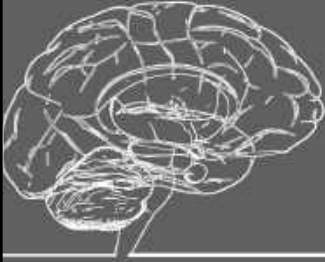


NEUROHEALTH PARTNERS PRESENTS :




**Bringing the Brain into Clinical Care:
How Understanding the Brain Can Help You Serve Your Clients**

Julia DiGangi, Ph.D.
SEPT 2020

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Overview




1. Paint with a broad brush: Substantive Overview
2. Today's gonna move! Breadth > Depth
3. Want more: Talk to us!

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Learning Objectives




1. Utilize practical ways of talking to clients about how their brains work and how to improve wellbeing
2. Examine effects of stress + trauma on brain
3. Examine evidence-based strategies for promoting resilience and calming anxious brain
4. Describe why certain treatments work
*(Due to time constraints, we will talk specifically about **exposure** and the brain)*

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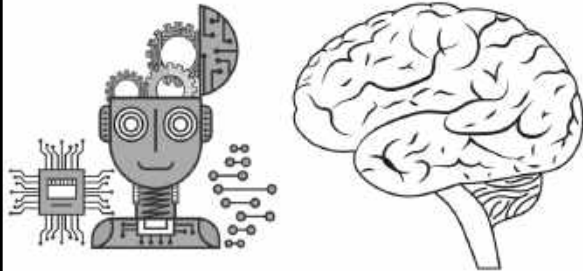
The Great Frontier: Your Amazing Brain



- Weighs 3 pounds, about 2% of our body weight, and controls every aspect of our existence.
- Most complicated device in the universe:
 - About 100 billion nerve cells exist in an adult human brain.
 - More than 100,000 chemical reactions take place every second.
 - 4,300 nerve cells are built every second during the entire pregnancy.
 - Inconceivably large number of connections in your brain. Each one of these neurons has about a 1,000-10,000 connections to other nerve cells. If you counted 1 synapse per second, you would have to count for 30 million years without interruption!
- Only organ capable of self reflection.

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Brain as Pattern Detector



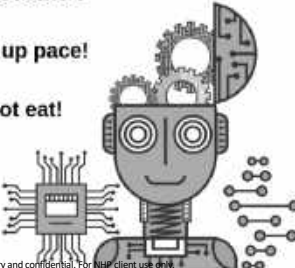
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The Profound Power of Patterns


Countless calculations outside conscious awareness

- Smell smoke? → Do not enter!
- Dark alley? → Pick up pace!
- Looks rotten? → Do not eat!



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 **Brain as Pattern Detector**


Looks good enough to me.

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 **Brain as Pattern Detector**


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 **Brain as "Wise Blueprint"**

- Important moment for mental health professionals
- World needs your expertise on:
 - Psychological wellbeing
 - Stress management
 - Emotional intelligence
 - Healthy connection

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 **Brain as “Wise Blueprint”**




How can leaders best manage the “trauma” of this moment—and all the adversity that will follow?

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 **Brain as “Wise Blueprint”**




Living Wiser, Not Harder.
To live whole human lives, we are aided when we live based on the **wisdom of our brain + biology**

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 **Brain as “Wise Blueprint”**

- Brain + biology provide “Blueprint for Wise Living”
- But often we ignore these biological rules for
 - Meaningful social connection
 - Sufficient exercise
 - Good sleep
 - Proper nutrition
 - Limited amounts of information and thinking about our “attentional health.”



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 **Brain as “Wise Blueprint”**

What is Trauma:
A violent violation to the “Law of What Should Have Been”

Ex: If I think that my neighborhood *should* be perfectly safe—and then I get mugged, trauma shows me I was wrong.

These violations to the “pattern” **threaten** the brain, tasked with pattern detection




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Neurobiology as a Complementary Tool



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The Value of Neuropsychology & Neuroscience



- Emotion dysregulation
- ✓ Irritability
- ✓ Fear
- ✓ Sadness
- ✓ Anger
- ✓ Rage
- ✓ Prolonged elation

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**The Value of
Neuropsychology & Neuroscience**




Cognitive Dysfunction

- ✓ Information Processing
- ✓ Memory
- ✓ Decision Making
- ✓ Problem Solving
- ✓ Planning

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**The Value of
Neuropsychology & Neuroscience**




Notice a missing
Cognitive Domain?

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**The Value of
Neuropsychology & Neuroscience**

Attention



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 **The “Attentional Health” of Clients**

What's happening on Clients' Attentional Landscape?

- > 1 interruption/10 min
- > Process 5xs info than in 1980; ~180 newspapers/day
- > >90% of world's data created in last 4 years alone
- > Google processes >40,000 searches every second (3.5 billion/day)
- > YouTube uploads 6,000 hours of video every hour




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**The Value of
Neuropsychology & Neuroscience**

Attention:


- Mother of all neurocognitive domains
- Impossible to make decisions, problem-solve, pursue goals, etc if we weren't paying attention in the first place
- How does this play out in disorders we treat?



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**The Value of
Neuropsychology & Neuroscience**

Depression: Aberrant Attentional Biases + Deficits




- ✓ One of the most robust findings
- ✓ Attend to and, subsequently, process info different than healthy controls
- ✓ Pay attention to negative expectations while ignoring information that contradicts negative biases

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**The Value of
Neuropsychology & Neuroscience**

PTSD: Attentional Impairments




- ✓ **Attentional Dysregulation:**
Over-engagement in danger cues at expense of neutral stimuli
- ✓ **Subsequently, unable to learn context:** safe vs. unsafe
- ✓ **Example**
 - Convoy in Iraq vs. Driving in Chicago.
 - Male assailant; can't tolerate men.

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**The Value of
Neuropsychology & Neuroscience**


SUD + ADHD: Attentional Deficits



- ✓ **Attentional deficits core features in ADHD and SUDs**
- ✓ **More specifically, appear to stem from same neurocog deficits**
- ✓ **Impulsive action, impulsive choice, over-attending to reward, etc.**

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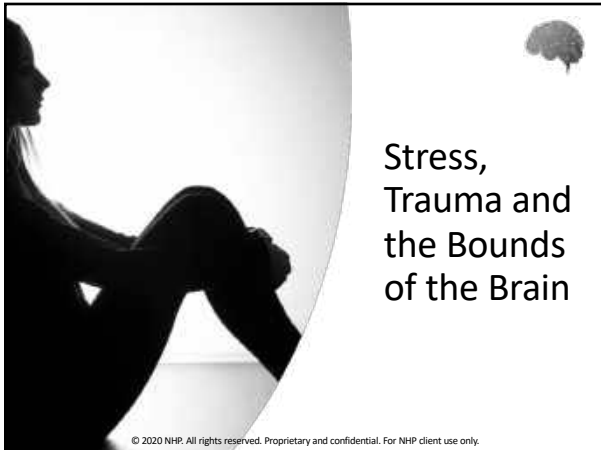
**The Value of
Neuropsychology & Neuroscience**



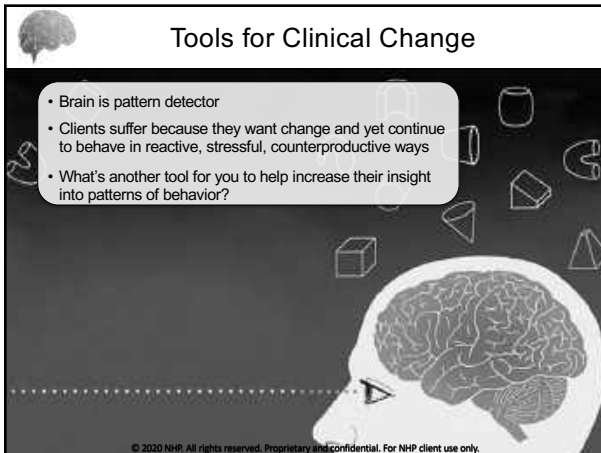
Emotion x Cognition Interactions.

How are our patients feeling? But also, how are they thinking?

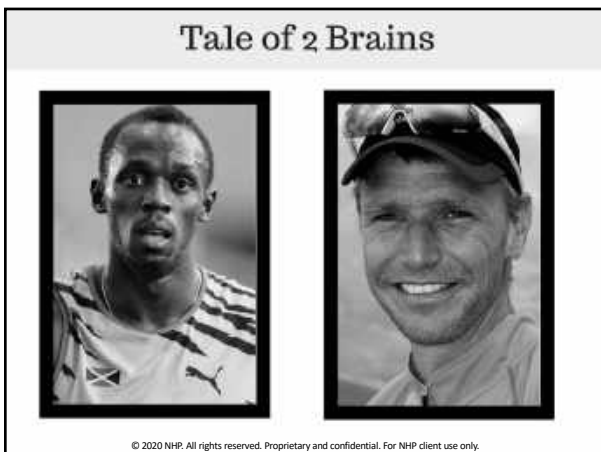
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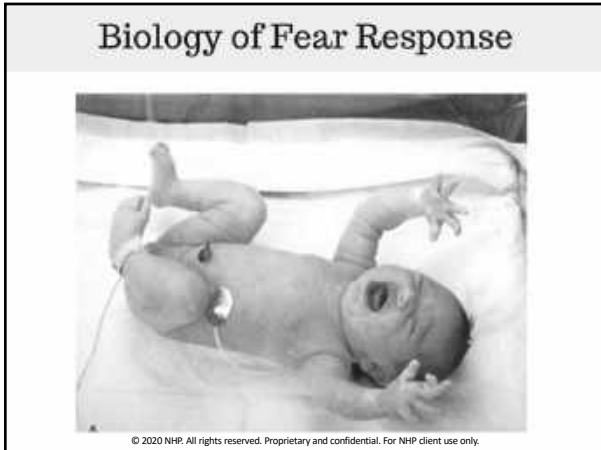
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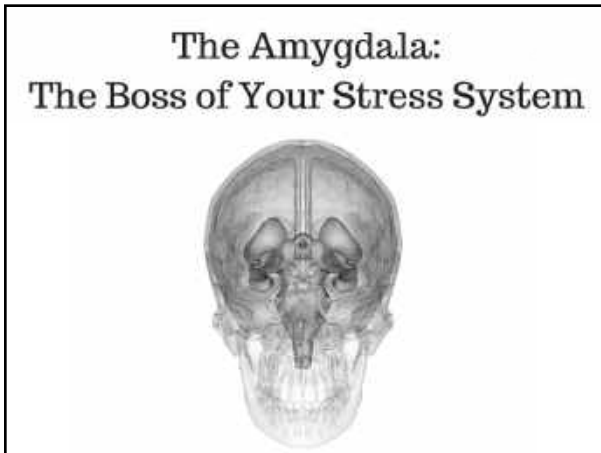
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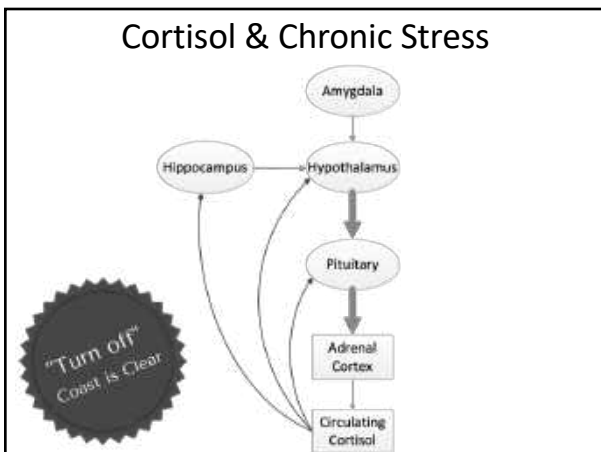
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Chronic Stress, Cortisol & the Body

- Weight gain
- Muscle weakness
- Immune suppression

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Chronic Stress, Cortisol & the Brain


- Feeling like you can't focus?
- Trouble thinking clearly?
- More difficult to remember?
- Feeling more emotional?
- More likely to have outbursts?

Cortisol attacks "intellectual" brain and strengthens "emotional" brain.

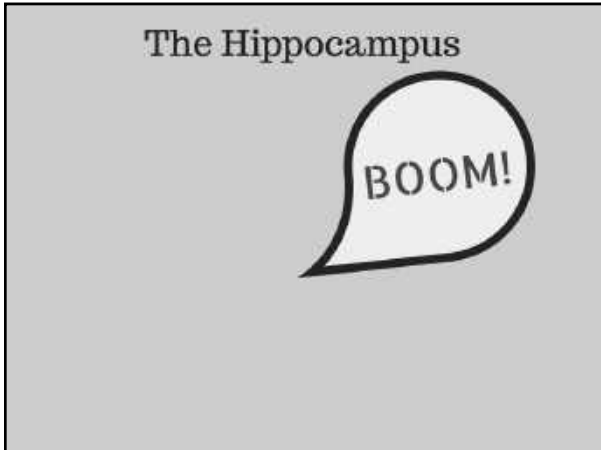
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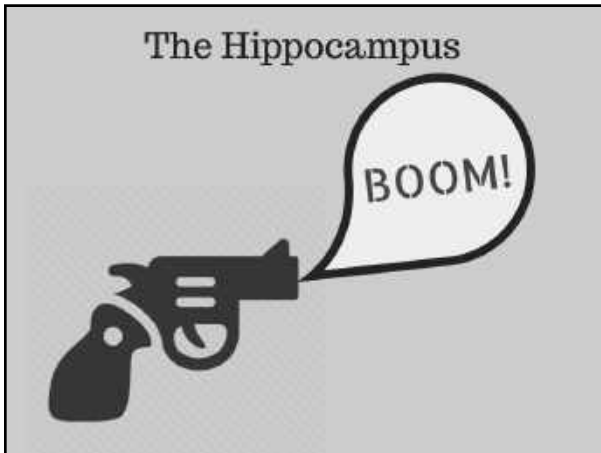
The Hippocampus: Your Historian



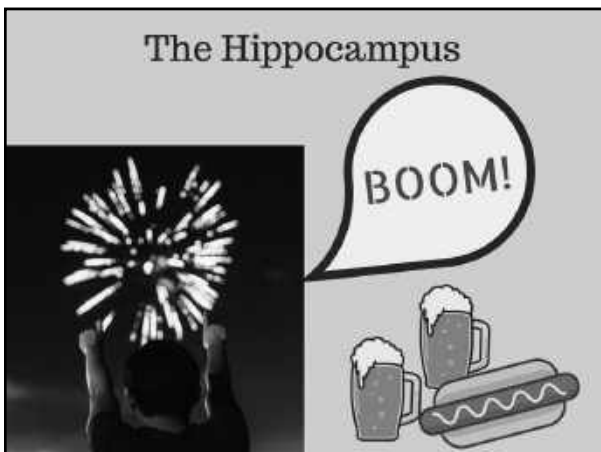
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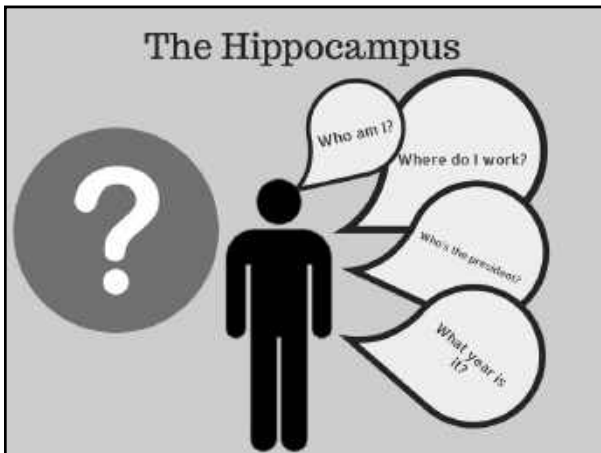
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Putting It All Together

Amygdala

mPFC

Hippocampus

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Putting It All Together: Healthy Brain

Stimuli

Danger

Contextualize

Regulate

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Putting It All Together: Severe Stress

Stimuli

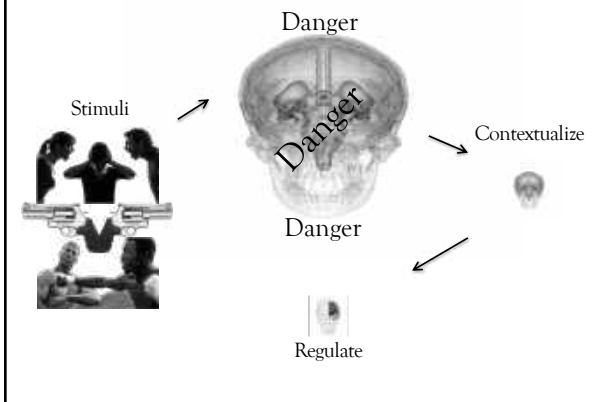
Danger

Contextualize

Regulate

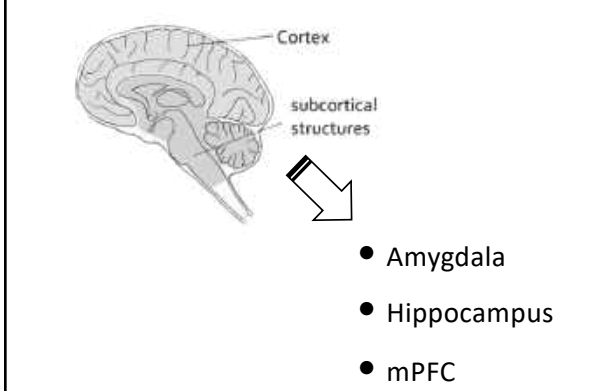
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Putting It All Together: A Lifetime of Stress



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Putting It All Together: Sub-Summary



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Learning Objectives

1. Utilize practical ways of talking to clients about how their brains work and how to improve wellbeing
 - Brain as Pattern Detector
 - Tale of 2 Brains
 - Amygdala = Boss of Stress System
 - Hippocampus = Historian
 - mPFC = Commander in Chief
2. Examine effects of stress + trauma on brain
 - What stress does to brain
 - What parts of brain it harms
 - Hippocampus
 - mPFC
 - Role of cortisol


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 **Stress + the Human Response**

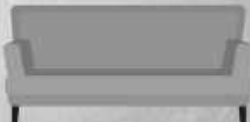


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 **NeuroHealth Partners**

The Brain on the Couch

Where We're Trying to Go and What
the Brain Can Tell Us about
How to Get There



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 **What is the #1 Goal of Treatment?**





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 What is the #1 Goal of Treatment?




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 Is Change Possible?

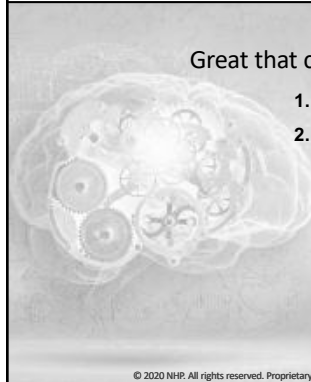


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 Why Is Change So Hard?


Great that change is possible, but...

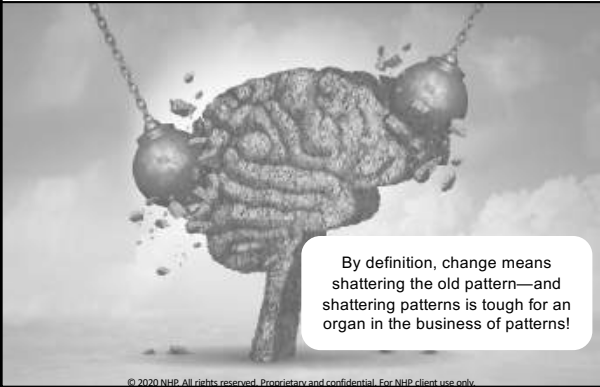


1. **Why** is it so hard?
2. **How** can we help clients increase insight into why it's so tough?

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 **Why Is Change So Hard?**




By definition, change means shattering the old pattern—and shattering patterns is tough for an organ in the business of patterns!

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 **Clinicians' Role in Transformation**



- Many excellent tools to aid in transformation
- We will focus on:
 1. Safety
 2. Approaching the Avoidance


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 **What's best predictor of therapeutic success?**



Rapport accounts for 85% of treatment success


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Therapeutic Safety


Being able to feel safe with other people is probably the single most important aspect of mental health. Safe connections are fundamental to a meaningful and satisfying life.

- Bessel van der Kolk




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Therapeutic Safety


- Safety is essential because the issues we deal with in treatment are fundamentally about threat (i.e., a lack of safety)
 - Trauma
 - Abuse
 - Abandonment
 - Inadequacy and shame



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Change in the Adult Brain

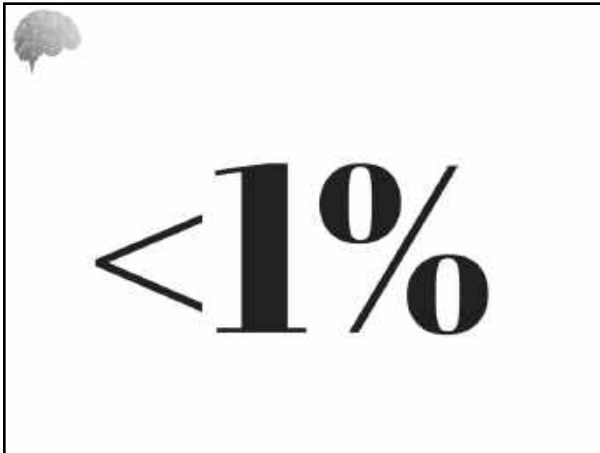


Safety:
Necessary but insufficient

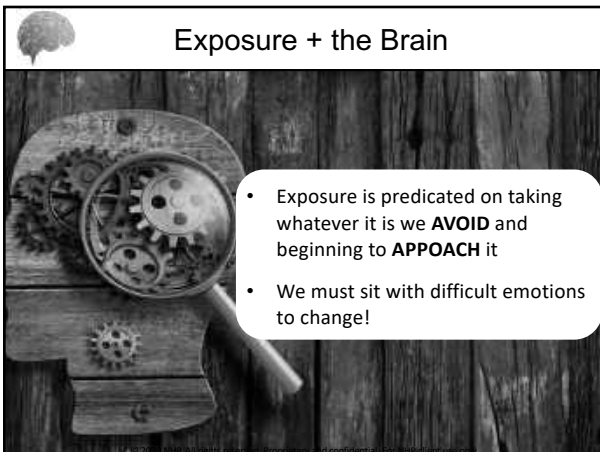
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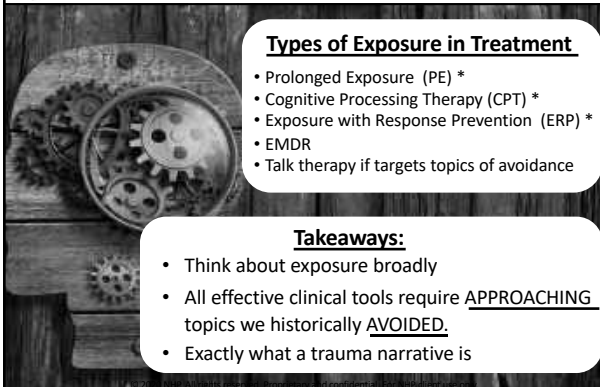


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Exposure + the Brain



Types of Exposure in Treatment

- Prolonged Exposure (PE) *
- Cognitive Processing Therapy (CPT) *
- Exposure with Response Prevention (ERP) *
- EMDR
- Talk therapy if targets topics of avoidance

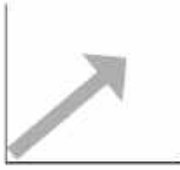
Takeaways:

- Think about exposure broadly
- All effective clinical tools require APPROACHING topics we historically AVOIDED.
- Exactly what a trauma narrative is

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Why Does Exposure Work

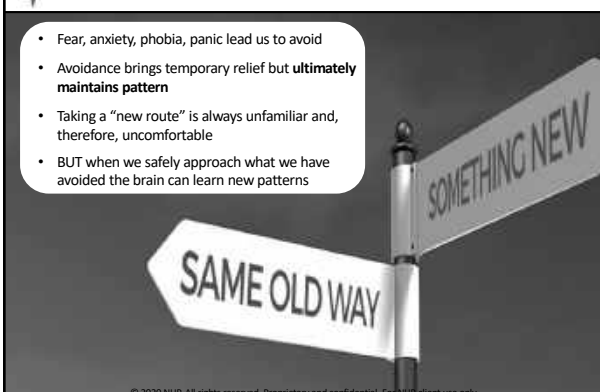
- ▶ Avoidance is a biological response to pain.
- ▶ So is habituation: It is biologically IMPOSSIBLE to have a forever-increasing fear response.



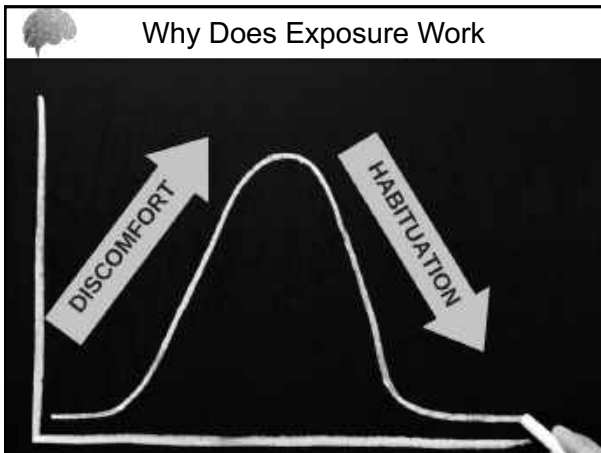
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Why Does Exposure Work

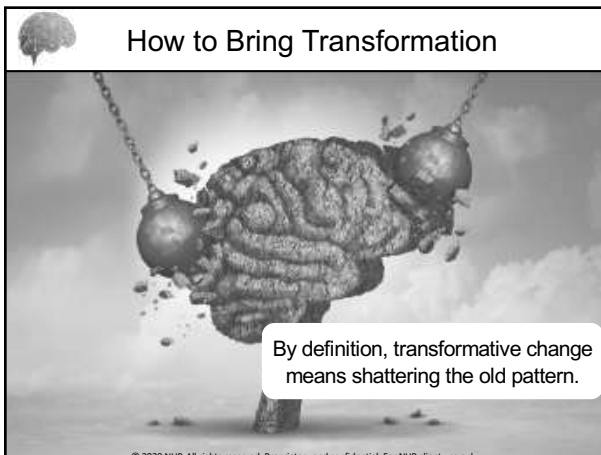
- Fear, anxiety, phobia, panic lead us to avoid
- Avoidance brings temporary relief but **ultimately maintains pattern**
- Taking a "new route" is always unfamiliar and, therefore, uncomfortable
- BUT when we safely approach what we have avoided the brain can learn new patterns



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Learning Objectives

- Utilize practical ways of talking to clients about how brains work and how to improve wellbeing
 - Brain as Pattern Detector
 - Tale of 2 Brains
 - Amygdala = Boss of Stress System
 - Hippocampus = Historian
 - mPFC = Commander in Chief
- Examine effects of stress + trauma on brain
 - What stress does to brain
 - What parts of brain it harms
 - Hippocampus
 - mPFC
 - Role of cortisol
- Examine evidence-based strategies for promoting resilience and calming the anxious brain.
 - Detailed explanation of exposure and its relationship to change

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NeuroHealth Partners

Thank you.

Curious how neuroscience can distinguish you as a clinician?

Want more **tools, scripts, and practical strategies?**
Check out **Online CE course** with many practical tools

Individual + Group training for Clinicians: Learn more about customized trainings in evidence-based practices like PE or ERP.

Book on "Wisdom of Wise Leadership" coming in Spring 2021

We love hearing from you:
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