

## **Biological and Psychological Foundations**

Our brain is a powerful tool that is designed to be efficient and to protect us. However, there are aspects of its wiring that may be outdated in today's society, as we no longer experience the same threats we once did. In this section, we will give a basic psychological foundation of some of our emotions and the body's response to them.

### **Fight or Flight**

Our fight-or-flight response was designed to save our cave-dwelling ancestors from a premature death in the jaws of a saber-toothed predator. Today, humans are on the top of the food chain, but we may still recognize the symptoms of flight-or-flight response from the last time someone cut us off in traffic:

- increased heart rate
- elevated blood pressure
- increased oxygen in the brain
- increased muscle tension
- a boost in energy supply (no coffee needed!)

However, according to Mayo Clinic, there are also a few things going on under the surface that we may not notice:

- altered immune system responses
- suppressed digestive system (who needs to digest when you're running from a saber-toothed tiger?)
- suppressed reproductive system and growth (saving your own butt takes priority over survival of the species)

According to the National Institute of Mental Health, other symptoms you may be familiar with include sudden lack of appetite, heartburn, nausea, and stomach pains.

### **The Brain**

The part of our brain called the Limbic System houses is primarily responsible for our emotions. For example, the amygdalae is responsible for feelings of anxiety and fear. When this part of the brain is activated because of an intense, stressful experience, our brains will simultaneously turn off another part of the brain—the prefrontal cortex—which helps us reason and think critically. This is why when we get angry or anxious we may react in ways that make us ask “what was I thinking.” You weren't. That's the problem. Once intense emotions are in full effect, your rational mind is rendered useless. It's not because there is something wrong with you, it's because this is how your brain works.

### **Emotional Resilience**

There have been studies that shed light on the differences in brain activity between people who are emotionally resilient and those who are not. One of the strongest indicators of emotional

resilience is our connection (communication) between the left prefrontal cortex (PFC) and the amygdalae. The PFC is critical because it tells the amygdala to quiet down by sending inhibitory signals. It helps our negative emotions subside and go away. Studies have shown that people who have a weaker connection between these two areas of the brain have more difficulties managing and regulating their emotion.

So now, you may be thinking, “what if that area of my brain is not well developed; am I out of luck.” The good news is that you are not out of luck because you can build up those connections. It is important to keep in mind that the brain is like a muscle and that by working those areas out you can strength those connections.

One way that you can work out that section of your brain is through mindfulness (or mindfulness meditation). You become “mindful” by becoming an observer of your thoughts, without judging them. Just allow them to be there. Witness of what your mind is doing. You will observe how the brain can easily exaggerates a situation or goes on unnecessary tangents. By doing this, you are activating your PFC, which is the part of your brain that is critical for managing emotions. By practicing mindfulness, you are working out your brain and strengthening your PFC’s connection to the emotional center (the amygdalae). Doing this will make it easier “kick back on” the PFC during challenging times, and you’ll become better at being able to assess a thought or emotion in the moment without letting it consume you.

Studies have also found that people that have a “positive set point” have an active PFC, as well as nucleus accumbens. The nucleus accumbens is a part of the brain that is associated with pleasure and a sense of reward and motivation. People that tend to be negative have few neural connections between these two areas of their brain. It is believed that this area cannot be reached through conscious thoughts. If this is true, you may ask, “then does that mean that I will not be able to change my emotional set point?” No, in fact, you can *indirectly* “work out” those connections in your brain by practicing delaying rewards and self-restraint.

You may find yourself constantly checking your phone, playing mobile games, or going onto social media. These habits can be addicting and certainly do not help us build that part of the brain. What DOES help exercise our brain includes: planning, using our imagination to create our future, and practicing self-control. Therefore, if you practice self-restraint and force yourself *not* to check your phone or social media until you finish a pre-determined milestone or goal, the delayed reward will help you build an emotional muscle that will help you long term.

Keep in mind that as with everything, re-training our brain takes practice and consistency. In this course, we will provide you tools that, if practiced consistently, will help you create and live in a better emotional state.