Addiction and the Brain

What is Addiction?

Addiction is a medical condition that affects the brain. It is characterized by a loss of control and continued use despite consequences, such as loss of a job, arrest, or other significant negative outcomes.

Addiction to drugs or alcohol is referred to as a Substance Use Disorder (SUD). Over 20 million people in the United States suffer from addiction and one in seven people will experience addiction at some point in their lives. Addiction can happen to anyone regardless of race, age, or socioeconomic status.

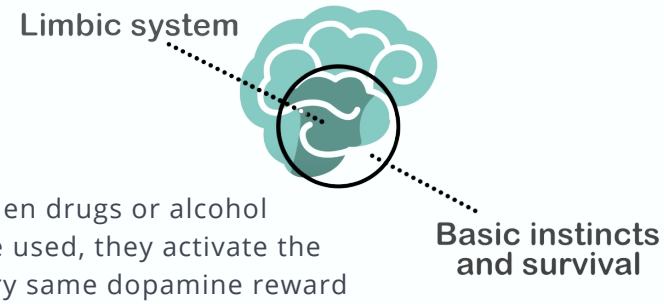
Addiction and the Brain

Before we understood the science surrounding addiction, people thought SUDs were caused by a lack of self control or moral failing. However, through modern science we now understand that addiction is a disease of the brain.

In 1994, top neuroscientists Dr. Volkow and Dr. Schelbert ran PET scans of the brain that demonstrated the effects of SUDs. These scans showed that, like other diseases, addiction affects tissue function, changing the brain's ability to work as it normally would.

Addictive substances hijack the reward center of the brain. The limbic system, located deep within the brain, is responsible for our basic survival instincts.

When you do essential things to stay alive, like eat, drink, find shelter, build relationships, or care for your young, your brain reinforces these behaviors by releasing dopamine from this region. That reward is also transmitted to the amygdala and hippocampus, which records a memory of that feeling so you seek it again. This process is our survival hardwiring. Because it exists to keep us alive, it is extremely hard to resist. Think of how difficult it is to stop thinking of food when you miss a meal.



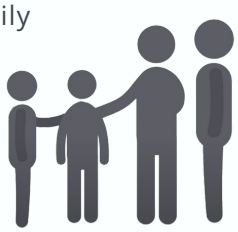
When drugs or alcohol are used, they activate the very same dopamine reward process in the survival center, except much more dopamine than normal is released. When use is repeated, that substance can hijack our reward system, usurping our survival instincts and replacing them with a desire to take more of the substance.

Over time, the brain adjusts and starts to need more and more of the substance to activate the same level of reward, causing the tissue to become increasingly damaged with continued substance use. Addiction also affects another area of the brain, the prefrontal cortex, which controls problem solving, decision making and impulse control. Overtime, drugs weaken this area and impair these functions, like impulse control, which leads to compulsive drug taking.

Addiction is Preventable

There are two key factors to be aware of – risk factors and protective factors, that can help predict if you will develop an addiction:

- **Risk factors** for addiction include genetic factors, like having a family history of addiction, individual factors like your age of first exposure to the drug, or environmental factors like drug availability.



- **Protective factors** shield you by lowering your risk of developing an addiction. They include factors like parental involvement, programs that improve self-control, limiting availability and increasing attachment to your community. Another key protective factor is delaying when use begins, as the earlier substance use starts, the more likely addiction will develop.

To prevent addiction, it is important to know your risk factors and increase protective factors to counter-balance them.

Addiction is Treatable

Substance use disorders can be treated effectively. Proven treatments include counseling, medications for alcohol, opioid, and tobacco use disorders, and family support services.

- It's important to intervene early and treat substance use disorder before the disease progresses.
- Treatment plans should be individualized to meet each patient's complex needs.
- Patients should be monitored regularly and the treatment and recovery support plan should be modified as they progress.
- At least 3 to 5 years of treatment and recovery support is typically required to support individuals recovering from severe substance use disorders

Brain scans show that once in recovery, the tissue in the limbic system and cortex can get better and return to normal function.

If you have questions or need to speak with someone for support, call or text (833) 301-4357 today, or visit addictionpolicy.org.

DRUG FREE CHARLOTTE COUNTY

ADDICTION POLICY FORUM