

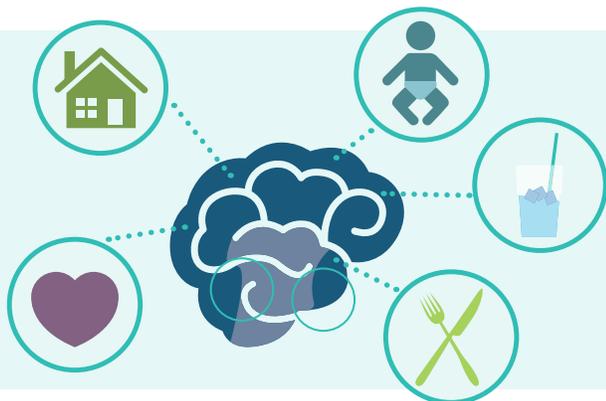
ADDICTION AND THE BRAIN

Over 20 million people nationwide suffer from addiction¹ — and one in 7 people will experience addiction at some point in their life.²

Scientists first began to understand addiction as a brain disorder in the 1950s. Drs. Olds and Milner, in laboratory studies of rats, found the parts of the brain affected by addiction.⁵ Then, in 1994, Drs. Volkow and Schelbert, top neuroscientists, ran PET scans of the brain that showed the effects of substance use disorders.⁶ Like other diseases, these scans showed it affected tissue function.⁶



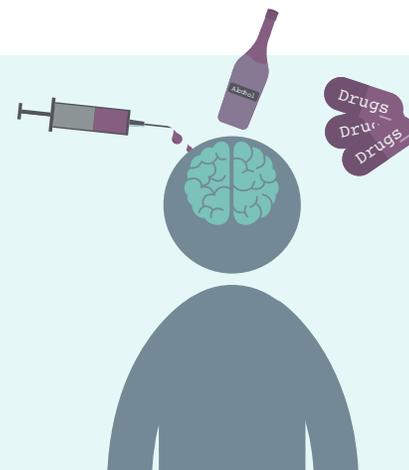
There are two main parts of the brain affected by drug use: the limbic system and the cortex.⁶ The limbic system is responsible for our basic survival instincts.⁶



When you do essential things to stay alive, like eat, drink, find shelter, build relationships, or care for your young, your brain reinforces behaviors that cause the release of dopamine from this region.⁶ That reward for surviving is also transmitted to the amygdala and hippocampus, which records a memory of that feeling so we seek it again.⁶

Addiction also affects the prefrontal cortex, which is what separates us from other animals.⁶ This is where decision-making and impulse control live.⁶ When drugs or alcohol are used, they activate the same dopamine process in the survival center.⁶

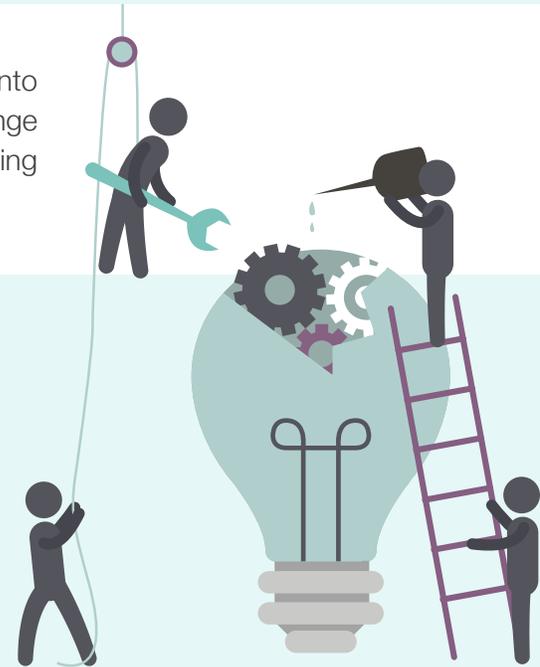
When use is repeated, that substance can hijack that part of the brain.⁶ This hijacker changes the brain and weakens this system to make it believe that the primary need for survival is the drug.⁶ In hijacking the brain, it can usurp those primary motivations: food, water, shelter, relationships and protecting our young.⁶ The hijacker needs more and more of the substance to activate the same level of reward or feeling of pleasure, causing the brain tissue to become increasingly damaged with continued drug use.⁶



There are factors that contribute to the development of a substance use disorder, including individual factors, like genes and age of exposure; and then environmental factors, like drug availability.⁶

The key factors that aid in preventing addiction can be categorized into two parts – risk factors and protective factors.⁶ Protective factors range from parental involvement, programs that improve self-control, limiting availability and increasing attachment to your community.^{6,7,8}

Another key element in preventing substance use disorders is to delay when use begins.⁶ Put simply, prevention is about delaying the onset of first use. In the adolescent brain, where brain tissue is more vulnerable, the hijacker is more prone to weaken the brain and plant itself as a disease.⁶ Those with substance use disorders commonly initiate first use much earlier – between 12 and 18 years old, which increases the likelihood of the hijacker taking hold.⁶



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