

Chapter 3

The effects of drugs and alcohol

Goals

- To learn about how drugs and alcohol change the normal functioning of the brain and body
- To understand the health effects of using substances

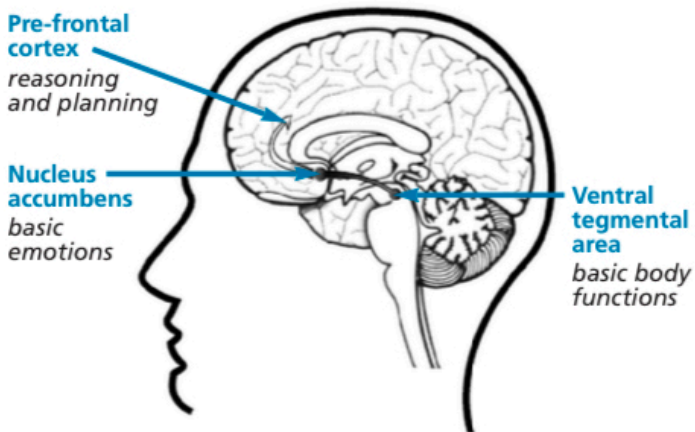


Information

Why it feels like you can't live without drugs or alcohol

Our brains are wired so that when we do something that gives us pleasure, we tend to want to do it again. That's what drives us to do things that help us survive — eating, for example. Almost all drugs that are used to get high change how the natural chemicals work in the brain's pleasure centre. This change tricks you into thinking that the drug is something you need for survival. Often, the changes in brain chemistry that drugs cause last longer than the high. That can cause serious long-term problems, including withdrawal symptoms and brain damage.

REWARD CIRCUIT



This is a picture of the reward circuit in the brain. The most important thing to notice is that the reward circuit has strong connections to the part of your brain that is responsible for basic emotions (the nucleus accumbens) and the part of your brain that regulates basic body functions (the ventral tegmental area). One of the reasons that addictive drugs have such a strong effect is that they act on the part of the brain that is in charge of very basic survival instincts. When the urge to use the drug is strong enough, this part of the

brain can override the part of the brain in charge of reasoning and planning (pre-frontal cortex). This is one reason why most drugs make the problem of being impulsive — acting without thinking — worse. This is also why people spend a lot of time and energy getting the drug they abuse for a short-term high, even though it causes a lot of problems in the long run.