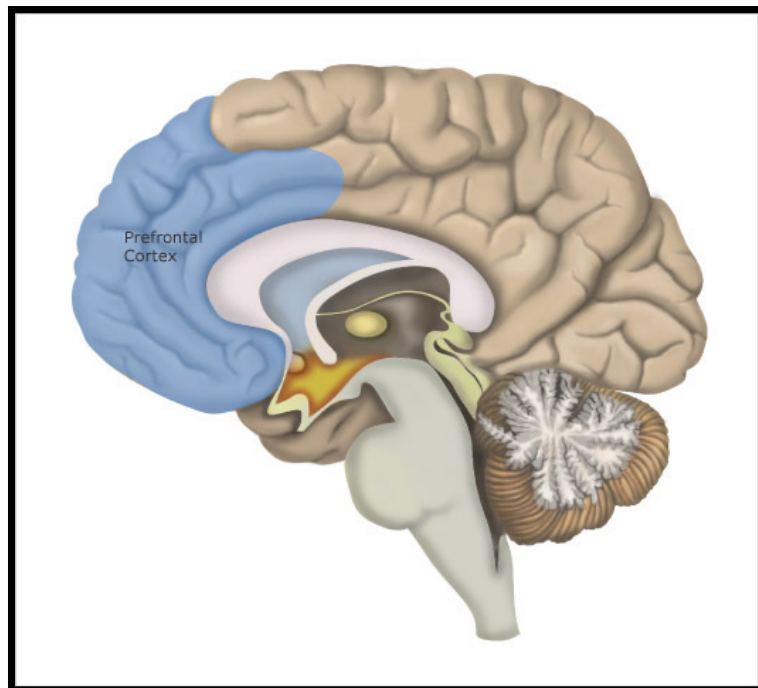
- Attachment style
- Nurturing future generation

Increased aversion & helplessness

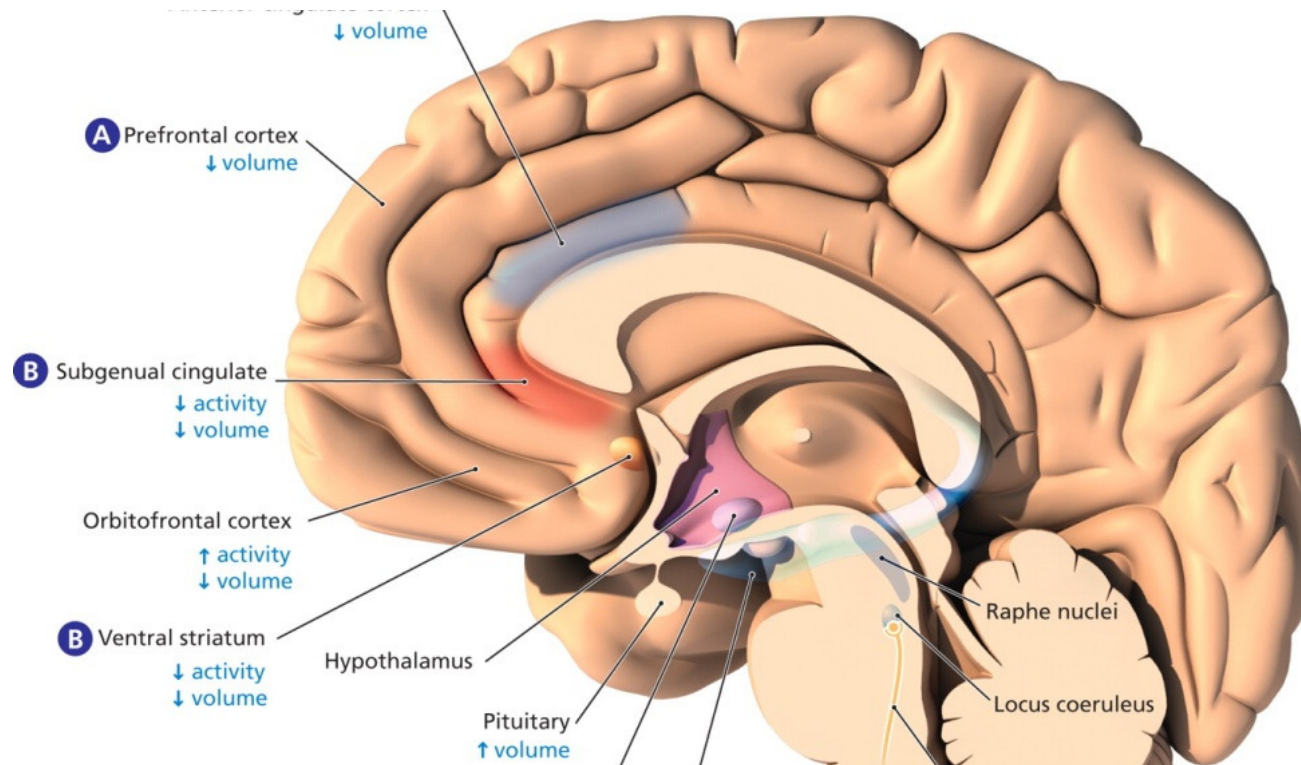
- Vocalize less
- Higher heart rates
- Decreased vagal tone
- Developmental delays

Neuroscience of Emotional Numbing

Frewen, 2012



- Individuals w/ trauma Hx
 - ↓ activation dorsal medial prefrontal cortex
 - ↓ Self-reflective awareness – knowing & reflecting re feelings
- Non-traumatized
 - ↑ Mindfulness of body & Dorsal medial prefrontal cortex



Brain Normalization Post Treatment

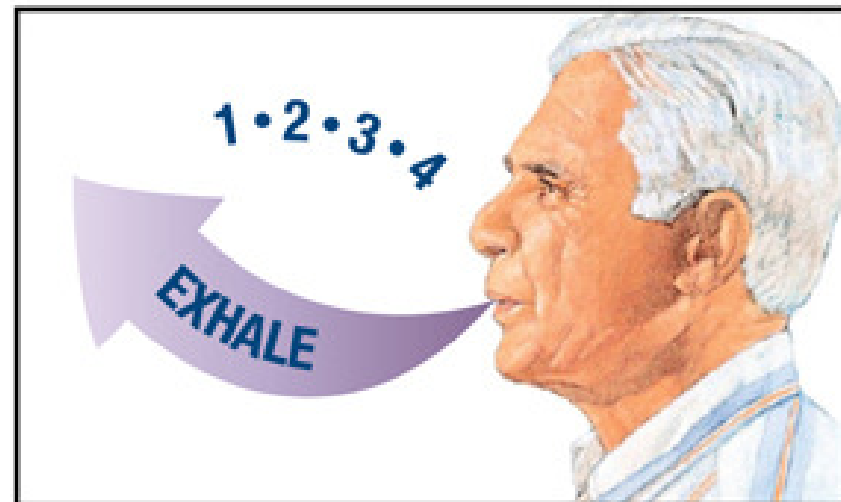
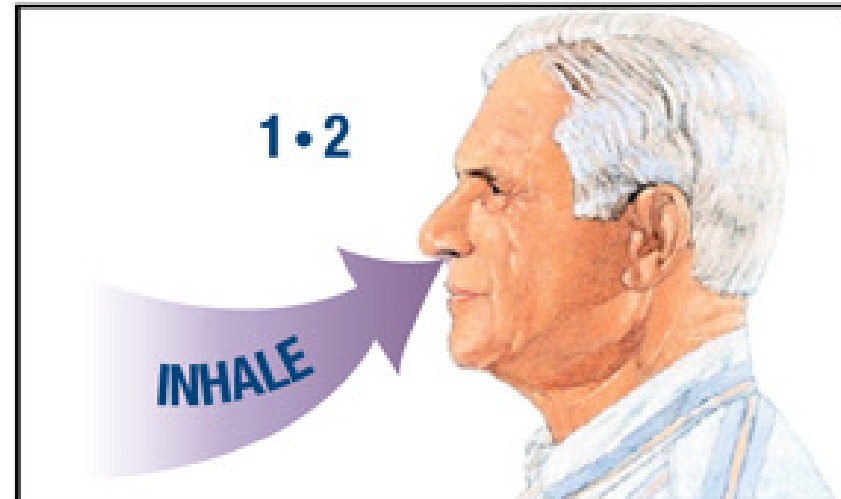
Tomeas & Dorrpaal

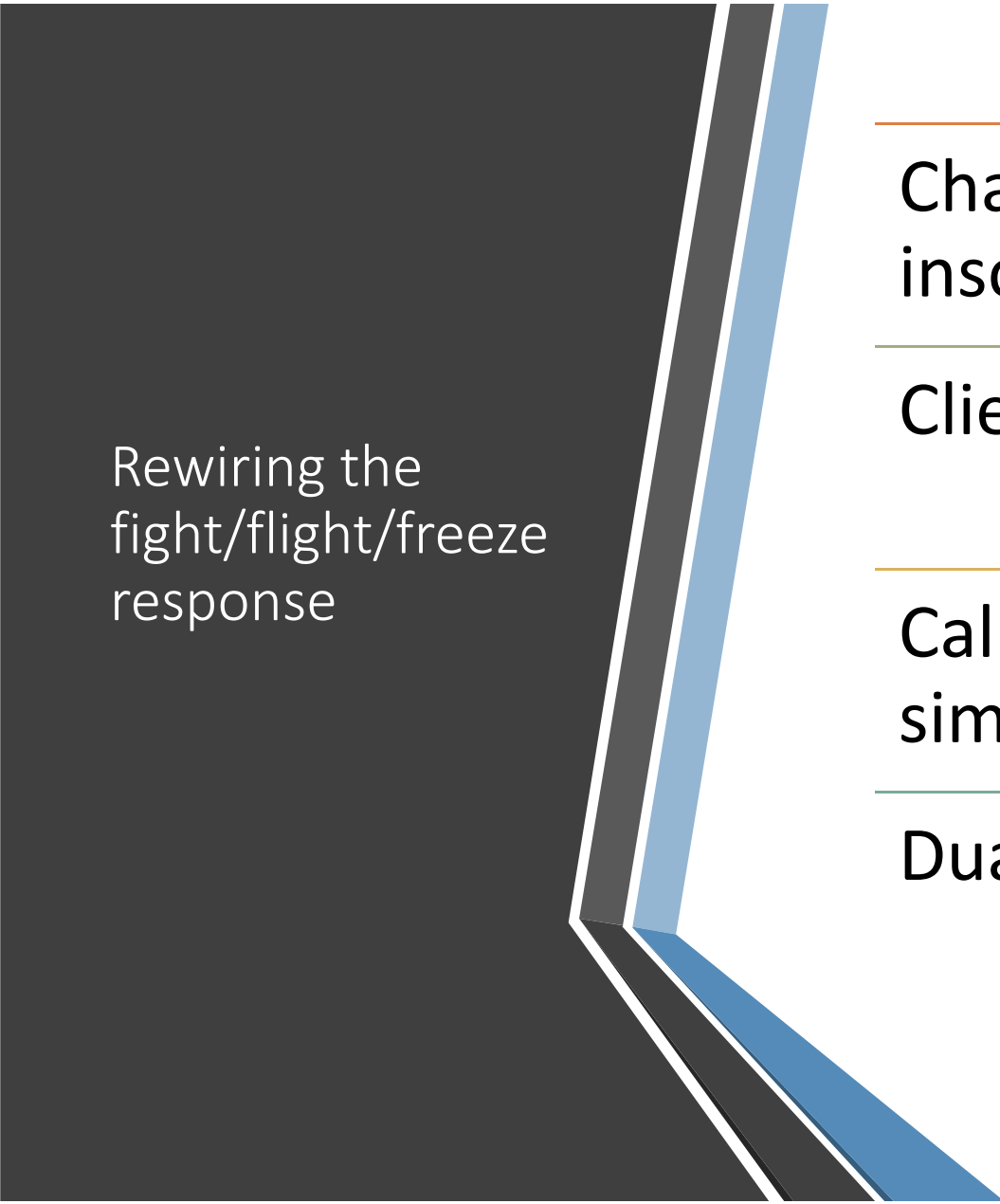
- Anterior cingulate cortex
- Hippocampus
 - Learning & memory

Somatic approaches

- Rewiring the fight/flight/freeze response
- Restoring executive functioning/increasing brain integration – horizontal processing

Breath for Panic: Pursed Lips Breath





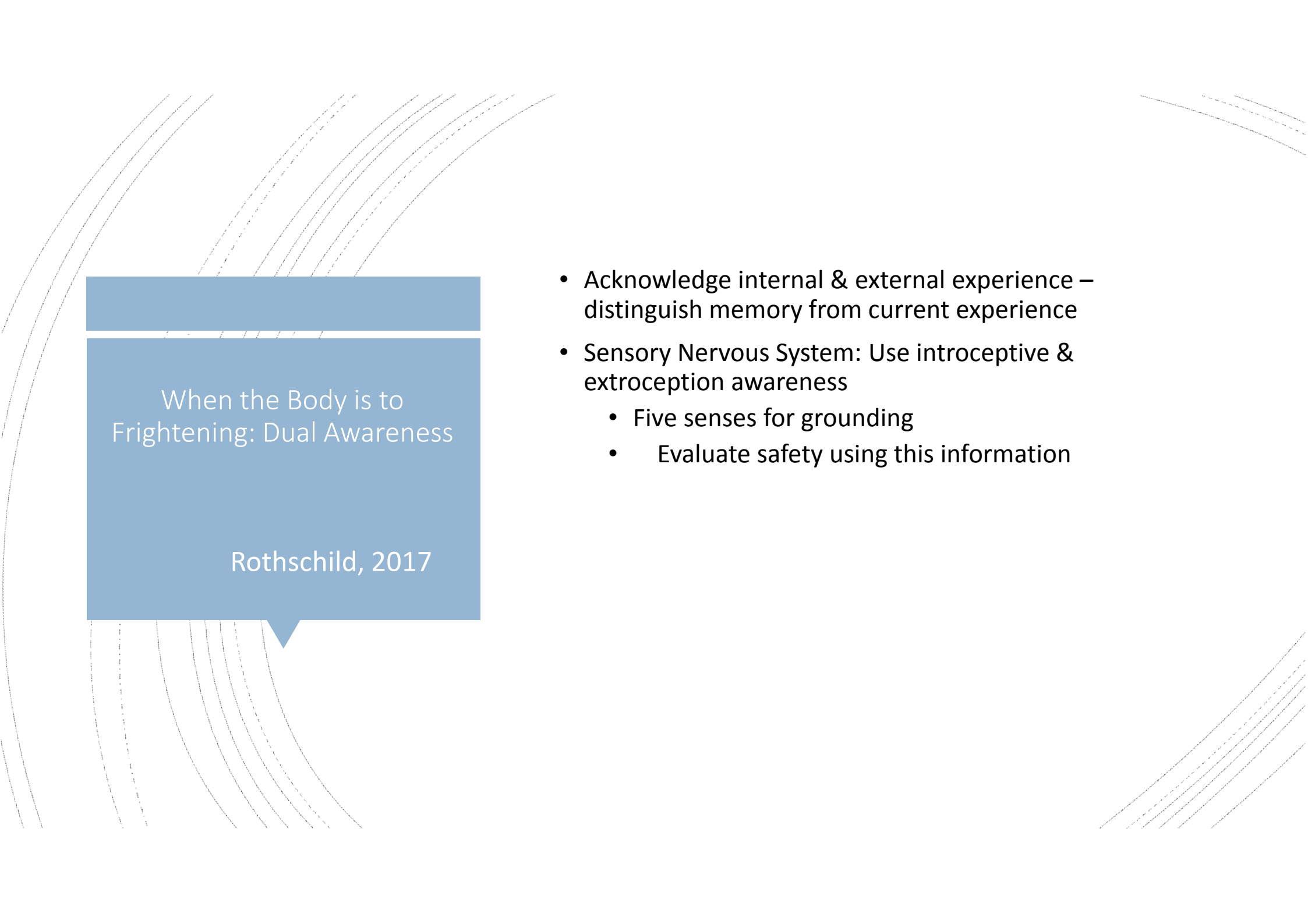
Rewiring the
fight/flight/freeze
response

Chandra bheda – a breath for
insomnia and anxiety

Client education for panic

Calming panic with breath and
simple movement

Dual awareness



When the Body is too
Frightening: Dual Awareness

Rothschild, 2017

- Acknowledge internal & external experience – distinguish memory from current experience
- Sensory Nervous System: Use interoceptive & exteroception awareness
 - Five senses for grounding
 - Evaluate safety using this information

Restoring executive
functioning/increasing
brain integration

Client
education on
brain speak

The power of
naming
emotions

Strengthening
the self

- Forgiveness of Self
and Others

Client education on brain speak

- London cab drivers
- Carnegie Hall
- A field of wildflowers



The power of naming emotions

- Current neuroscientific views
 - Neural integration
 - Identifying emotions
 - Psychoeducation on feelings



Forgiveness & Health: How forgiveness changes brain and body

Lauler, KA et al, 2005

- **Levels of forgiveness associated w/**
- Physical symptoms
- Medications used
- Sleep quality
- Fatigue
- Somatic complaints
- **Strongest mediators**
- ↓negative affect, stress
 - Brain chemistry changes!



Strengthening the self

- Forgiveness of Self and Others
 - Understanding forgiveness
 - Forgiveness as a process
 - Gaining clarity – assigning responsibility
 - Tools for developing compassion
 - Brain chemistry changes

Developing Compassion: The Self- Compassion Break

Neff & Germer, 2018

1

Acknowledge the
pain

2

Connect to reality
that we all suffer –
Common humanity

3

Offer self-kindness

- Compassionate touch
- Kind words
- What would best friend say?



Easing trauma through self-compassion

- Call on best self
- Develop a relationship w/ symptom
- What caused it?
 - What is it trying to accomplish?
 - What are its fears?



Mindfulness for Clinicians

Integrate Role and Soul

“In my early professional years I was asking the question: How can I treat, or cure, or change this person? Now I would phrase the question in this way: How can I provide a relationship which this person may use for his own personal growth?”

— Carl R. Rogers



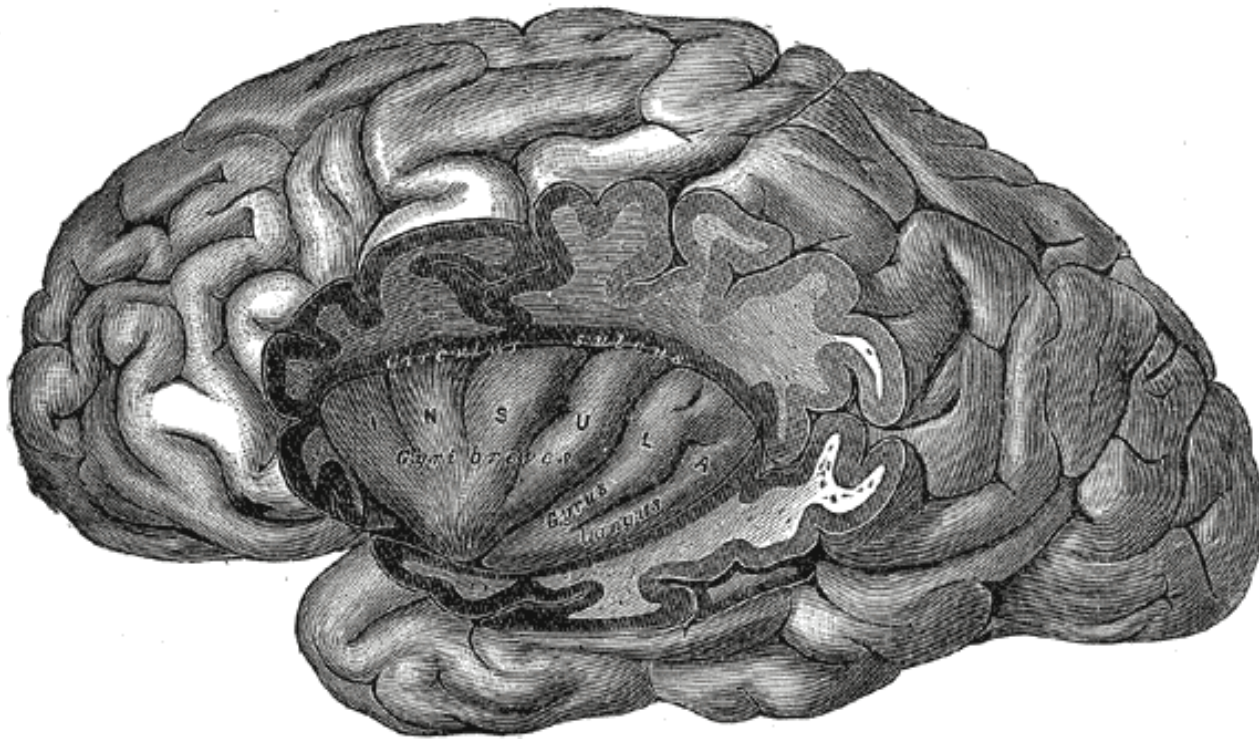
This Photo by Unknown Author is licensed under [CC BY-SA](#)

“

It's in courageously stepping toward safety and trust that our clients co-create with us a new secure base from which they reorganize their attachment representations. In this explicitly integrative holding environment, our clients risk showing us their anger, contempt, judgment, disapproval, rejection, joy, vitality, and wisdom. As we welcome all aspects of their expression with appropriate boundaries, our clients develop internal safety, a trust in themselves that forms a self-structure allowing them to venture for the into the world with a new, more secure base.

”

Deidre Fay



The Neuroscience of Mindful Presence: The Insula

- Empathy, relating to self & others
- Mirror neurons deep within



Building Secure Attachment

- Key components:
 - Good enough self-narrative
 - Attunement to child's experience
 - Rapid re-connection after corrections
 - Eye to eye contact
- Therapeutic relationship replicates conditions

Attachment Styles

- Attachment style persists
 - Avoidant
 - Uncomfortable w/ intimacy
 - Difficulty trusting
 - Insecure
 - Mistrust
 - Defensiveness
- Pessimism
- Self-esteem instability
- Anxiety, mood disorders
- Ambivalent
 - Abandonment fears
 - Unworthiness
 - Addiction
 - Jealousy

Safe Attachment Figure & Fear Normalization

- Interpersonal regulator
 - Helps child to know what they feel
 - Regulate fear
 - Resiliency



Healing Attachment Ruptures

Fay, 2017



- Present moment awareness
 - Secure attachment to self
 - Yoga and mindfulness
- Titrate emotional distress
 - What do you need right now?
 - Self-compassion
 - Capacity to witness
- Affiliative connections



It's important to get them
beneath thinking with words —
thinking, thinking, thinking,
thinking — and instead we
want them to become present
with their own internal
experience: beyond, beneath,
and before words.

-
Dan Siegel, 2018

NICABM

Enhance Therapeutic
Impact:
P.A.R.T.
Presence, Attunement,
Resonance, Trust

Siegel, 2010, NICABM

- Presence – openness to what is arising
 - Check:
 - Images
 - Sensations
 - Thoughts
 - Feelings
- Attunement – connecting to client's inner world
- Resonance – internal state impacted by client
- Trust – created as result of Resonance w/ Attunement & Presence

Therapeutic Presence, Attunement, Resonance, Trust

Siegel, D., 2010

- Presence – openness to what is arising
 - Check:
 - Images
 - Sensations
 - Thoughts
 - Feelings
- Attunement – connecting to client's inner world
- Resonance – internal state impacted by client
- Trust – created as result of Resonance w/ Attunement & Presence

Alert

Relaxed

Enhancing Presence:
Two qualities
Brach, T., 2018



Developing Inner Attunement: Two key questions

Brach, T., 2018

- What is happening inside me now?
- Can I let this be?



Establishing inner trust

- Boundaries of the self
 - Feeling skin, hair, eyes
- Boundaries w/ others
 - Working with feelings in the body
 - What do you want to say?
 - Explore similarities & differences



Client Resonance

- Sharing core belief or painful experience
- Allowing & taking in therapist's/ significant other's response
- Resonance w/ other key to transformation



Dignity in the telling - titrating exposure

- Naming the difficulty
- What would happen if ...
- Validating the response
- Using breath and relaxation
- Gradual unfolding – collaboration



Bells of Mindfulness

- Contemplative Poetry
- Singing Bowl
- Three Om's or Peace Chant
- Three part breath
- Three deep breaths



Hardwiring Recovery with Mindfulness and Neuroscience

Applications for Mood, Trauma, & Addictions

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