Sexual Assault

Normal and Brain-based,
Central to Consent vs. Non-consent,
but Commonly Misunderstood
Responses and Behaviors

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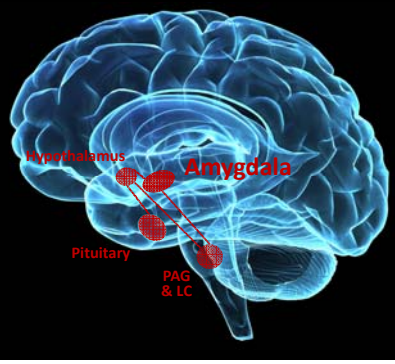
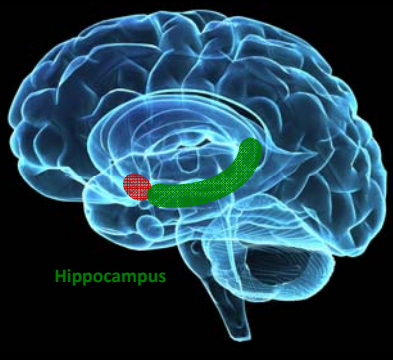
Prefrontal Cortex

Fear Circuitry

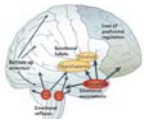


Episodic Memory Circuitry



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

Hains & Arnsten 2008, *Learning and Memory*, 551

Survival Reflexes

Fight or flight?

Freeze

Ready to suddenly burst into action

When the

fear

kicks in

Going out for a nice dinner…

Escape When There's No (Perceived) Escape

Drastic survival reflexes…

Dissociation

Disintegrated experience

Dissociation During Trauma

Blanked/Spaced Out

Disconnected from Body

Autopilot

Overpowered, Dissociates

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

Tonic Immobility

- **Response over 300 million years old**
- Sudden onset, usually after failed struggle
- Sudden termination
- **Can last from seconds to hours**
- **Does not impair alertness or memory encoding**

Humphreys et al. 2010, J Interpersonal Viol, 358

Tonic Immobility

Other common elements / *Evidence to look for:*

- Fixed or unfocused staring
- Intermittent periods of eye closure
- Rigid or trembling muscles
- Sensations of coldness
- Numbness or insensitivity to pain

Marx et al. 2008, *Clin Psychol Sci Practice*, 74; Bovin et al. 2008, J Trauma Stress, 402

Collapsed Immobility

Similar to tonic immobility

- **Can't move or speak**
- **Causes =** extreme fear, physical contact with perpetrator, restraint, **perceived** inescapability
- **Evolutionarily old response** (and more recent-human version associated with blood-injury)
- **Sudden onset** (but more gradual offset)

Kozlowski et al., in press, *Harvard Rev Psychiatry* ; Baldwin 2013, *Neurosci Biobehav Rev*, 1549; Bracha 2004, *CNS Spectrums*, 679

Collapsed Immobility

Key <u>differences</u> from TI

- **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., in press, *Harvard Rev Psychiatry* ; Baldwin 2013, *Neurosci Biobehav Rev*, 1549

Collapsed Immobility

Other aspects / *Things to be aware of:*

- Often goes with **mental defeat**
- Can be triggered by seeing blood, skin puncture, knife or other sharp object
- More likely in women than men
- More likely in those who faint while having blood drawn

Kozlowski et al., in press, *Harvard Rev Psychiatry;* Bracha 2004, *CNS Spectrums*, 679

Self-Protection Habits

Especially from childhood abuse

Did not resist

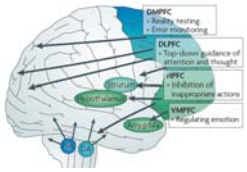
No attempt to escape

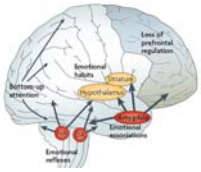
Did not scream

'Active participant'

"I just wanted to get it over with."

If this happened 10 times? 50?





Perpetrator

- Not stressed
- **Prefrontal cortex in control**
- Thinking and behavior:
  - Planned
  - Practiced
  - Habitual

Victim

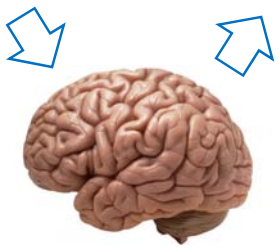
- Afraid, overwhelmed
- **Fear circuitry in control**
- Attention and thoughts driven by perpetrator actions
- Behavior controlled by survival reflexes and habits from childhood (incl. abuse)

Sexual Assault and Memory

No Special Mechanisms

Well-Established Neuroscience and Memory Research

Encoding **Retrieval**

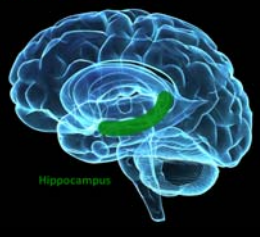


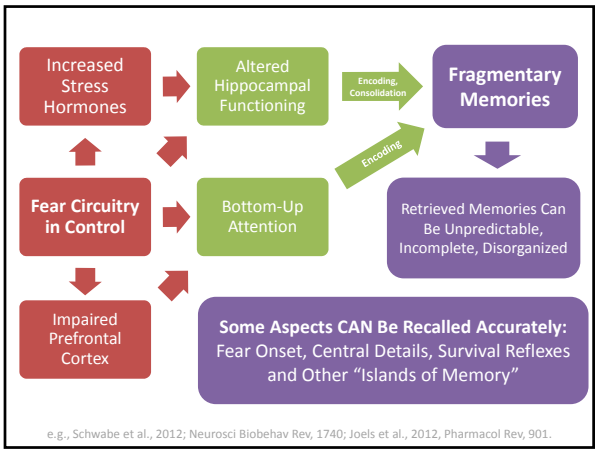
Consolidation/Storage

Explicit Memory Formation

Encoding → **Consolidation** → Stored Memory

Episodic Memory Circuitry





e.g., Schwabe et al., 2012; Neurosci Biobehav Rev, 1740; Joels et al., 2012, Pharmacol Rev, 901.

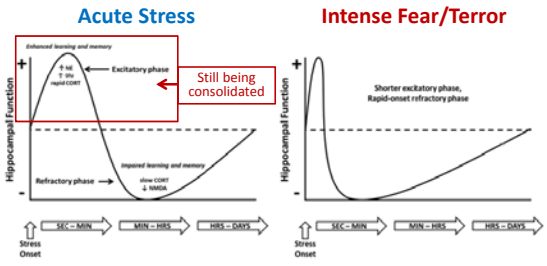
Assault, Attention and Memory

Mostly Bottom-up Attention

Focused on what seems most important to survival and coping in the moment

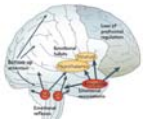
- **Central Details** are encoded
- Consequences for memories

Time-Dependent Memory Effects



Zoladz et al., 2014, *Costa & Villalba (Eds.), Horizons in Neuroscience Research (Vol. 14), 1-40*

What Gets Encoded and Consolidated

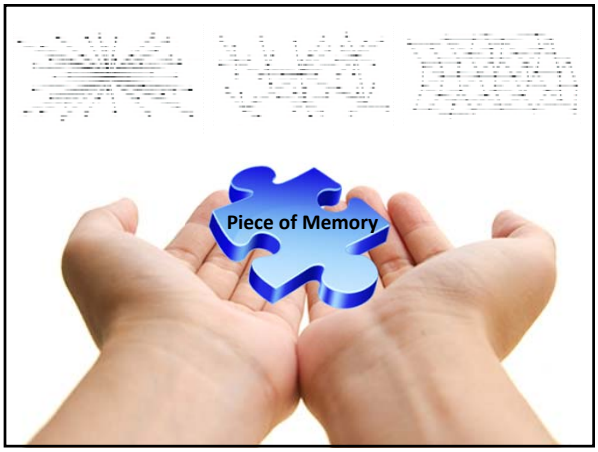


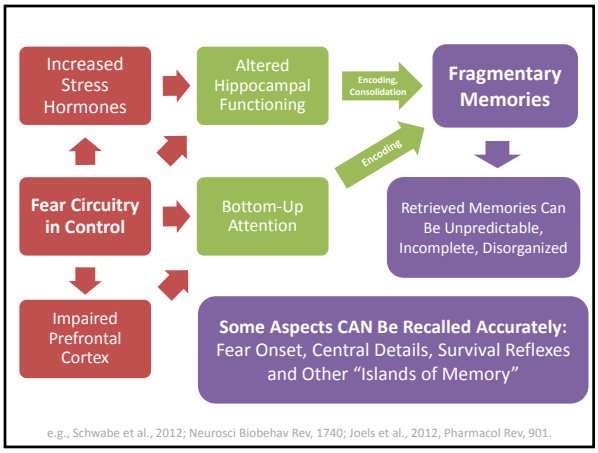
- **Fragments** 'burned into' memory
- **Islands** of memory
- **Few** peripheral details
- **Little or no** time-sequence information
- **Little or no** words or narrative

Interviewer Questions = Retrieval Cues

Retrieval:

Top-Down vs. Bottom-Up





e.g., Schwabe et al., 2012; Neurosci Biobehav Rev, 1740; Joels et al., 2012, Pharmacol Rev, 901.

Vulnerability to Distortion?

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

Explicit vs. Implicit Memory

Explicit = You know it's a memory.

Implicit = You don't realize it's a memory, may not even realize it's happening.

Implicit Memory Examples

Whenever hands near husband's buttocks,
"He'd clam up, close up like a vault."

"Remember any sounds?"
Hand movements and then,
"The sound of bare feet on a wood floor."

Hands on wrists; raise arms above head,
Extreme distress, never knows as "memory."

Is your case focused on central details?

Did you miss any implicit memories?

Totally Normal,
Brain-based, but
Commonly Misunderstood

Does alcohol change any of this?

Alcohol and Fear

Low and moderate intoxication…

- **↓ Vigilance = Missing danger signs**
- **Eventually, danger/ assault detected…**
- **Realize impairment = ↑ Fear**

Alcohol and Memory

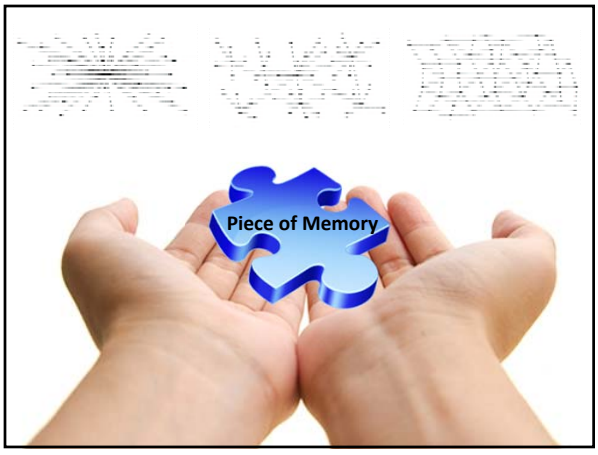
- **Low dose/intoxication**
  - Impairs context encoding (hippocampus)
  - Does not impair encoding of sensations
  - Resembles effect of fear/trauma
- **High dose/intoxication:**
  - Impairs hippocampus-mediated encoding and consolidation of both context and sensations
  - Does not necessarily impair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

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

Implications for Investigative Interviews

Listen for, Probe and Explore ***Islands of Memory***

- **Micro-islands** – Fragmentary sensations
- **Larger islands** – Key periods within assault
  - When **fear kicked in**, right before and after
  - **Survival reflexes – Indicators of non-consent**
    - Freezing
    - Dissociation
    - Tonic Immobility
    - Collapsed Immobility



Look for, Probe and Explore Evidence of Implicit Memory

- **Assault-Related Sensations or Movements?**
  - Observable in interview?
  - Bring to attention with gentle exploration
- **Things complainant or others may observe?**
  - Triggered by (possible) reminders?
  - Behaviors while asleep or dreaming?

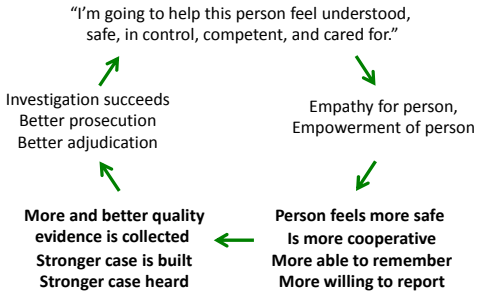
Expect Little, Don't Push

- Peripheral details
- Contextual information
- Time-sequence information
- Organized or coherent narrative

Other Things to Remember

1. **Top-down and bottom-up** retrieval cues have huge effects on what gets activated, retrieved, and reported.
2. **Type and length of a question** affect what gets activated, retrieved, and reported. Keep simple, short.
3. **Tone of voice, body language and word choice** have huge effects on what gets activated, retrieved, and reported.
4. **Emotional and physiological responses** of victims – to questions and how they're asked – affect what gets activated, retrieved, and reported.

Empowerment, Empathy, Compassion = More Objective Evidence, Better Case



Are you empowering and connecting with the victim?

Are you getting central details? Islands of memory? Implicit memories?

Are you getting evidence of brain-based trauma responses?