

Post-Traumatic Stress Disorder

Post-traumatic stress disorder, often called PTSD, is a disorder triggered by traumatic events. It can emerge months or years after the trauma occurred. Since trauma is caused by life events, everyone's trauma is unique to them.

Parts of the brain that are affected by PTSD

- **Frontal Lobe** Involved with behavior, emotions, reactions, motivation
- **Cingulate Cortex** Connects structures involved with emotions and pain
 - Affects emotional instability, depression
- **Amygdala** Involved with emotions
 - Associated with anxiety
- **Hippocampus** Involved with memory
 - Associated with flashbacks

Further Reading

The Brain by BrainFacts.org, 2022. <https://www.brainfacts.org/3d-brain#intro=false&focus=Brain>

An interactive digital 3D brain

Foundations of Neuroscience by Casey Henley, 2021. <https://openbooks.lib.msu.edu/neuroscience/>

A free textbook about how the brain works

Psychiatric medication A to Z by Mind, 2022. <https://www.mind.org.uk/information-support/drugs-and-treatments/medication/drug-names-a-z/>

A list of medications and their side effects

Nursing Pharmacology by Chippewa Valley Technical College, 2020. <https://wtcs.pressbooks.pub/pharmacology/>

A free textbook about medications are processed in the body

DSM-5, 2013.

The diagnostic manual for all mental disorders. It is not open access but can likely be found at your local library

Symptoms of PTSD

PTSD can cause many symptoms, including some that may not seem connected to trauma. These symptoms include:

Intrusive thoughts

Reoccurring dreams connected to the trauma

Flashbacks

Strong emotional reactions to things that are connected to the trauma

Avoiding people, places, and things that remind them of the trauma

Forgetting parts of the trauma

Negative, upsetting beliefs about themselves or the world around them

Constantly feeling negative emotions, or not feeling positive emotions

Changes in behavior, such as feeling irritable or angry for no reason, having trouble concentrating, or having trouble sleeping

Medications often used for PTSD

Most medications used for PTSD work to calm anxiety and overactive brain activity. People with PTSD often have other mental disorders, meaning that it is common for people to also take medications that are not on this list.

- Barbiturates
 - Increases GABA, inhibits glutamate
 - Makes the brain less alert
- Benzodiazepines
 - Increases GABA
 - Receptors concentrated in cortex, thalamus, cerebellum
 - Makes brain less alert
 - More targeted than barbiturates, which is why they're more commonly prescribed
- Antihistamines
 - Blocks histamine
 - Makes the brain less alert

What is Dissociation?

If a person experiences an extreme trauma their brain may start to separate itself from the trauma in order to protect them. This can result in them feeling disconnected from their body or their environment. In some cases, the brain may use memory loss as a form of dissociation.

Neurotransmitters: How Does the Brain Talk to Itself?

Parts of the brain will release chemicals that tell other parts of the brain what to do. Some chemicals will make the brain more active or calm it down, and some are connected with certain moods.

Serotonin involved with mood

Norepinephrine involved with excitement, "fight or flight" response

Histamine involved with excitement, helps tell the body to begin the fight or flight response

Dopamine involved with motivation and movement

Glutamate involved with increasing brain function

GABA involved with calming brain function

Works Cited

Fenster, R. J., Lebois, L. A. M., Ressler, K. J., & Suh, J. (2018). Brain circuit dysfunction in post-traumatic stress disorder: from mouse to man. *Nature Reviews. Neuroscience*, 19(9), 535–551. <https://doi.org/10.1038/s41583-018-0039-7>

Available at <https://europepmc.org/backend/ptpmcrender.fcgi?accid=PMC6148363&blobtype=pdf>

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