POST TRAUMATIC STRESS DISORDER

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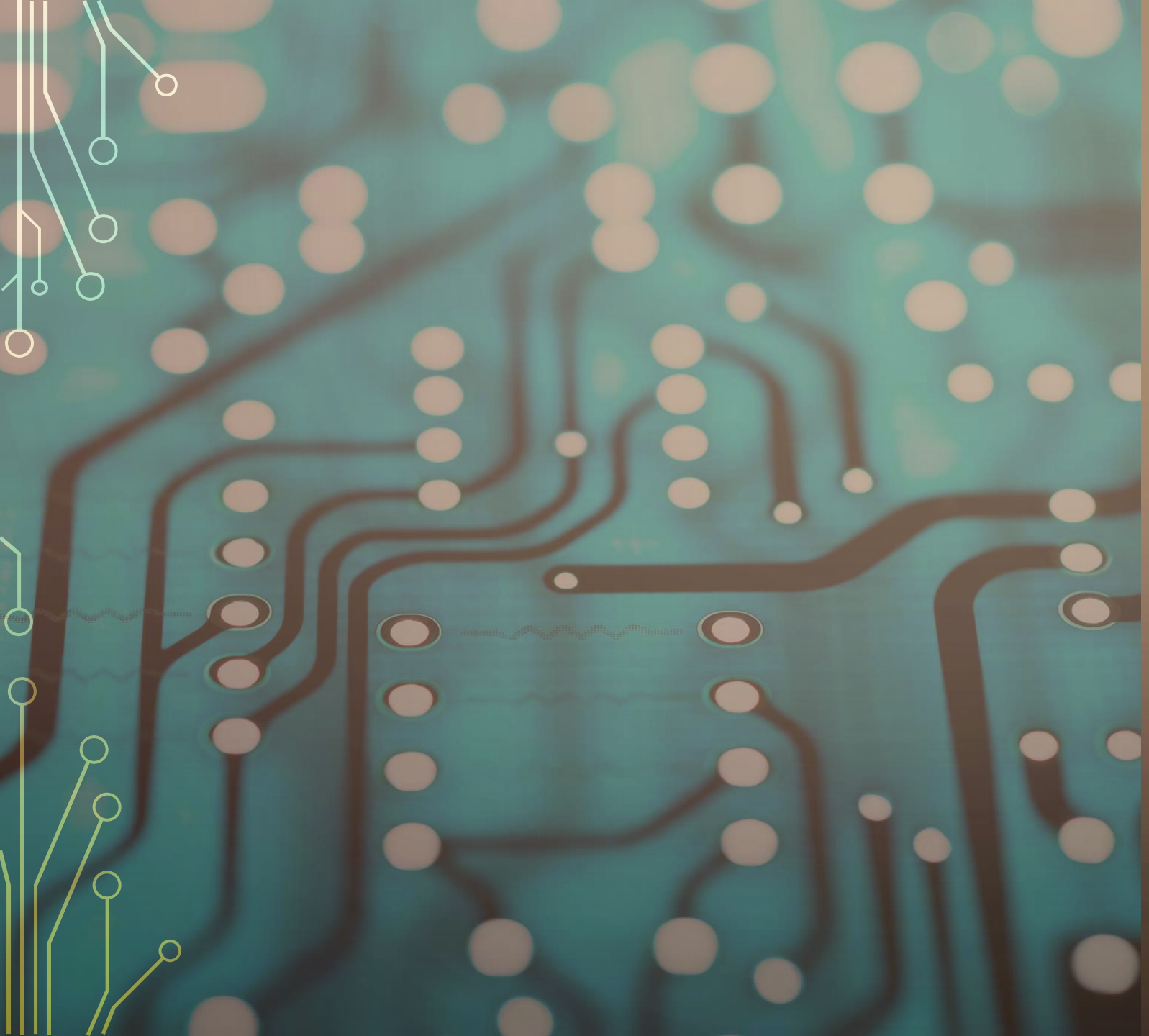


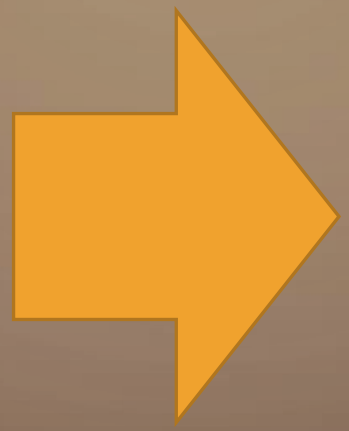
TITLES

- What is the PTSD?
- History of PTSD
- Individual deference and PTSD.
- Cognitive Models of PTSD
- Neuroimaging and PTSD
- PTSD and social life

EXTREME STRESSORS

Some examples…

- Military combat
- Violent personal assault
- Terrorist attack
- Kidnapping
- Natural or Manmade disasters
- Diagnosed with life threatening illness or injury



Neurobiological changes in the brain

Behavioral changes

INDIVIDUAL DIFFERENCES

- Trauma is common
- About 20% of children and about 10% of adults develop PTSD after trauma
- Untreated symptoms may become chronic
- Some approaches may worsen PTSD

DIAGNOSIS

1. Intrusion - re-experiencing thoughts, intrusive flashbacks, vivid memories, recurring dreams
2. Avoidance - Distress on re-exposure, leading to avoidance of similar circumstances
3. Hyperarousal – anxious, hypervigilance, sleep disturbance, irritability
4. Negative thoughts and mood. – guilt, emotional numbness, detachment
5. Cognitive problems in memory and attention

OTHER REACTION TO TRAUMA

- Depression
- Panic disorder
- Specific phobias
- Behavioral problems
- Attentional problems

Post Traumatic Growth

SOCIAL FUNCTIONING

BIG CHANGES

- Withdrawal / Isolation
- Impulsive
- Aggressive / Acting out
- Short Attention Span
- Self Focused / “Selfish” / Childlike
- Angry
- Controlling

FAMILY AND FRIENDS

- Isolates from others, even at home
- May be “uninvolved”
- Detachment
- “Clingy-ness”
- Routines are disrupted
- Roles are altered

WHAT MIGHT HELP

- Give self and family time to adjust
- Create a routine
- Communicate, communicate, communicate
- Set aside “alone” time
- Set aside “family” time
- Monitor and minimize substance use

ACADEMIC

BIG CHANGES

- Loss of Concentration / Distractable
- Inability to sit still
- “Speaks out” in class
- Disorganized
- Easily Frustrated / “Slow” to learn

WHAT MIGHT HELP

- Set aside study times that are brief and consistent/daily
- Consider testing in separate room and/or extended time
- Use a study partner
- Practice going outside your comfort zone in simple, small ways to start

OCCUPATIONAL

BIG CHANGES

- Not Reliable
- Frustrates Easily
- Loss of Concentration
- Difficulty Getting Along with Supervisors and Co-workers
- Frequent Mistakes
- Over Controlling -or- Appears to “not care”

WHAT MIGHT HELP

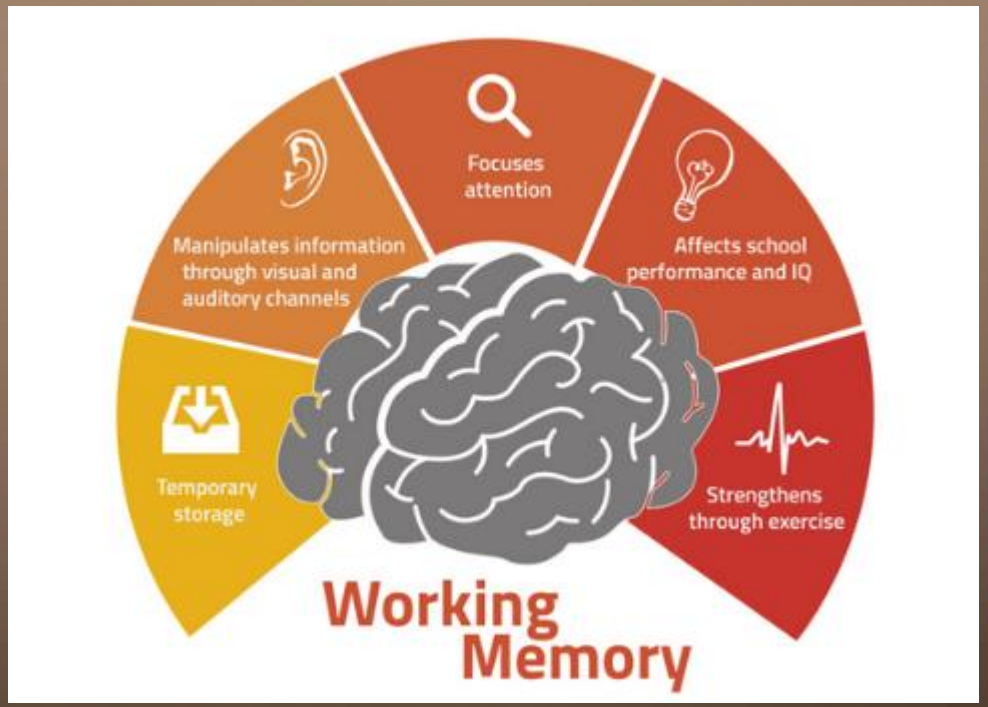
- Consider employment options carefully
- Practice going outside your comfort zone in small ways
- Use relaxation and visualization techniques
- Improve surroundings in small but meaningful ways

COGNITIVE IMPAIRMENTS

COGNITIVE IMPAIRMENTS

- Working memory, attention control, perception…
- Intrusion, rumination, re-experiencing symptoms, hyper-arousal and their debilitating impact on cognitive skills and everyday life
- Urgent need for intervention

WORKING MEMORY AND PTSD



COGNITIVE PROBLEMS AND PTSD

- Working memory as the supervisory system in the brain
- Working memory capacity and efficiency
- Cognitive efficiency and attention control
- Cognition-emotion interactions

BRAIN CIRCUITS AND PTSD

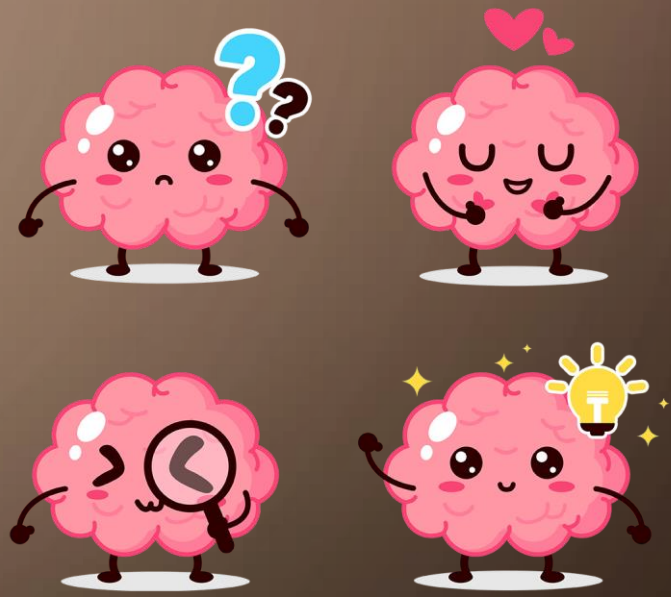
EMOTIONAL BRAIN

- Amygdala and fear theory

- The hippocampus (just above the amygdala) applies context to the situation, and helps to regulate the amygdala and other functions in the brain

- The prefrontal cortex (PFC) is the front part of the frontal lobe. This brain region has been implicated in planning complex cognitive behavior, personality expression, decision making, and moderating social behaviors.

- PFC seems to use our emotional reactions to model our behavior and control emotional reactions in certain social situations



BRAIN CIRCUITS AND PTSD

- The amygdala is hyperresponsive in PTSD, which may account for exaggerated fear responses and the persistence of traumatic memories.

- Portions of the ventromedial prefrontal cortex function (vmPFC) are hyporesponsive and fail to inhibit the amygdala

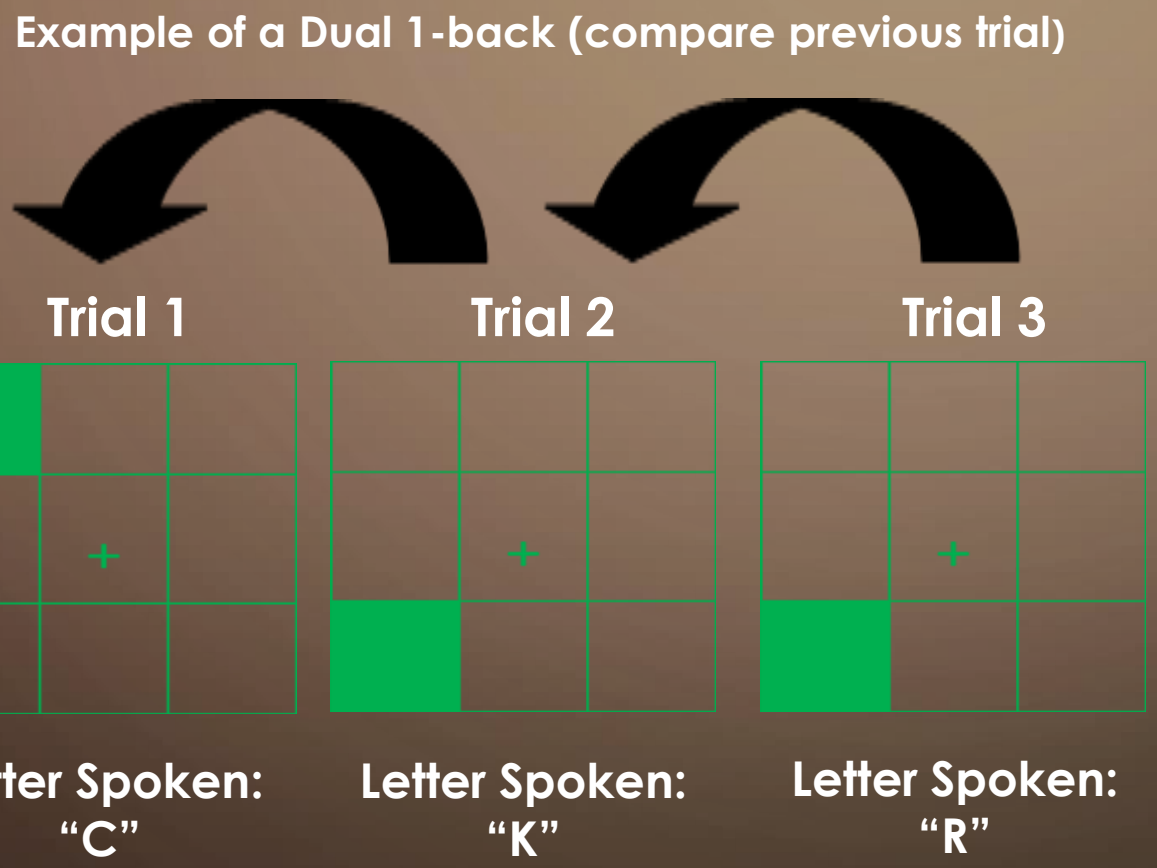
- A hyperresponsive amygdala and hyporesponsive medial prefrontal cortex (mPFC) may potentially lead to deficits in extinction, emotion regulation, attention, and contextual processing (Liberzon and Sripada, 2008)

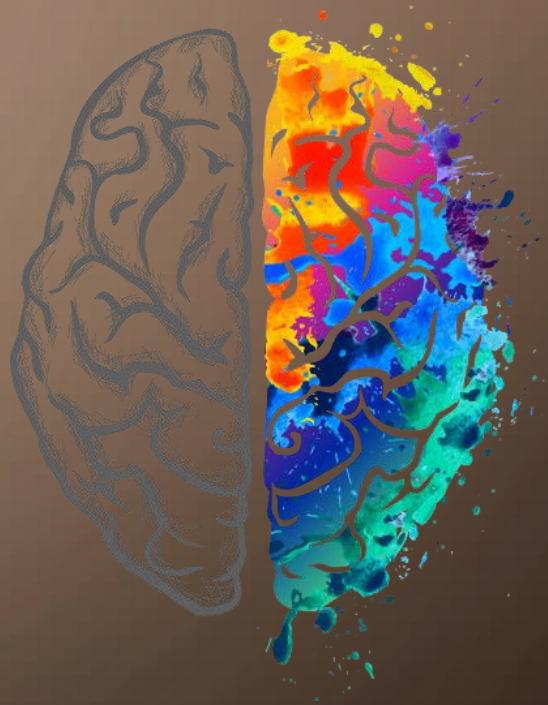
AMYGDALA AND MEDIAL PREFRONTAL CORTEX

- Resilience to PTSD may be associated with relatively decreased amygdala activation (Osuch et al, 2008).
- **Diminished hippocampal volumes in PTSD patients.**
- **Poor connectivity between hippocampus and mPFC**

COGNITIVE TRAINING

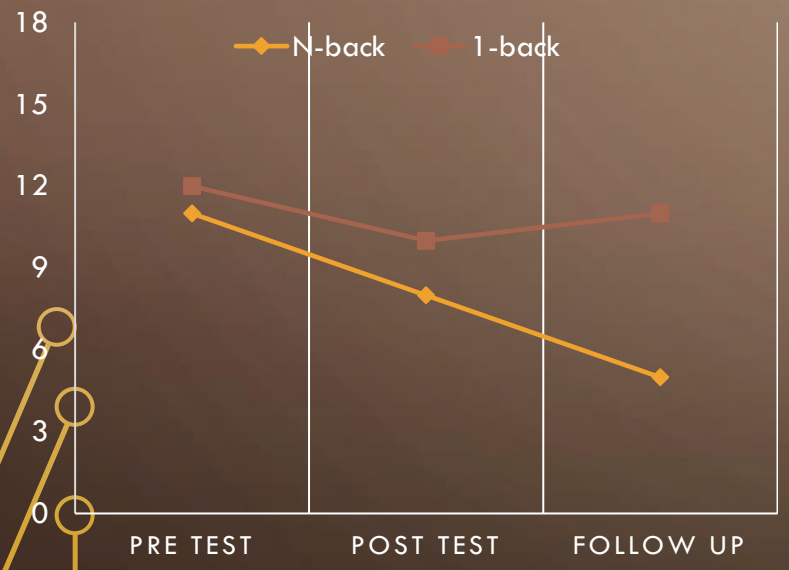
COGNITIVE TRAINING IN PTSD (JAEGGI ET AL. 2008 – 2014; AU ET AL. 2014).



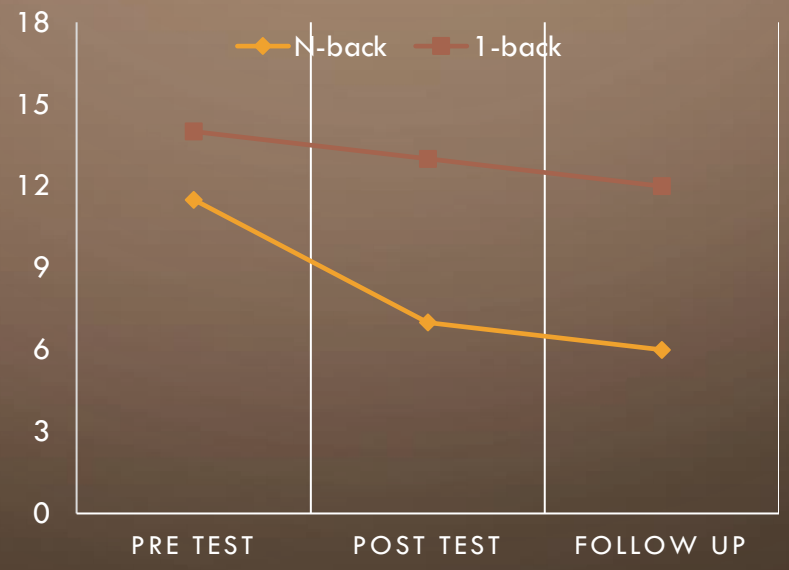


Adaptive dual n-back training and PTSD symptoms

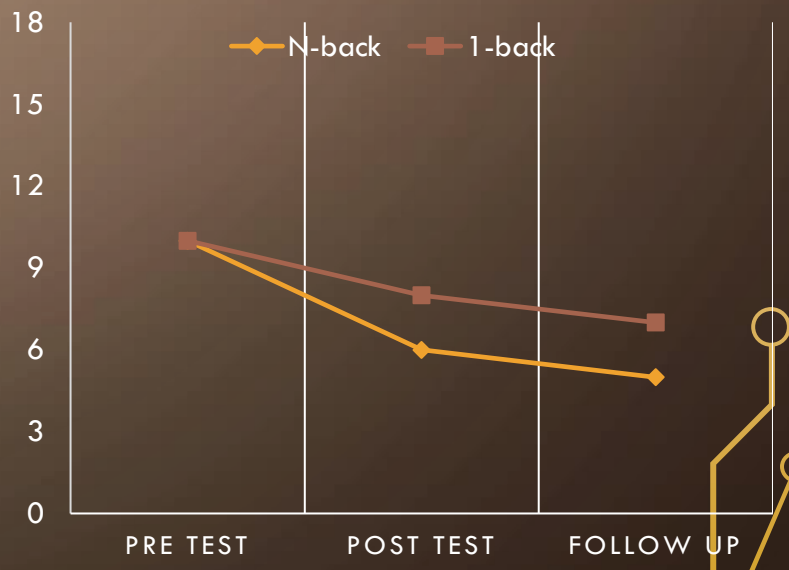
Intrusion



Avoidance



Hyperarousal



THANK YOU!