Mindfulness in Medicine

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Mindfulness

The **awareness** that emerges from paying **attention** on purpose and non-judgmentally to things **as they are**

Williams, Teasdale, Segal and Kabat-Zinn 2007
Mindfulness is present moment awareness ... allows reactions to become responses.

Stimuli

Mindfulness is a wedge of awareness

Become aware of our thoughts, memories, judgments, bias, emotions, bodily sensations

RESPONSE
“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.”

-Victor Frankl
Stress reduction correlates with structural changes in the amygdala

Functional MRI (left) showing activation in the amygdala when participants were watching images with emotional content before learning meditation. After eight weeks of training in mindful attention meditation (right) note the amygdala is less activated after the meditation training. Courtesy of Gaelle Desbordes
Results:

- The prefrontal cortex, the cingulate cortex, the insula and the hippocampus showed increased activity, connectivity and volume in stressed, anxious and healthy participants.

- The amygdala showed decreased functional activity, improved functional connectivity with the prefrontal cortex, and earlier deactivation after exposure to emotional stimuli.
I realize I've only been at it for 5 minutes, but meditation isn't bringing me the peace of mind I was promised.
“According to the latest research, the average human body is 20% water and 80% stress.”
The Stress Response

1. Nervous system perceives stress.
2. Brain sends signal to pituitary gland, which releases ACTH into bloodstream.
3. Adrenal glands release stress hormones cortisol, epinephrine, and norepinephrine.
4. Stress hormones travel through blood to target cells throughout the body, triggering the conversion of stored fat, protein, and carbohydrate to glucose, supplying the body with energy to respond to stressor.
5. Stress hormones prepare vital organs for “fight-or-flight” (see right).

- Hearing ability increases
- More blood flows to brain; senses sharpen
- Pupils dilate to bring in more light
- Perspiration increases
- Respiration rate increases
- Heart rate and blood pressure increase
- Liver and fat tissues release energy-producing substances (such as glucose) into bloodstream
- Digestive system slows as blood supply is diverted to more critical areas
- Urine production decreases
- More blood flows to muscles; muscles tense
- Immune system activity decreases
- Blood clotting ability increases

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Human Performance Curve

- **Optimal performance**
- Aim to keep employees at this performance level

**Performance**
- Seeing improvement
- Calm
  - Work feels effortless
- Stress
- Distress
  - Breakdown & Burnout
  - Ill Health
  - Exhaustion
  - Fatigue
- Bored

**Stress**
When Stress is a Problem

**FIGURE 2**

LEVEL OF STRESS

S = Stressful incident
Stress is more harmful when it continues to rise and stays elevated.
When Stress is a Problem
Be MINDFUL

FIGURE 3

LEVEL OF STRESS

S = Stressful Incident
M = Moment of Mindfulness

As you can see, even a few episodes of mindfulness make a significant difference in how you handle stress.
STOP

I haven’t got time to meditate!

S top what you’re doing, step out of auto-pilot
T ake a breath (or two or three), mindfully
O bserve what’s happening with you right now — thoughts, feelings, sensations
P roceed with awareness and kindness
Mindfulness in Medicine

- Mindfulness ≠ Only Meditation... Meditation is the tool
- Mindfulness ≠ Relaxation
- Mindfulness ≠ Visual imagery of being on a beach

- Mindfulness is a way of being with oneself, with others, and in the world ... think of it as PRESENCE
- PRESENCE, without an agenda and without JUDGMENT
## Manifestation of Secondary Stress

<table>
<thead>
<tr>
<th>Physical</th>
<th>Behavioral</th>
<th>Emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaustion</td>
<td>Alcohol/Drugs</td>
<td>Depression</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Anger outbursts</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Pain</td>
<td>Excessive TV</td>
<td>Guilt</td>
</tr>
<tr>
<td>GI Distress</td>
<td>Avoidance of people and social events</td>
<td>Cynicism</td>
</tr>
<tr>
<td>Increased illness</td>
<td>Sex/Intimacy problems</td>
<td>Dread going to work</td>
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<tr>
<td>Heart palpitations</td>
<td>Emotional eating</td>
<td>Detachment</td>
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<tr>
<td>Teeth grinding</td>
<td>Compromised care</td>
<td>Hopelessness</td>
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<tr>
<td></td>
<td></td>
<td>Resentment</td>
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<td></td>
<td></td>
<td>Lack of enjoyment</td>
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</tbody>
</table>
Empathy vs. Compassion

- Feeling *with* vs. Feeling *for*
- *I feel you* vs. *I hold you*
- Emotional empathy connects to neural circuits that are connected with distress and vicarious pain in fMRI
  - Often compels us to turn away or fix

Empathy vs. Compassion

- The more capable of empathy, perhaps the more vulnerable one becomes.
- Empathy without skills to translate resonance in feeling *with* patients into acting on behalf of patients (compassion) can lead to burnout.

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Empathy

Empathetic Distress

Negativity; Withdrawal

Compassion

Feeling of Concern

Positivity; Resolve to Help

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Loving-kindness and Compassion Practice

• Cultivating feelings of loving-kindness and compassion

• Enhance compassion or empathic concern

• Reduce empathic distress, the aversive physiological, emotional, and cognitive reactions to others’ suffering
• Compassion training – based on the loving-kindness meditation, instructing them to extend feelings of compassion toward themselves and others.

• Reappraisal training – a cognitive strategy for reinterpretation that decreases personal negative emotions
Loving-kindness/compassion training reduces brain activity associated with empathic distress

Weng HY, et al. 2018
Brain changes with loving-kindness/compassion training are specific compared to other meditation practices.

WHAT IS SELF-COMPASSION?

Mindfulness
Self-compassion involves recognising when we're stressed or struggling without being judgmental or over-reacting.

Self-Kindness
Being supportive and understanding towards ourselves when we're having a hard time, rather than being harshly self-critical.

Connectedness
Remembering that everyone makes mistakes and experiences difficulties at times. We are not alone!
Research on Self-Compassion

• Self-criticism ignites the natural threat response system
  – Self-concept is threatened so we attack with self-criticism (fight), isolation (flight), and rumination (freeze)

• The care system (tend-and-befriend) activates oxytocin and endogenous opioids, reduces stress and down regulates the threat response
  – Soothing touch
  – Gentle vocalizations

• Outcomes
  – Lower cortisol
  – Greater heart-rate variability
• Don’t rehash all the details with the team
• Do include awareness of your own responses to what you heard and how you now feel
• Do ask for what you need now

“As you witness suffering and realize its effects on you, also recognize the positive effects of witnessing resilience”
Tend and Befriend ...
The Affiliated Stress Response

Tend and Befriend - The Stress Response You Might Not Have Heard of...
(No Group Hugs Required)

From the Blog: Tend and Befriend Your Stress
mindfullifetoday.com
Promise me you will not spend so much time treading water and trying to keep your head above the waves that you forget, truly forget, how much you have always loved to swim.

Tyler Knott Gregson
Resources

• Center for Mindfulness
  – https://www.umassmed.edu/cfm/

• Stanford WellMD
  – https://wellmd.stanford.edu/healthy/mindfulness.html

• U Mass Well-Being Website
  – www.umassmed.edu/well-being

• Center for Compassion and Altruism Research and Education
  – http://ccare.stanford.edu

• MedPEP podcast

• National Academy of Medicine
  – Website / Knowledge Hub
  – https://nam.edu/initiatives/clinician-resilience-and-well-being/