Trauma & the Brain

**Normal Experiences vs. Traumatic Experiences**

Normal experiences enter our awareness through our five senses, are processed by our brain, and stored in the memory centre of the brain (the hippocampus) or, if the experience is not important (like what you did on your 10th birthday) it is forgotten. This part of the brain, the hippocampus, gives us the ability to establish a time line—our memories have a beginning, middle, and end. Normal memories can be remembered but are clearly in the past; they also tend to grow more foggy or distant as the years pass.

*Trauma is any experience that leaves you feeling helpless, hopeless, confused, or powerless.* Traumatic experiences come in through our five senses, but are not processed in the normal way. Our brain does not know what to do with traumatic experiences—they don’t make sense or are too overwhelming. The brain “shuts down” the processing and instead sends the information to the amygdala. This part of the brain is the most primitive or animal like—it controls the fight, flight, freeze response that takes over during stressful situations like trauma. The amygdala stores these memories differently. Rather than having a time line, they tend to be more scrambled; you might only remember bits and pieces or you might remember it as if you were outside your body. And rather than fading over time, emotions connected to this experience stay fresh and when you think about the memory it might be like you are experiencing it all over again, traveling back in a time machine to the original trauma.

**Triggers & Dissociation: How our Brain Responses to Trauma**

The brain’s job is to protect you and make sure that these traumatic experiences don’t happen again, or if they do happen again, that you are less hurt. There are several ways the brain does this job:

1. The amygdala keeps a file of everything connected to the information your five senses took in during the traumatic experience—what was going on, what you saw, heard, felt, what time of day it was, who was there, etc. Anytime there are any external reminders of the trauma your brain sends out an alert: Danger!! Your brain triggers the release of chemicals and hormones that make you ready to protect yourself: your heart rate speeds up, your muscles tense, your breathing is rapid, you feel a burst of energy, and are highly aware of what is going on around you. This is the brain’s way of protecting you. However, with PTSD the brain continues to do this even when there’s no danger. Something neutral in your environment can set off your alarm bells causing a danger reaction when there is no danger.
2. The amygdala also keeps a file on what was going on inside your body during the traumatic experience. If during your trauma your heart rate went up, your hands were sweaty, you felt panicky, or short of breath, your brain literally attaches that feeling to the trauma “file.” Whenever you feel that same feeling in your body, the alarm gets triggered. Now sometimes we get that feeling from neutral things like aerobic exercise or being excited and the alarm bells go off, which starts to cause us problems.
3. Another way the amygdala might try to protect you during a trauma is to dissociate or freeze. We see this in nature all the time—a mouse going stiff when being attacked by a cat or gazelle playing dead when being attacked by a lion. This is adaptive or protective because it might later give them a chance to escape when the cat or lion turns away. If you experienced abuse or trauma over a period of time this may be one of the ways your brain tried to protect you. It might have known you couldn’t fight or run away so instead it shut down your awareness so you could survive. If this happened to you, you could have some amnesia or remember memories as if you were standing outside your body or memories might seem very foggy. Again, this is your brain trying to protect you, but after the danger has passed your brain might continue to seem foggy, which can become a problem when you’re trying to live out your life.

**Trauma & the Body**

When the brain is constantly scanning for danger, ready to fight, run away or freeze at anytime, this takes a real toll on your body. During times of stress the brain activates a stress response (called the sympathetic nervous system or SNS). This could be compared to the gas pedal in a car—it speeds everything up. Your SNS responds to the danger signal from your brain and makes your heart and lungs speed up, your muscles tense, your immune system is boosted, and it gives you a burst of energy. When the crisis is over the SNS turns off and the parasympathetic nervous system or PNS turns on. This could be compared to the brake pedal in a car—it slows everything down. The PNS slows your heart and breathing down and you become tired and relax as your body recharges.

This is how things go if you do not have PTSD. PTSD makes your SNS system stay on and your body never gets a chance to recuperate. It’s like having the gas pedal always stuck to the floor! No wonder you feel so exhausted all the time. Your immune system is overworked meaning you probably get sick more often, your heart and lungs work way too hard, and your muscles get strained from being too tense. This constant state of stress puts you at risk for diabetes, heart attack, obesity, depression, concentration problems, and even certain types of cancer. What started as a way to protect you from trauma has become a real problem.

**Getting Better**

There are a variety of treatments for PTSD. Most try to address several important components:

* Explain how PTSD works; this helps normalize your experience and will hopefully make you feel less “crazy” or “abnormal.”
* Break through dissociation by doing relaxation, deep breathing, mindfulness, or grounding. Dissociation prevents us from working with the traumatic memories, so first we have to break through the cloud of dissociation around your brain.
* Begin to re-experience the intense emotions that the brain shutdown during the traumatic event. This is usually a painful process because you may have been closed off from some of these feelings for a long time. We will access these feelings (both emotion feelings and body sensation feelings) slowly and in a safe, controlled way.
* Identify triggers, both external (reminders you get through your fives sense in your external environment) and internal (reminders you get through your body sensations in your internal environment) so you can watch for them and realize what they are.
* Learn to talk yourself down from triggers and ground yourself in the present
* Address how PTSD symptoms might be affecting other areas of your life: caring for your physical needs, eating, sleeping, relationships, avoidance of certain people or places, suicidal thoughts, etc., and make a plan to create more healthy behaviours.
* We may also use some therapies that work directly with the brain, like Observed Experiential Integration or OEI, that use the eyes to access traumatic memories and reprocess them so they can be stored in the normal memory centre of the brain (the hippocampus). We will talk more about this as time goes on.

**Your Job in this Process**

Your job throughout this process is to let me know how things are going for you. Therapy always works best if we can be open and honest with each other. You can let me know if you start to get too overwhelmed. You can let me know what you like doing and what you don’t like as much. These sessions are your time and you are the one who knows best what is helping and what is not helping. If at anytime you feel uncomfortable all you have to do is let me know and we can shift what we are doing. I see therapy as a collaborative journey: you are the expert on you and direct the process from beginning to end, and along the way I might have some helpful information.

There are a few things to keep in mind as we begin therapy. First, change tends to be slow. Give it a few weeks and be patient with yourself. If you don’t have any relief after the first 3 to 5 sessions than we can discuss other options for you that might be a better fit. Second, you are not “trapped” in a therapy contract once you have started. At any time if you change your mind for any reason you can end therapy or take a break. And third, there is hope! PTSD is treatable and you can experience a full, happy life. Depending on how extensive your trauma history is this might take a short time or a longer time, but there is hope for you, things can be different!

*Compiled by Jennifer Decker (2012)*