



Student Conduct Institute

Neurobiology of Sexual Assault Trauma - Part 1: Introduction



This course was created by Jim Hopper, Ph.D., a clinical psychologist and nationally recognized expert on psychological trauma and sexual assault, who has conducted and published research on the neurobiology of psychological trauma and the nature of traumatic memories. Since 2012, Dr. Hopper has trained many professionals around the United States and other countries on this topic, and has created educational writings and videos. For more about Dr. Hopper and his work in this area, see his [website](#) and its section on [Sexual Assault & the Brain](#).

This module, Part 1 of this course, takes about 20 to 25 minutes to complete. It provides critical background information and a foundation for everything that follows.



A Little History



Why This Matters



Don't Make Assumptions



Brain Basics



Quiz



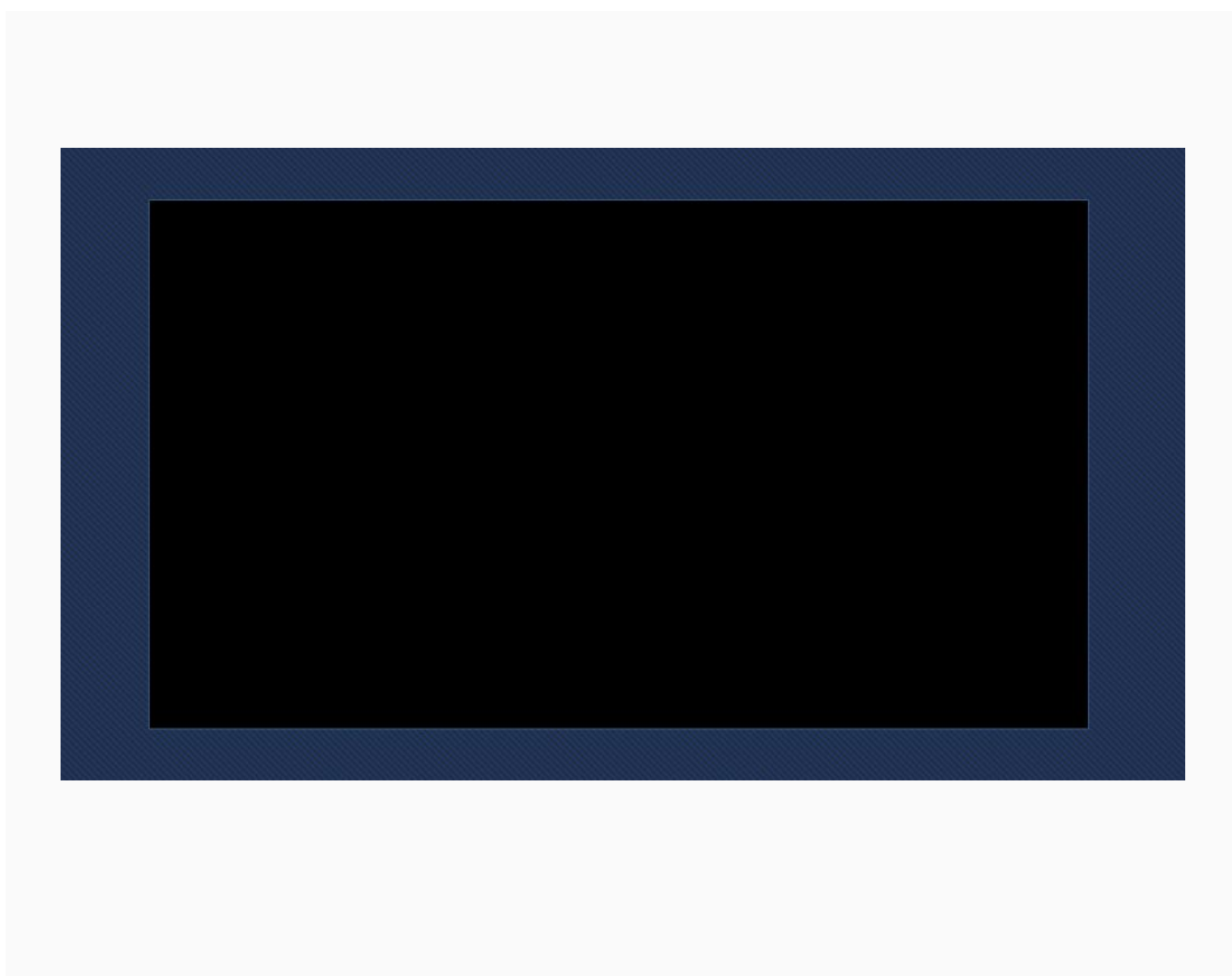
Conclusion

Lesson 1 of 6

A Little History



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Complete the content above before moving on.

Disclaimer



Content warning image - signifies sensitive content ahead

Throughout this module series Dr. Hopper will refer to sensitive and explicit content related to the effects of sexual assault and psychological trauma. Examples provided will include videos, quotes from victims, narration, and/or (sometimes violent) imagery. Some of this information can be

upsetting and difficult to review. There will be content warnings throughout this module in the form of a yellow yield sign with an exclamation point, accompanied by an explanation of the upcoming content. We encourage you to take breaks throughout this module when necessary.



Instructions on how to review the content: Given the sensitive nature of the content in this module series, the following options are available to all learners to complete the modules:

Option 1: Reading the content or utilizing a screen reader for the content in the module.

Option 2: Listening to the narrated portions throughout the module. The narration is available directly above the referenced sections.

Option 3: A combination of both reading the narration and listening to the content on your own.

CONTINUE

A Little History



02:28

[audio narration of content below](#)

The term "the neurobiology of trauma," *as understood by scientists who study stress, psychological trauma and their neurobiological impacts* refers to many things, including changes in brain structure and function that can be long-term consequences of traumatic

experiences. The term means much more to scientists than it does to non-scientists in law enforcement and other professions who work with sexual assault survivors.

That's because, in the year 2000, a psychological trauma expert named David Lisak began teaching about "the neurobiology of trauma" when he translated *some* of that wider universe of scientific research for police officers, prosecutors, judges and others. Dr. Lisak shared scientific knowledge that is particularly helpful for understanding (1) why many victims don't fight or yell during sexual assaults, and (2) why their memories are often fragmented, jumbled, and inconsistent in some details.

In that same tradition, this course focuses on common brain-based impacts of stress and trauma on attention, thinking, behavior, and memory formation *during* sexual assaults. With respect to sexual assault memories, it also focuses on how interviewing practices and a person's stress level when they're attempting to remember can influence what they're able to recall.

One more introductory observation, and some implications: Since 2010, more and more people have attempted to teach "the neurobiology of trauma" to professionals working with sexual assault survivors, in sincere efforts to meet rising demand for such knowledge. Unfortunately, some who teach on this topic have been confused about the neurobiology and memory science and, despite the best of intentions, have spread misunderstandings and contributed to harmful investigative and other practices. This course does not have those problems.

This course provides knowledge that law enforcement, victim advocacy, higher education and other professionals can apply in their work. It may also help some professionals to teach others how this knowledge enhances their work by increasing understanding, compassion, etc. But it's important for people who take this course to understand their own limitations, particularly on the science, and to remember that taking this course does not make one an expert who is qualified to teach this topic.



00:26

[audio narration of content below](#)



"In fact, the science on the neurobiology of stress and trauma is actually quite good, and the real issues are how that science is taught to university staff who aren't scientists, and how they, in turn, apply that teaching on their campuses."

- Jim Hopper, in [Sexual Assault and Neuroscience: Alarmist Claims vs. Facts](#)

CONTINUE

Why This Matters



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00:18

[audio narration of content below](#)

This short section explains why it's important and helpful to understand the basics of how human brains commonly respond to being attacked, stressed, and traumatized.

It also clarifies what this course, and the knowledge it provides, are **not** about.

CONTINUE



02:05

[audio narration of content below](#)

What's the **value** of knowing relevant neurobiology, memory, and other scientific findings?

It can help us answer four common and important questions:

-
- 1 Why didn't the person fight or yell, or otherwise resist or leave?
 - 2 Why do they have memory gaps?
 - 3 Why can't they recall the sequence of what they can remember?
 - 4 Why do they have memories that are inconsistent and/or contradictory?

It can help us understand – and avoid confusing – four scenarios:

- 1 The encounter was **not consensual**, and the accused person **knows** it wasn't consensual.
- 2 The encounter was **not consensual**, but the accused person **sincerely believes** it was consensual.
- 3 The encounter was **consensual**, but the person reporting eventually **reinterpreted** it as not consensual.
- 4 The encounter was **consensual**, and the person reporting sexual assault knows that but is

misrepresenting or lying about what happened. (This is rare, under 10%.)

In scenarios 1 and 2, the person reporting an assault **may have been highly stressed or traumatized** during the encounter. Therefore, how they responded at the time, and how they remember later, **may be consistent** with the neurobiological impacts of stress and trauma.

However, reports of such responses and memories are **not "proof"** of trauma or assault. But they **may be consistent** with them.

This course is **not** focused on scenarios 3 and 4, because neither of those involves stress or trauma during the encounter.

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Yes, awkward and confusing sexual encounters can be re-interpreted afterward and reported as assaults.

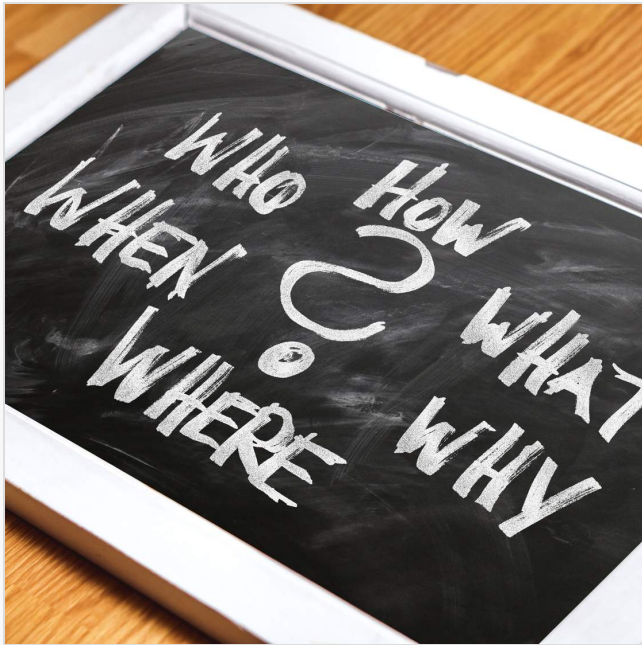
That's not what this course about.



00:51

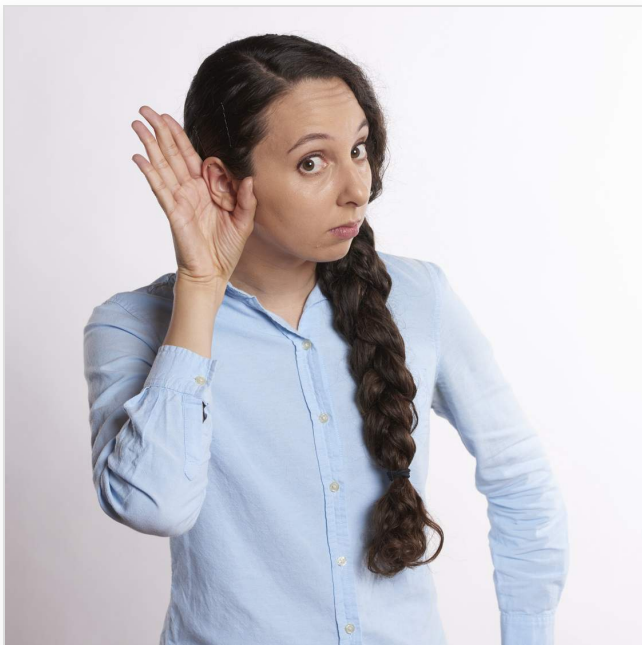
[audio narration of content below](#)

Finally, if you understand the common impacts of stress and trauma on the brain, then you will enjoy **three big benefits** (click on each image):



More realistic expectations.

You won't assume that someone would have fought or yelled, will remember things in linear order, or consistently recall peripheral details.



More perceptive listening.

You'll be more likely to recognize potential indicators of an impaired prefrontal cortex, survival reflexes, and habit behaviors.



More effective information gathering.

When you hear something consistent with freezing, dissociation, habit behavior, etc., you'll know to collect more data.

CONTINUE



00:42

[audio narration of content below](#)

Again, this course is not about:

- Drunken-but-consensual sex
- "Regret sex"
- Anything that was consensual

This course is **only** about understanding the experiences, thoughts, behaviors, and memories of people who were under attack, highly stressed, and/or experiencing trauma.

Unfortunately, many experiences of sexual assault are still misunderstood and wrongly dismissed as "drunken sex" or "regret sex" by poorly trained (and biased) investigators and others. This course is an antidote to the ignorance behind such misunderstandings and dismissals, which are extremely harmful to survivors.



00:35

[audio narration of content below](#)



"What I love about this course is how much sense it makes to me as someone who works with survivors of sexual assault. These automatic responses are exactly what I hear. I know that every person who experiences an assault is different, and all of their stories are different, but they are also so similar! I see the common threads that run through most of their stories. This course, clearly grounded in listening to survivors' experiences, explains the neurobiology behind them."

- **Maya Moore**, Sexual Assault Victim
Advocate

CONTINUE

Don't Make Assumptions



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01:12

[audio narration of content below](#)

Understanding the brain-based impacts of stress and trauma on sexual assault victims can be very helpful. But not understanding – or worse, putting one's misunderstandings into practice – can be very harmful.

It's critical that everyone avoid some flawed assumptions that have derailed some investigations and adjudications in recent years. That's why they're addressed here, at the outset of this course.



Image of the word "assume" in a red circle with a slash.

Never assume...

- That any particular sexual encounter that someone reports was or was not a sexual assault, or even stressful or traumatic at the time.
- That any particular sexual assault or stressful sexual experience will necessarily involve any particular responses or memory characteristics, including the common ones taught in this course.

- That information **consistent** with stress or trauma, including their brain-based impacts, is "**proof**" of stress or trauma, let alone assault.

Please commit to avoiding making such assumptions.

These assumptions are not what this course is advocating.



00:07

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Evidence may accumulate, and you can't help but evaluate it.

But you should never assume.

CONTINUE

Brain Basics



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00:47

[audio narration of content below](#)

Complex but Comprehensible

The brain is the most complex organ in our body, with over 100 billion neurons or brain cells.

Its cells are organized in networks that neuroscientists call **circuitries**, which allow the brain to perform its many processes and functions.

The brain and its circuitries have been shaped by nature and evolution to enable, first and foremost, **survival**.

Three key brain circuitries are focused on in this course: the **defense circuitry**, which includes the amygdala; the executive circuitry, of which the most important part is the **prefrontal cortex**; and the (episodic) **memory circuitry**, which includes the hippocampus.



00:13

[audio narration of content below](#)

"Circuitry" just means a collection of brain areas that work together to perform certain functions.

They're in our smartphones and computers. Neuroscientists understand our brains as having circuitries too.

CONTINUE



01:29

[audio narration of content below](#)

Key Brain Circuitries and Structures

DEFENSE CIRCUITRY

PREFRONTAL CORTEX

EPISODIC MEMORY CIRCUITRY

This collection of brain areas constantly monitors incoming sensory information for signs of danger or threat. When threat or danger is detected, or stress is high, the defense circuitry dominates brain functioning. This circuitry includes the **amygdala** and several other brain structures that evolved millions of years ago because they helped our ancestors survive.

Defense Circuitry



DEFENSE CIRCUITRY

PREFRONTAL CORTEX

EPISODIC MEMORY CIRCUITRY

The prefrontal cortex is the most important part of the **executive circuitry**. Its “executive functions” include top-down attention (based on conscious plans and goals), logical reasoning, self-monitoring (of the current effectiveness of one's thinking and behavior), shifting behavioral strategies, and inhibiting habitual responses. The prefrontal cortex and its executive functions can be rapidly impaired by the defense circuitry under conditions of stress and trauma.

Prefrontal Cortex



DEFENSE CIRCUITRY

PREFRONTAL CORTEX

EPISODIC MEMORY CIRCUITRY

This collection of brain areas enables the encoding, storage, and retrieval of memories of personal experiences. The **hippocampus** (green shape) is a key structure in this circuitry, and the defense circuitry alters its functioning – in time-dependent ways – during stressful and traumatic experiences.

Episodic Memory Circuitry



CONTINUE



00:36

[audio narration of content below](#)



Doesn't the **amygdala** detect danger? Doesn't the amygdala dominate brain function in dangerous situations? Actually, no. The amygdala is just one part of the defense circuitry. It's certainly an important part, but it doesn't do everything you've heard it does. That's why it's **more accurate and helpful to understand these things as functions of the defense circuitry**. For more on the defense circuitry vs. amygdala, and why the term "defense circuitry" has replaced "fear circuitry," read my

blog post, "[In Most Sexual Assaults, 'Defense Circuitry' Runs the Show](#)."



00:27

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You don't need to know most of the brain areas in the circuitries.
You needn't worry about all the brain chemicals involved.

You just need to know about **three key circuitries** and how their
functioning is altered under conditions of attack, stress, and
trauma.

Then you'll understand the **brain basics** underlying **common**
changes in attention, thinking, behavior, and memory formation
during sexual assaults.

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Content warning image - signifies sensitive content ahead

CONTENT WARNING: The following images contain sensitive topics involving responses and memories of sexual assault victims and of armed police officers and soldiers that may be distressing to some people.

CONTINUE



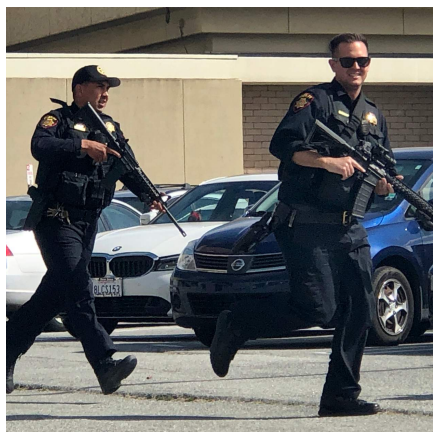
00:32

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It's the **Same Brain**, Whatever the Attack or Trauma

Evolution shaped all of our brains to detect, avoid, and survive attacks by larger predators and other grave dangers. So the common brain-based processes addressed by this course aren't just about sexual assault.

But people often need help to "connect the dots" between the responses and memories of sexual assault victims and those, for example, of police officers and soldiers. When those dots are connected, the learning goes deeper.



Photograph of two uniformed police officers holding large automatic rifles



Black and white image of a person lying on their back while their wrist is



Image of two soldiers, dressed in camouflage and body armor, standing

while running across the pavement in front of several parked cars.

being grabbed by someone outside the frame.

on top of a mountain while aiming their rifles in opposite directions.



01:23

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Defense Circuitry in Control

As mentioned above, when the defense circuitry detects an attack or danger, or when major stress suddenly kicks in, the defense circuitry **rapidly and automatically** (1) dominates the brain and (2) alters the functioning of other circuitries.

To understand what people notice, the ways they think, how they behave, and how they form memories during sexual assaults – and any other dangerous or very stressful experience such as physical assault, military combat, etc. – you need to understand **common effects** of the defense circuitry being in control. It's also very helpful to understand how those effects tend to occur in sequences.

Below are common effects that, once understood, will enable you to have realistic expectations of sexual assault survivors' behaviors and memories; to listen more perceptively to what they share about their experiences; and to elicit additional information more effectively.

This course explains these common effects, and how they tend to unfold over time:



Freezing

- **Impaired prefrontal cortex**
- **Bottom-up attention**
- **Self-protection habits**
- **Extreme survival reflexes**
- **Altered memory encoding and storage**

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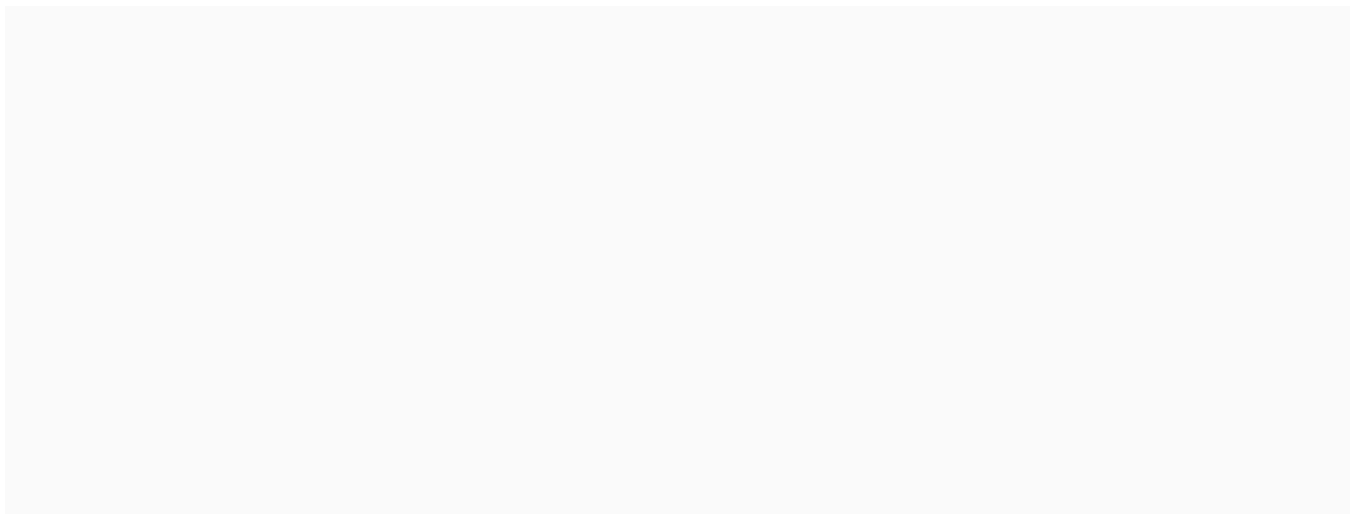


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Video on the Defense Circuitry

Below is a brief video (2 minutes and 15 seconds) on the central role of the brain's defense circuitry in generating common responses to being sexually assaulted.





CONTINUE

Lesson 5 of 6

Quiz



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Please complete the following attestation.

Question

01/01

I attest that I have completed the course in full.

☐

True

☐

False

Conclusion



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We invite you to take an optional Course Feedback Survey to help our team improve your learning experience. The link to this survey is located in the Table of Contents menu.

Please select the "COMPLETE COURSE" tab to finalize your completion of the course.

COMPLETE COURSE

To exit out of the course, please click the "Course Home" tab on the upper left-hand corner of the Navigation Bar.