Leveraging Neuroscience and Mindfulness to Maintain Well-Being in the Pandemic (and Beyond)

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One day it looked like that, and now I have no idea what the future holds.
Learning Objectives:
Following this presentation, attendees will be able to:

- Understand why and how the pandemic activated a chronic stress response in most humans and in healthcare professionals uniquely
- Normalize personal reactions and responses to the pandemic, emotionally, cognitively, behaviorally, and relationally
- Access specific language and strategies to leverage one’s own healing part of the nervous system
- Practice specific strategies to leverage internal strengths and better resource oneself going forward
Stressor (noun): Any internal or external event that our survival brain perceives as challenging or threatening, thereby *activating a stress response*

- Acute
- Chronic
- Physical
- Psychological
We are wired to maintain safety and connection.

Stressor + Perception of Threat → Stress

- Novel
- Unpredictable
- Uncontrollable
Uncertainty is rocket fuel for fear

Our Survival Brain kicks in
STRESS RESPONSE SYSTEM

**Brain**

- Hypothalamus

**Adrenocorticotropin Hormone (ACTH)**

**Increased Heart Rate**

**Adrenaline and Cortisol**

- Dilatation of Bronchioles
- Liver converts glycogen to glucose
- Decreased digestive system activity
- Blood pressure increases

**Hippocampus**

- Regulates memory and emotions.

**Prefrontal Cortex**

- Thinking/logic/what to do/evaluation.

**Amygdala**

- Turns on fight or flight, and stores memories of the event.

Everything is ok.

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Aargh!
<table>
<thead>
<tr>
<th>Zones of Arousal - The Window of Tolerance</th>
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<tbody>
<tr>
<td><strong>HYPERAROUSAL ZONE</strong></td>
</tr>
<tr>
<td>SYMPATHETIC “FIGHT OR FLIGHT” RESPONSE</td>
</tr>
<tr>
<td>- Tension, Shaking</td>
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<tr>
<td>- Emotional reactivity</td>
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<tr>
<td>- Defensiveness</td>
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<tr>
<td>- Racing thoughts</td>
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<tr>
<td>- Intrusive images</td>
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<tr>
<td>- Emotional overwhelm</td>
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<tr>
<td>- Feeling unsafe</td>
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<tr>
<td>- Obsessive or Cynical thoughts</td>
</tr>
<tr>
<td>- Hypervigilance</td>
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<tr>
<td>- Impulsivity</td>
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<tr>
<td>- Anger/Rage</td>
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<tr>
<td><strong>OPTIMAL AROUSAL ZONE</strong></td>
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<tr>
<td>VENTRAL VAGAL “WINDOW OF TOLERANCE”</td>
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<tr>
<td>- Feel and think simultaneously</td>
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<tr>
<td>- Experience empathy</td>
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<tr>
<td>- Feelings are tolerable</td>
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<tr>
<td>- Present moment awareness</td>
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<td>- Open and curious</td>
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<tr>
<td>- Awareness of and can set boundaries</td>
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<tr>
<td>- Reactions adapt to the circumstances</td>
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<tr>
<td>- Feel safe</td>
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<tr>
<td><strong>HYPOAROUSAL ZONE</strong></td>
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<tr>
<td>“IMMOBILIZATION” RESPONSE</td>
</tr>
<tr>
<td>- Absence of sensation</td>
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<td>- No energy/Shut Down</td>
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<tr>
<td>- Passive</td>
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<tr>
<td>- “Not there”</td>
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<tr>
<td>- Can’t defend oneself</td>
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<tr>
<td>- Can’t think or say no</td>
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<tr>
<td>- Numbing of emotions</td>
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<tr>
<td>- Disconnected</td>
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<tr>
<td>- Ashamed</td>
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<tr>
<td>- Flat Affect</td>
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</tbody>
</table>
Unhealthy reactions
  Unhelpful behaviors that you feel you “can’t keep yourself from doing”

“Survival skills”
  These may help you get through a tough time, but may be destructive if habitual
Self-Awareness: How do I experience stress?

Stress

- Fatigue
- Headaches
- Taut Muscles
- Skin Irritations
- Frequent Infections
- Constricted Breathing

Mind

- Worrying
- Indecision
- Negativity
- Foggy Thinking
- Hasty Decisions
- Impaired Judgement

Body

- Loss of Confidence
- Apprehension
- Indifference
- Depression
- Irritability
- Insomnia

Emotions

- Substance Abuse
- Loss of Appetite
- Accident Prone
- Restlessness
- Loneliness
- Insomnia

Behavior

- Increased depression
- Headaches
- Heartburn
- Rapid breathing
- Risk of heart attack
- Pounding heart
- Fertility problems
- Erectile dysfunction
- Missed periods

Insomnia

- Stress makes it harder to fall asleep and stay asleep, which can lead to insomnia.

High blood sugar

- Stress causes your liver to release extra sugar (glucose) into your bloodstream, which over time contributes to the development of type 2 diabetes.

Stomachache

- Stresses affect your gut, which can lead to stomachaches, nausea, and other related issues.

Fertility problems

- Stress interferes with the reproductive system in both men and women, making it harder to conceive.

Erectile dysfunction

- The body's response to stress can impair the process of getting an erection. Stress can interfere with the process.

Missed periods

- Emotional stress can cause periods to become irregular or stop altogether.

Low sex drive

- Stress and the fatigue that often comes with it can take a toll on your sex drive.

Tense muscles

- Stress makes muscles tense up, and chronic stress can lead to tension headaches and backaches.
I am right.

You are wrong.

“Be patient. We’ll see. We will see …”
Separating the behavior from the person
Stress + Recovery = Resilience
Without recovery ... Languishing
CBT

Thoughts
What we think affects how we feel and act

Emotions
What we feel affects how we think and act

Changing Perceptions
What we do affects how we think and feel

Behaviors
Bodily maps for emotions
Practice
We miss more by not seeing than not knowing.

~William Osler MD
WHAT IF SOMEONE COULD OFFER YOU THIS IN PILL FORM?

- INCREASED SELF-AWARENESS AND SELF-ACCEPTANCE
- GREATER CAPACITY TO BE PRESENT WITH SUFFERING AND MANAGE DIFFICULT SITUATIONS
- ENHANCED RELATIONSHIPS (WITH PATIENTS)
- BETTER SELF-CARE
- GREATER SENSE OF CONNECTEDNESS WITH COLLEAGUES AND TEAMS
- DECREASED LEVELS OF STRESS, ANXIETY AND DEPRESSION
- GREATER JOB SATISFACTION AND SENSE OF PURPOSE
- ENHANCED EFFECTIVENESS


Mindfulness

The **awareness** that emerges from paying **attention** on purpose and **Non-judgmentally with compassion** to things as they are.
Mindfulness in everyday life

- Mindfulness ≠ Meditation (meditation is the tool)
- Mindfulness ≠ Relaxation
- Mindfulness ≠ Imagining yourself at the beach

- Mindfulness is a way of being with
  - Oneself
  - Others
  - In the world
Mindfulness is present moment awareness ... allows reactions to become responses.

- Stimuli

RESPONSE

Mindfulness is a wedge of awareness

Become aware of our thoughts, memories, judgments, bias, emotions, bodily sensations.
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 Gaëlle Desbordes
8-week Mindfulness Based Stress Reduction induces brain changes similar to traditional long-term meditation practice – A systematic review

Rinske A. Gotink a,b,c, Rozanna Meijboom b, Meike W. Vernooij a,b, Marion Smits a, M.G. Myriam Hunink a,b,c

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.
Tend and Befriend
OXYTOCIN:
THE HORMONE OF COMPASSION AND THE
FORGOTTEN STRESS HORMONE
The same neurocircuitry and hormonal release: Oxytocin and Dopamine
Practical Tips for Regulating Yourself (and Accepting Others)

- Recognize activation (MINDFULNESS)
  - Thoughts, Emotions, Body Check-In
- ALLOW for how it is, then Check your assumptions, Check your perceptions
- Grounding techniques
  - Find a neutral place in the body, feet on the floor
- Tend and Befriend OURSELVES
  - Soothing touch
  - Hand on Heart, Hug
  - Gentle vocalizations
  - Word or Phrase of self-compassion
Highest Yield Coping

- Dial Down the Inputs
- Dial Up:
  - Exercise/movement
  - Gratitude
  - Savoring
  - Sleep
  - Social Connection
  - Service to Others
  - Empathy
  - Compassion
What Else Helps on the Job?

- Meaning and Purpose
  - Elevate and amplify your WHY
  - What did I learn today?
  - What did I do well today?
- Drop the personalization - QTIP (Quit Taking it Personally)
- Grieve and Forgive (May I forgive myself for things left undone?)
- Micropauses
- Accept that everyone processes and manages stress differently ... The closer you get to “not knowing” the more you drop into curiosity and your own intentions ... and the more you root in service and compassion
THANK YOU!