

Researchers recast addiction as a manageable disease

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Neuroscientists agree that abuse of drugs hijacks circuits in the brain that are crucial for decision-making, but society as a whole tends to stigmatize addicted people for lacking self-control. Slowly but steadily, scientists say, they are making important progress in changing the perception of addiction as they identify new therapeutic interventions that could render addiction into the equivalent of a manageable disease like diabetes.

A group of addiction researchers, for one, recently recommended to the Commission on Narcotic Drugs, part of the United Nations Office on Drugs and Crime, that the problem of substance use disorders—a term that refers to what most people think of as addiction—should be approached as a medical, not a legal, issue. In this vein, New York City's police department has begun to equip its officers with naloxone, a medication that can be used to save lives in the event of a heroin overdose. What have scientists discovered about addiction that led them to consider it as a disease rather than due to users' lack of willpower?

In a "roundtable" discussion convened by the Kavli Foundation, Marina Picciotto, Charles B.G. Murphy Professor of Psychiatry at Yale University in New Haven, CT, and a member of Yale's Kavli Institute for Neuroscience, put it this way: "Drugs of abuse change the brain in a significant way such that decision making is permanently, or at least on a fairly long-term basis, impaired. And therefore free will as we know it is not gone, but it is so severely modulated that someone who is not addicted has a hard time understanding that loss of volitional control."

The stigma directed toward [drug](#) addicts is similar to the stigma that surrounds those who are obese. Research on both substance use disorders and obesity shows that the biology behind the two diseases overlaps, resulting in a change in the sensitivity of the reward systems in the brain to food and drugs of abuse. "That overlap makes a lot of sense, because these circuits did not evolve for us to take drugs," said Nora D. Volkow, Director of the National Institute on Drug Abuse (NIDA) at the National Institutes of Health in Bethesda, MD. "These circuits evolved to ensure that we eat properly. What we are seeing in addiction are drugs literally hijacking systems that took millions of years of evolution. And that's why there is no surprise that we see so many similarities in the behavioral expression of compulsive overeating and loss of control and that associated with compulsive drug taking in addicted individuals."

Currently, there are a handful of pharmacological treatments for people addicted to heroin, alcohol and nicotine. Needed are new therapies to treat not only these addictions, but also addictions to substances of abuse such as cocaine and methamphetamine. It is a lament among many addiction scientists that the pipeline for new pharmacological treatments remains all but dry. "We have a paradoxical situation in which we have identified a large number of potentially very interesting molecular targets for medication development and yet pharma is not investing," says Volkow. "So, despite the great potential to reduce the burden of disease nationally and globally, the relative investments for medication development are really embarrassingly low."

Even so, there remains reason for optimism, according to Eric J. Nestler, Director of the Friedman Brain Institute at the Icahn School of Medicine at Mount Sinai in New York City. "If you turn the clock back 50 or 60 years to a time before antidepressants were introduced, no one in the field would have expected such robust chemical treatments of depression," Nestler said during the roundtable discussion. "So even though some people are skeptical today about medicines for treating

[addiction](#), we should be very optimistic that we will see the day when effective treatments will be available."

More information: www.kavlifoundation.org/scienc...e-urges#.U5YIT_mSztt

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