

**Health eLine Headlines for: May 25, 2001****Health eLine**

- [Study: Arabic men at risk for beard dermatitis](#)
- [Psoriasis therapy ups long-term melanoma risk](#)
- [Heredity plus bowel disease ups colon cancer risk](#)
- [Brain's instant-gratification center identified](#)
- [Breast-feeding may up risk of death in HIV+ women](#)
- [Culture plays no role in preemies' problems](#)
- [Massage does not reduce labor injuries](#)
- [Breath test may predict hospital stay for asthma](#)
- [Testing teens helps track pollution's effects](#)
- [Bacteria may swap drug-resistance gene](#)
- [Gene therapy may help treat prostate cancer](#)
- [Sights and sounds of nature improve pain control](#)
- [Teens vulnerable to rickets, even in sunny climes](#)
- [Lower income kids at risk for stomach infection](#)
- [Tanning beds pose cancer threat equal to the sun](#)
- [Shortage of ICU beds in UK costs lives: study](#)

**Brain's instant-gratification center identified**

By Amy Norton

NEW YORK, May 25 (Reuters Health) - Scientists have zeroed in on the area of the brain that tells us when to go for instant gratification or when to have a bit more willpower. They say the findings could yield insights into conditions marked by poor impulse control, such as drug addiction and attention-deficit/hyperactivity disorder (ADHD).

In experiments with rats, UK researchers found that those with abnormalities or lesions in the core of a brain area called the nucleus accumbens could not stop themselves from diving into a meager, but readily available, meal--even though waiting would have later won them a culinary feast. In contrast, rats without the lesions held out for the greater reward.

In other words, rats with the brain lesions "made impulsive choices," Rudolf N. Cardinal and his colleagues at the University of Cambridge, UK, report in the May 24th issue of Scienceexpress, the online version of the journal Science.

The nucleus accumbens is a structure deep within the brain that is part of the limbic system, a key player in regulating emotion and motivation. Previous evidence, Cardinal told Reuters Health, has suggested the nucleus accumbens is involved in impulse control.

For one, this brain area is believed to be regulated by the chemicals [dopamine](#) and serotonin, which are involved in mood and feelings of satisfaction and pleasure. Drugs--both recreational and some of those used to treat medical conditions like ADHD--also act on dopamine and serotonin.

While it has been suggested the nucleus accumbens helps motivate a person to "work for a reward," Cardinal explained, his team wanted to find out whether it also held sway over people's willpower.

"While we might all face the choice between some chocolate cake now and sticking to our diets in the long term," he said, "when it comes to an...addict choosing between the immediate reward of [nicotine](#) or cocaine and the long-term health benefits of abstinence, then impulsive choice is very important."

To delve into the role of nucleus accumbens in impulse control, Cardinal's team trained rats to choose between a small, immediately available meal and a larger, but later, feast. Afterward, they made lesions in some of the rats' brains, with some animals receiving lesions to the core of the nucleus accumbens and some being lesioned in other brain regions.

Before this surgery, the animals on the whole held out for the larger meal, although their willpower waned the longer they had to wait, according to Cardinal's team.

After the surgery, however, rats with lesions to the core of the nucleus accumbens lost all self-control. In addition, the authors write, these animals "exhibited at least

- [UK party promises more operations, shorter waits](#)
- [Genes implicated in vision problems](#)
- [Smoking prevention program works in Arizona](#)
- [Wal-Mart sued for not reporting equipment dangers](#)
- [UK warns of dioxin risk in milk from animal pyres](#)
- [Osteoporosis a risk in kids with chronic diseases](#)
- [New England states to launch drug buying pool](#)
- [Uganda plans free drugs for pregnant, HIV+ women](#)
- [AIDS vaccine suspends disease in monkeys](#)
- [Japanese government apologises to leprosy patients](#)

two signs of ADHD"--hyperactivity and impulsive choices.

What this means for humans is not fully clear. However, Cardinal said, the research suggests that dysfunction in this brain area may trigger impulsive behavior. For example, he noted, it has been difficult to determine whether people who abuse drugs are impulsive in the first place, or whether the drugs' effects on the brain trigger their impulsivity.

"We were able to overcome that problem and show that dysfunction of the nucleus accumbens can actually cause impulsive choice," he said.

"It's very reasonable," Cardinal added, "to suggest that such dysfunction might be a cause of impulsive choice in humans."

A clearer understanding of impulsive choice, he said, "is vital in the quest" to treat addiction, ADHD and other impulse-related behaviors such as overeating.

SOURCE: Scienceexpress 2001;10.1126.

Copyright © 2001 Reuters Limited. All rights reserved. Republication or redistribution of Reuters content, including by framing or similar means, is expressly prohibited without the prior written consent of Reuters. Reuters shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon. Reuters and the Reuters sphere logo are registered trademarks and trademarks of the Reuters group of companies around the world.

[Medline](#)

[Drug Database](#)

[Subscriptions](#)

[License Our News](#)

[Contact Us](#)