

Addiction and the Brain

Addiction is a medical condition that affects the brain and changes a person's behavior. The medical term for a drug or alcohol addiction is a substance use disorder (SUD).

People can develop an addiction to:

- Alcohol;
- Nicotine;
- Opioids, such as heroin, fentanyl or prescription painkillers;
- Marijuana;
- Cocaine, methamphetamine and other stimulants;
- PCP, LSD and other hallucinogens; and
- Sedatives, such as sleeping pills and/or benzodiazepines.

In the early 1990s, scientists began to understand how repeated substance use affects the brain. Brain scans showed that as is the case with other diseases, SUD affects tissue function. For a SUD, two main parts of the brain are affected: the limbic system and the cortex.

The teen brain is more susceptible to substance use disorder than the adult brain. The adolescent brain doesn't fully develop until age 25, with the female brain maturing a few years earlier than the male brain. The majority of substance use disorders can be traced back to adolescent use of alcohol and other drugs.

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Science also shows that the brain can recover from a substance use disorder. It takes time, treatment and abstinence. Brain scans show the survival circuit in a healthy brain compared to the brain of someone with a methamphetamine use disorder after one month of abstinence, and then 14 months of abstinence. The activity in the survival circuit starts to regain normal levels the longer a person is in recovery and returns to its previous state.