

Sexual Assault

Brain, Experience, Behavior, Memory

Massachusetts Campus Safety and Violence
Prevention Conference – Sept. 28, 2016

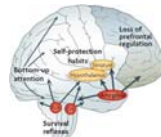
Jim Hopper, Ph.D.

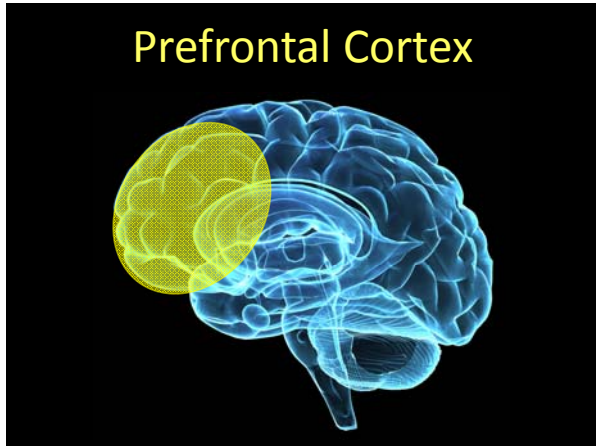
Independent Consultant &
Harvard Medical School
drhopper@jimhopper.com



Fear Circuitry in Control

- Loss of prefrontal regulation
- Bottom-up attention
- Survival reflexes
- Self-protection habits
- Altered memory encoding and consolidation





**High Stress and Fear =
Impaired Prefrontal Cortex**

Arnsten 1998, Science, 280, 1711-1712; Arnsten 2009, Nature Reviews Neuroscience, 10, 410-422



Survival Reflexes

Fight or flight?

We evolved to **freeze first**,
then **flee** if possible.

Freeze



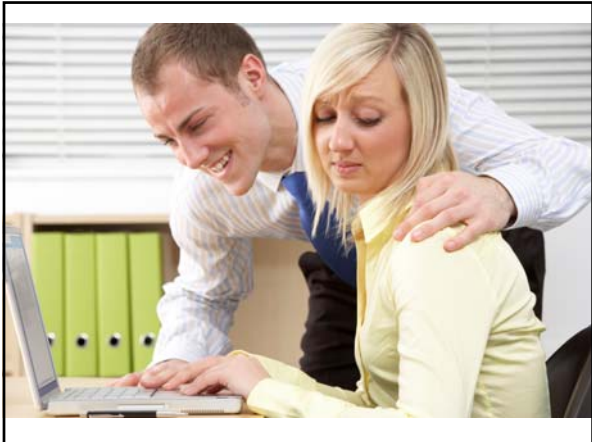
Ready to suddenly burst into action

When the
fear
kicks in



Self-Protection Habits

- **Polite** responses to dominant or aggressive people
- **Polite** responses to unwanted sexual advances
- **Hoping** and **pretending** its no big deal – trying to **save face**



Fear-Habit Paradox

From normal, expected scenario
to **unexpected attack...**

Fear-based responses can be
habitual behaviors appropriate to
scenario that's **just been left behind**

e.g., Schwabe 2013, *Hippocampus*, 1035-1043; Packard 2009, *Brain Research*, 121-128

I have to leave soon.
You've got a girlfriend.
My roommate is home.
My boyfriend will be angry.

Real Case

Perpetrator describing methods on social media:

“Feign intimacy,” “then stab them in the back”
and “THROW EM IN THE DUMPSTER.”

His victim at trial:

- “I didn’t kick or scream or push.”
- “I felt like I was frozen.”
- “I tried to be as polite as possible.”
- “I wanted to not cause a conflict”
- “I didn’t want to offend him.”





Escape When There's No (Perceived) Escape

Drastic survival reflexes...

Dissociation

Blanked/Spaced Out
Disconnected from Body
Autopilot

20



Tonic Immobility

- Freezing = Alert and immobile, but **able** to move
- Tonic immobility = **Paralysis, can't move or speak**
- **Caused by** extreme fear, physical contact with perpetrator, restraint, **perception** of inescapability
- **Not uncommon in sexual and non-sexual assaults**

Marx et al. 2008, *Clin Psychol Sci Practice*, 74; Bovin et al. 2008, *J Trauma Stress*, 402; Brickman & Briere 1984, *Int J Women's Studies*, 195; Fuse et al. 2007, *J Anx Disord*, 265





Collapsed Immobility

Key differences from tonic immobility

- Physiological cause = Heart gets massive parasympathetic input, resulting in...
- Extreme ↓ in heart rate and blood pressure
- Faintness, "sleepiness" or loss of consciousness
- Loss of muscle tone – Collapsed, limp, etc.

Kozlowski et al., 2015, *Harvard Rev Psychiatry*, 1-25; Baldwin 2013, *Neurosci Biobehav Rev*, 1549





I felt like a rag doll.



He was just moving me around.

Did not resist
No attempt to escape
Did not scream
'Active participant'

Sexual Assault
and Memory

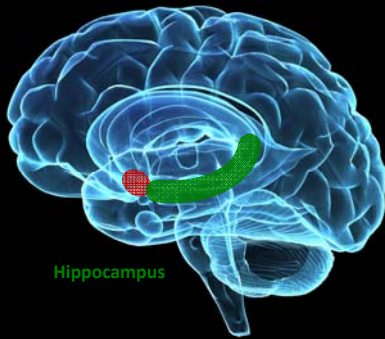
Bottom-Up Attention and Memory

Fear circuitry focus: **what seems most important** to survival and coping

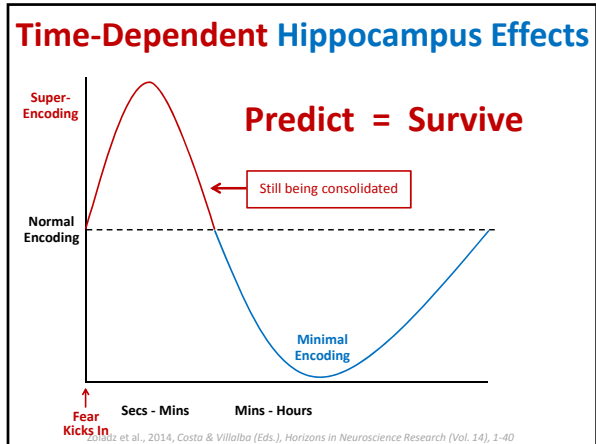
Attended = **Central Details** = Encoded



Episodic Memory Circuitry

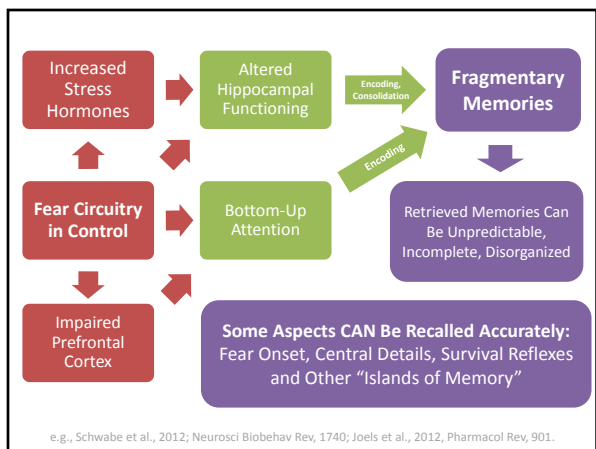


When the
fear
kicks in



What Gets Encoded and Consolidated

- **Fragments** 'burned into' memory
- **Islands** of memory
- **Few** peripheral details
- **Little or no** time-sequence information
- **Little or no** words or narrative



Vulnerability to Distortion?

- Central Details = Very Low Vulnerability
- Peripheral details = High Vulnerability



Does alcohol change any of this?

Alcohol and Memory

- **Low-moderate dose/intoxication**
 - Impairs context encoding
 - Does not impair encoding of sensations
 - Resembles effect of fear/trauma
- **High dose/intoxication:**
 - Impairs hippocampus-mediated encoding and consolidation of both context and sensations

Melia... LeDoux, 1996, Neuroscience, 74, 313
Bisby et al. 2009, Psychopharmacology, 204, 655; Bisby et al. 2010, Biol Psychiatry, 68, 280

Where there is a **FRAGMENT**
there was usually...

FEAR **HORROR**
 **PAIN**

So **listen** and **explore** for them

Islands of Memory

- **Micro-islands** – Fragmentary sensations
- **Larger islands** – Key periods within assault
 - Early phase, especially **habit-based responses**
 - When **fear kicked in**, right before and after
- **Survival reflexes**
 - Freezing
 - Dissociation
 - Tonic Immobility
 - Collapsed Immobility
- **Defeat / giving up**



**Are you getting information
about brain-based responses?**

**Are you getting central details?
Islands of memory?**

