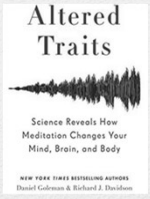
Mindfulness

... and Self Care

ALTERED TRAITS:

Science Reveals How Meditation Changes your Mind, Brain and Body

- by Daniel Goleman and Richard J Davidson, 2017 Penguin Random House, NY



Mindfulness

"Mindfulness means paying attention, on purpose, in the present moment, non-judgementally, - as if your life depended upon it."

Jon Kabat-Zinn

Sati: **Pali word** (Smrti in Sanskrit) **translated as awareness, attention, retention, memory, discernment**

3-min breathing space

Even after all this time
The Sun never says to the Earth
"You owe me."
Look what happens with a love like that,
It lights the whole sky

~ Hafiz

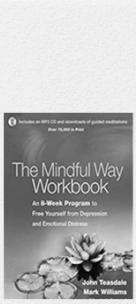
3-Minute Breathing Space

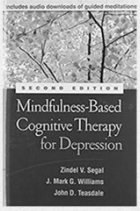
MBCT - Based Cognitive Therapy
John Teasdale, Zindel Segal & Mark Williams

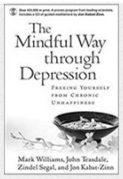
Plus…

Compassion Meditation (Tibetan)

Sources:







Compassion: Resources Online

- Sharon Salzburg – *Loving Kindness*
  - https://www.sharonsalzberg.com
- Tara Brach – *Radical Acceptance, True Refuge*
  - https://www.tarabrach.com
- John Makransky - *Awakening through love*
  - http://www.johnmakransky.org/

practice… Practice… PRACTICE

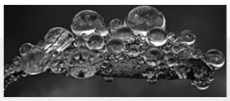
On the cushion (State) >>> Off the cushion (Trait)

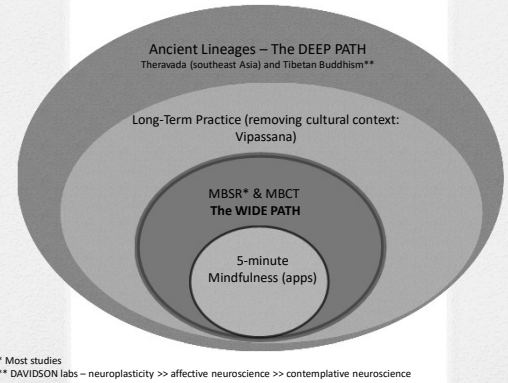
Problems with definitions – and with outcome measures

Intensity of Practice (retreats)

Dosage effects

Differential effects from "little practice" to a Way of Being





* Most studies
** DAVIDSON labs – neuroplasticity >> affective neuroscience >> contemplative neuroscience

Meditation

Transforms 4 main neural pathways:

1. **Those for reacting to distress/disturbing events**
2. **Compassion and empathy**
3. **Attention**
4. **Our sense of "Self"**

Stress and Dis-ease

Mindfulness Based Stress Reduction (MBSR) & Other structured Mindfulness/Meditation practices

*Most well researched of all types

*Changes to Amygdala – PFC – interaction

Interrelated Practices

"We can reconnect with the weather that is ourselves, and realize it's sometimes sad. The sadder it is, and the vaster it is, the more our heart opens. We can stop thinking that good practice is when it's smooth and calm, and bad practice is when it's rough and dark.

We can hold it all in our heart."

~ Pema Chodron ~

(open awareness practice & self-compassion)

Compassion & Empathy

Loving-Kindness (Salzburg)

We are "primed for love"

Loving-Kindness acts quickly – in as little as 8 hours – perhaps because it ties into biological preparedness related to parenting

Loving-Kindness enhances warm thoughts and feelings about others.

*** one study – showed a reduction in implicit bias with L-K with as little as 16 hours practice (implicit bias has been considered an intractable mental set)**

Loving-Kindness

Compassion & Loving-Kindness Practice:

Also activates circuits for

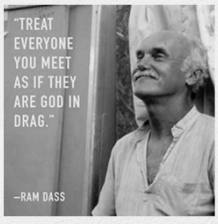
JOY and HAPPINESS

It also activates the prefrontal cortex – critical for guiding behavior.

"My religion is Kindness"

Kindness for myself

Mindful Listening



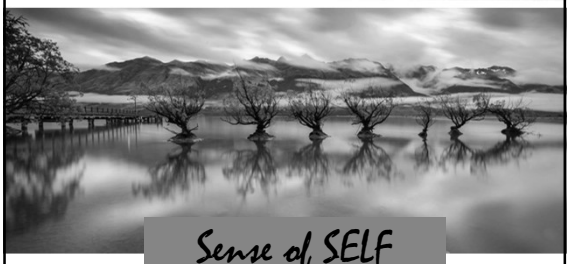
Is it easier when we contemplate others?

What if we could meet ourselves with Kindness?

Self-LOVE

Attention

MBSR; Vipassana; the Yogis



Sense of SELF

Student to Holy man:

"Who was I in a past life?"

Holy man to Student:

"Who is the one asking the question?"

Meditation and the construction of "Self"

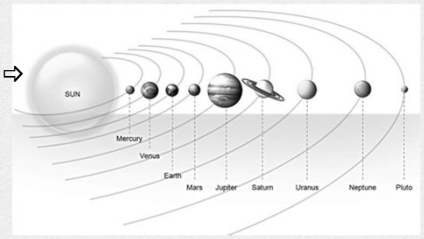
- **The brain is only 2% of the body's mass**
- **It consumes 20% of the body's energy**
- **It consumes the same amount when "working" and when "at rest."**

Why? The default mode

- Part of your brain is working busily to create and sustain your experience of "ME."
- When the mind wanders – it wanders to:
  ... "my" thoughts, "my" emotions, "my" relationships ...
  What does so-and-so think of me?

According to the default mode....

Me ⇨



"... every waking moment of our lives, we construct our experience around a narrative where we are the star ... we can deconstruct the story we center on ourselves by applying the right kind of awareness." (p.149)"

The "Self"

The seat of "ME" - The DEFAULT MODE

Brain studies have identified important roles of the mPFC (midline prefrontal cortex) & PCC (postcingulate cortex), a node connecting to the limbic system.

When the brain engages in an active task, default areas calm down as other areas relevant to the task ramp up.

A ruminating mind is an unhappy mind...

When you notice your mind has wandered, it activates the connection between the PFC and the default mode – regulatory circuits in the PFC *inhibit* the default mode – quieting our "monkey mind." This connection is STRONGER in long-term meditators.

Summary of Findings

Practice moves from effortful to effortless ("flow")

From state to TRAIT.

practice… Practice … PRACTICE

practice → meditation activates prefrontal regulatory circuits (temporary)

- LESS activation in the amygdala.
- Improved attention.
- less mind wandering.
- improved working memory.
- With compassion meditation, increased connectivity in circuitry for empathy.

Summary of Findings

Practice →

- lessened connectivity among the various modes of the default circuitry ("self" gets weaker)
- and lessened activity in the PCC (posteingulate cortex) as effortful control is no longer needed
- the mind is beginning to settle and self-narrative is less sticky.
- Markers for inflammation decrease

Summary of Findings

PRACTICE → "Olympic Level" meditators

- Letting go of self-referencing, the control circuitry drops away (conjecture)
- There is lesser connectivity in the default mode.
- Brain and hormonal markers for stress reactivity continue to decline (State x Trait effect),
- Strengthening of prefrontal circuits to manage stress and distress
- lessened inflammation.
- Lower levels of cortisol, signaling less reactivity to stresses in general.

Summary of Findings

PRACTICE → "Olympic Level" meditators

- Compassion meditation brings greater neural attunement to the suffering of others with enhanced likelihood of doing something to help.
- Attention: Stronger selective attention, decreased attentional "blink," greater ease in sustaining attention, heightened readiness to respond, less mind-wandering.
- Fewer self-obsessed thoughts, weakening of system of attachment
- Slower aging of the brain
- Entering into meditation within seconds, effortlessly.
- Reduced Reactivity: little to no anticipatory anxiety (of pain), higher responsivity in somatosensory regions, but less in the self-referencing parts of the brain, rapid recovery from pain.

Summary of Findings

PRACTICE → "Olympic Level" meditators

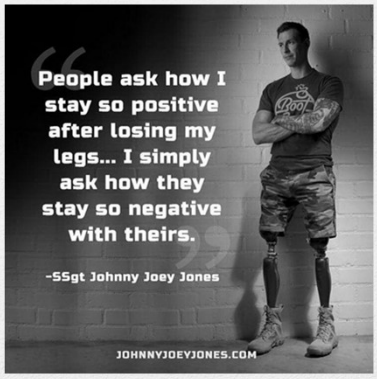
- Slower breath rate and heart-brain attunement during compassion meditation (heart-rhythm meditation – Sufi)
- Altered traits – baseline GAMMA waves much greater than normal and with synchrony of parts of the brain not normally seen – TRAIT – occurs in baseline. Occurs during sleep. Strongest during practice of open presence and compassion.
- The Yogi's brains at REST resemble the brains of others during meditation. Their baseline is well beyond our best.

Encounters with people who practice>Practice>>PRACTICE

ACCEPTANCE & LETTING GO OF DICHOTOMOUS MIND

There is no coming to consciousness without pain. People will do anything, no matter how absurd, in order to avoid facing their own soul. One does not become enlightened by imagining figures of light, but by making the darkness conscious.
• Carl G. Jung

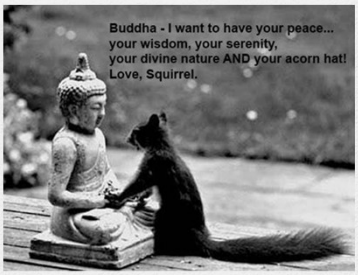
RESILIENCE



Open to learning:

Beginner's Mind

HUMOUR - JOY



Thank you for your attention. Thank you for your Practice.

Supporting information

A bit of the science

Stress and Dis-ease

Neural Pathways Dealing with Stress:

- Amygdala – brain's stress circuitry shows dampened activity after 30 hours **MBSR**
  - Some hints these are "trait-like" (vs. state change)
  - Even in baseline (not while meditating), reductions in amygdala activation up to 50%
  - MORE practice associated with LESS amygdala activity
  - Higher pain tolerance and less reaction to pain (dosage effect)
  - 3-month retreat -better emotional regulation
  - Longer term practice - greater functional connectivity between prefrontal areas that regulate emotion and areas of amygdala that react to stress.
  - Improved ability to regulate attention
  - Improved speed of recovery from stress appears to underlie how TRAIT effects emerge with continued practice.

Stress and Dis-ease

MIND-BODY CONNECTIONS:

MBSR (and similar)

- Reduce the emotional components of suffering from disease/pain.
- Even 3 days produces short-term decrease in pro-inflammatory cytokines **(the more you practice, the lower it goes)**
  - **Reduced inflammation becomes a TRAIT effect with extensive practice (present in baseline measures, while still increasing with practice).**
  - **In EXPERIENCED meditators, a day-long intensive mindfulness practice down-regulates genes involved in inflammation**
- Telomerase, which slows cellular aging, increases after about 3 months of practice of mindfulness and loving-kindness.

Attention

Meditation of all types retrains attention.

MINDFULNESS MEDITATION TRAINING:

(return to the breath; open awareness)

- **Just 7 minutes of Mindfulness training produce detectable (temporary) lessening of the attentional "blink"** *thought to be impervious to change
- **Just 10 minutes of Mindfulness training undid the damage of multitasking (temporary)**
- **8 minutes of Mindfulness lessened mind-wandering for a while**
- **10 hours over 2 weeks strengthened attention and working memory** (substantially improved scores on the GRE)

Attention, continued

- **MBSR strengthened selective attention (8-Week/30 hours)**

  Training in meta-awareness.

- **3-Month Vipassana* Retreat**
  - Strengthened attention and working memory even more (practice... Practice ... PRACTICE)
  - even 5 months later, these gains remained: enhanced vigilance, increased ability to sustain attention, and attentional "blink" had lessened greatly

* Vipassana – Insight meditation – from the Buddhist Theravada tradition – insight into the three marks of existence: anitya: impermanence; dukkha: suffering or unsatisfactoriness; anatta – non-self or non-soul or no-essence

Attention, continued

"**A surprising amount of what we think is from the top down is actually from the bottom up.** We seem to impose a top-down gloss on our awareness, where the **thin slice of the cognitive unconscious that comes to our attention creates the illusion of being the entirety of the mind.**" (p 141)

Meta-awareness allows us to track our attention itself – noticing, for example, when our mind has wandered off from something we want to focus on. This ability to monitor the mind without getting swept away introduces a critical choice point where we find our mind has wandered: we can bring our focus back to the task at hand. ***This simple mental skill undergirds a huge range of what makes us effective in the world – everything from learning to realizing we've had a creative insight to seeing a project through to the end.***" *(emphasis added, p 141)*

> *"Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom."*
>
> *~ Viktor Frankl*

Loving-Kindness

Just 7 minutes of Loving-Kindness practice boosts sense of connection and good feelings (temporary)

In tests of our ability to confront suffering:
meditation amplifies our empathy to suffering AND our ability to confront it without looking away.
(empathy circuits = sympathetic resonance → activates autonomic responses, neural centers mirror the suffering we pick up from the other person – pain circuits)

- BUT in addition to increased activation of empathy – those who engage in compassion meditation show increased activation in areas that prime us to respond behaviorally, i.e., to help
- Compassionate concern is a different neural pathway than simply alerting to suffering of the other (includes feelings of warmth, love, concern)

the "Self"

"This led Richie to a scientific insight: that *consciousness operates as an integrator,* gluing together vast amounts of elementary mental processes, most of which we are oblivious to. We know their eventual product - my pain - but typically have no awareness of the countless elements that combine into that perception."

The seat of "ME" - The DEFAULT MODE

Brain studies have identified important roles of the mPFC (midline prefrontal cortex) & PCC (postcingulate cortex), a node connecting to the limbic system.

When the brain engages in an active task, default areas calm down as other areas relevant to the task ramp up.

The "Self" - Letting go of the "stickiness" of mind...

"... if you are lost in some personal melodrama (a favorite theme of the default mode), you can voluntarily drop it – you can name it, or shift your attention to watching your breath or to bare awareness of the present moment."

Doing so heightens the activity in the dorsolateral prefrontal area, a key circuit in managing the default mode.

After only 3 days practice – led to increased connections between control circuitry and the default zone's PCC (postcingulate cortex), a primary region for self-focused thought.

More experienced meditators – lessened activity in the default mode and heightened connections to control areas. (Lessened by Mindfulness and Loving Kindness Meditation)

Sense of "Self"

Decreased size of the nucleus acumbens – an area playing a part in the "reward circuits" of the brain (pleasurable feelings)

- But this is also the site of "sticky" pleasures - including addiction & personal attachments.
- The decrease may reflect diminished attachment in the mediators of pleasure – particularly in the narrative self.

"When we identify with a small self, we are perceiving ourselves as ocean waves, not recognizing that we are made of ocean. When we realize our true self is ocean, the familiar pattern of waves—our fears and defensiveness, our wants and busyness—remains a part o us, but it does not define us." – Tara Brach

Decreased activity of the amygdala (dealing with aversion or displeasure)