

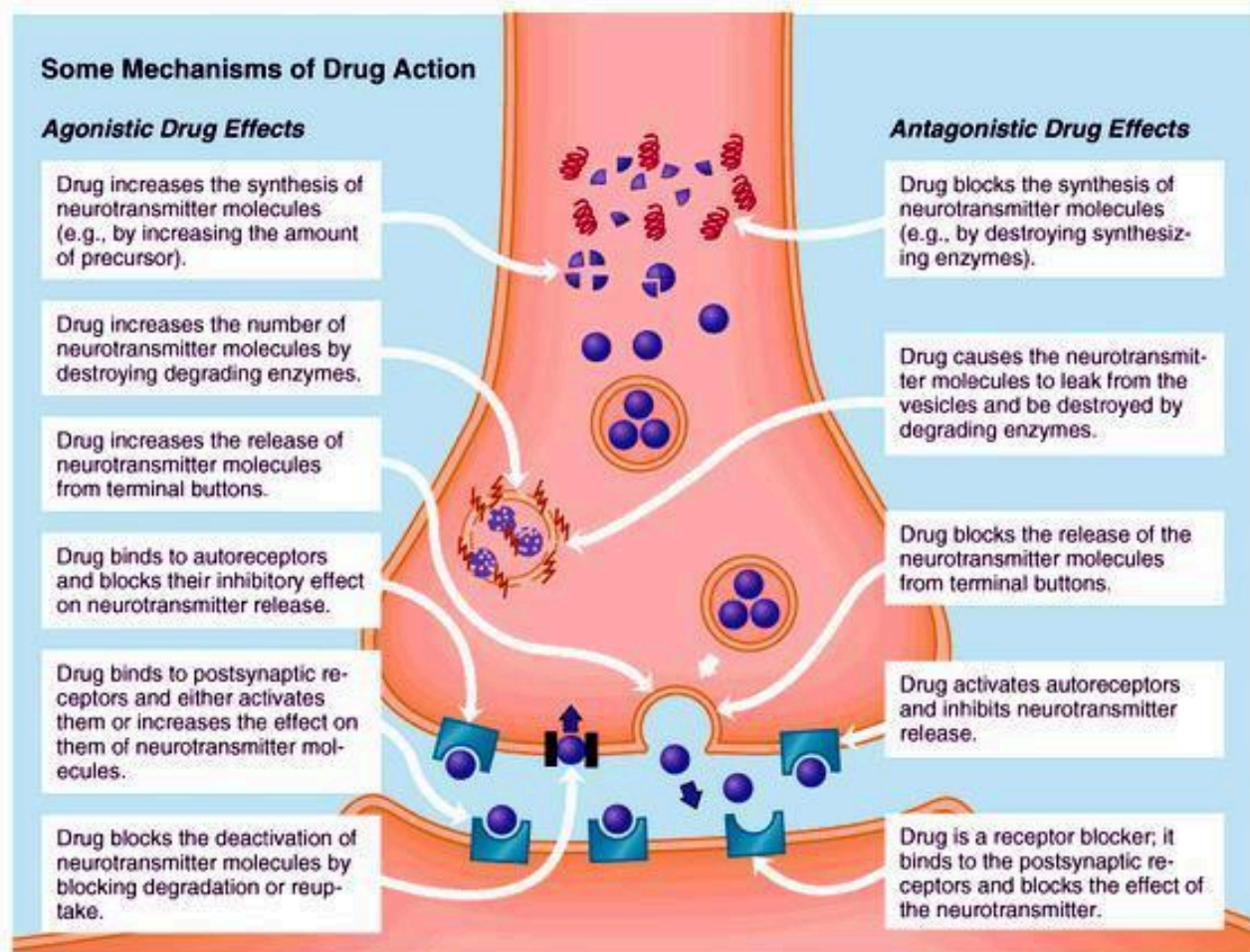
Initial notes about Addiction

What does addiction mean: what is the difference between liking something and being addicted to it?

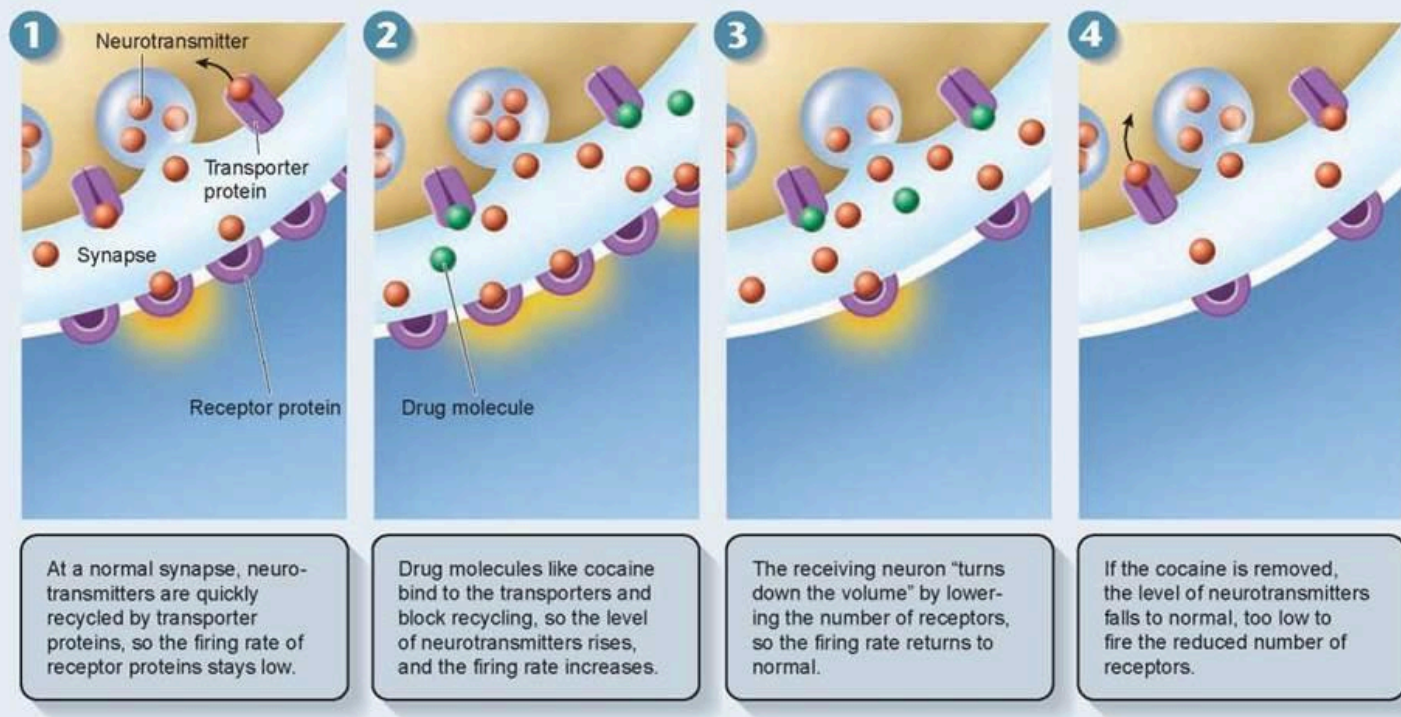
Can you stop doing it? Do you have control?

How is the brain involved in addiction? Which part of the nervous system is heavily involved in addiction?

► Mechanisms of Drug Effects



KEY BIOLOGICAL PROCESS: Drug Addiction

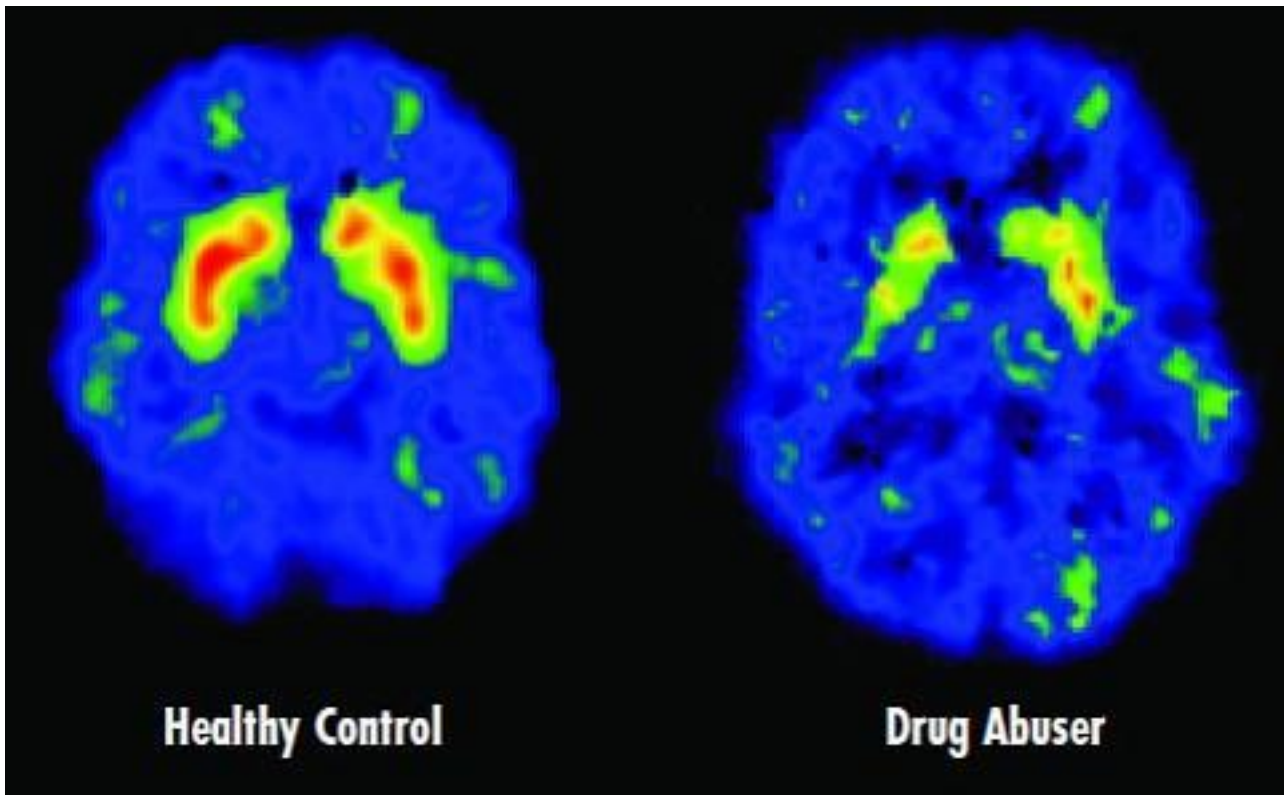


Which sensation is often being sought when people get addicted to a substance?

Is this an effective route to this sensation initially? Is it effective over time?

What did Freud (who experimented with cocaine) think about humans and this sensation and their ability to resist it when functioning "normally"?

Which areas of the brain are addictive substances likely to stimulate, and how does this tend to affect people?

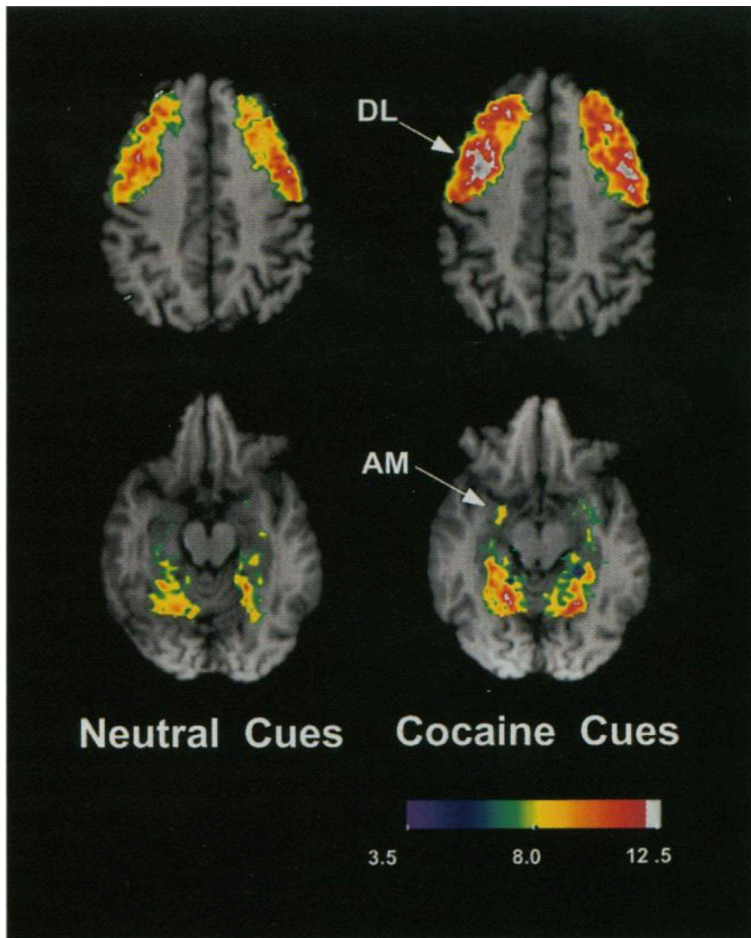


Which areas of the brain are less likely to act effectively when someone becomes addicted?

What sorts of things can trigger a relapse in someone who was/is addicted?

Which substance's abuse has been proven to have genetic links? Are these genetic links the same in all the children of people who abuse this substance?

Are these genetic links determinative or do they just increase the likelihood of addiction to the substance?



Using PET (positron emission tomography) scanning, researchers at the National Institute on Drug Abuse detected the activation of brain regions implicated in certain forms of memory when human volunteers who abuse cocaine were exposed to drug-related cues (drug paraphernalia and a videotape of cocaine users). Brain activation (increased neural activity) was detected as an increase in glucose metabolism, as indicated by the color scale at the lower right. The drug-related cues did not produce brain activation in control subjects (scans not shown), but volunteers who experienced a high level of cue-induced cocaine craving showed brain activation in the dorso-lateral prefrontal cortex (DL; upper scans), which is important in short-term memory, and in the amygdala (AM; lower scans), which is implicated in emotional influences on memory. When these volunteers were exposed to neutral (non-drug related) cues, this activation was not seen (scans at left). Image republished with permission from Grant S, et al. 1996. *Proceedings of the National Academy of Sciences USA* 93: 12040-12045.

What difference do CAT scans show in the brains of alcoholics?

How is addiction different from most other illnesses in terms of the patient's attitude toward it? How does this make it harder to cure than most illnesses/medical issues?