

STUDY FINDS:

Dopamine and Addiction

Only the weak become addicted.

If that's what you think, Dr. Nora Volkow is determined to change your mind. Dr. Volkow is the director of the National Institute of Drug Abuse (NIDA). She is also one of the country's leading addiction researchers. Volkow says brain science is proving that we all can become addicted to something. People can become addicted to drugs, alcohol, tobacco, gambling, and even food. Becoming addicted is more a matter of chance than we ever realized. With the right mix of genetics and life experience, anyone can find themselves addicted to something.

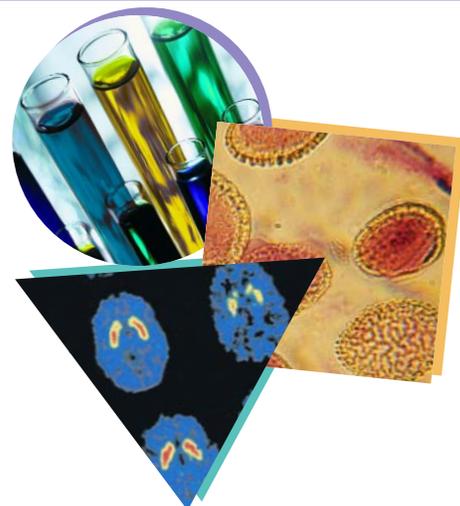
Many people might find that idea unsettling. Volkow finds it fascinating *and* encouraging. Everything we learn about one type of addiction might teach us something about other types. "Just imagine," she says, "if all the private money being spent to understand and treat obesity could help us understand and treat alcoholics and drug addicts."

Volkow is steering NIDA to use breakthroughs in one area of addiction research to advance research in others. In the next year, she predicts, we'll see progress in new treatments, such as drugs that

disrupt and weaken a person's memory of how good an addictive substance feels. "If we could interfere with that response, we might be able to weaken the addiction," she said.

Much addiction research centers on dopamine. Dopamine is a brain chemical associated with pleasure (and other functions). Dopamine receptors are proteins that act as docking stations for dopamine in the brain. New research by Volkow and others shows that high levels of dopamine receptors protect against addiction. In turn, low levels increase the chances of becoming addicted.

Non-addicts balance desire for pleasure with positive goals such as protecting family and friend relationships and career success. Low levels of dopamine receptors throw off that balance. Many illegal drugs actually change the brain over time by strengthening memories of pleasure from taking the drug. Taking drugs becomes the most important need in an addict's life. "Drugs are a more powerful reinforcer than anything else," says Volkow. "That's why people will even steal to get the money they need for drugs. Addiction "makes us lose our judgment, our values."



Future research will center on how to increase dopamine receptors in people with low levels. It appears that levels are affected by both genetics and experience. Animal research shows that receptors decrease under high levels of stress, and go up when the stress is relieved.



Whether that is true in humans is unknown.

But Volkow says that may explain why some can drink or use a drug for years and not get addicted. "Then something tragic happens, and their environment and genetics collide" in a harmful way.

Volkow hopes that as we learn more about addiction, curing it will become a higher priority. "I've never met anyone who thought they would become addicted," she says. "...this disease robs you of free will. The challenge is to find a cure."

This transformation is made from the original article: Wingert, P. (2006). Nora Volkow: A passionate advocate for addicts of all kinds, she's determined to find a cure. Newsweek, accessed online at <http://www.newsweek.com/id/44295/output/print> on December 7, 2009. Note: This transformed article has a Flesh Kincaid Grade Level 8.1, Flesch-Kincaid Reading Ease 60 (Transformed from Grade Level 10.4 and Readability 54.3).