

# Your brain on Krispy Kremes

March 6 2008

---

What makes you suddenly dart into the bakery when you spy chocolate-frosted donuts in the window, though you certainly hadn't planned on indulging? As you lick the frosting off your fingers, don't blame a lack of self-control.

New research from Northwestern University's Feinberg School of Medicine reveals how hunger works in the brain and the way neurons pull your strings to lunge for the sweet fried dough.

Krispy Kremes, in perhaps their first starring role in neurological research, helped lead to the discovery.

In the study, subjects were tested twice -- once after gorging on up to eight Krispy Kreme donuts until they couldn't eat anymore, and on another day after fasting for eight hours.

In both sessions, people were shown pictures of donuts and screwdrivers, while researchers examined their brains in fMRI's.

When the subjects saw pictures of donuts after the eating binge, their brains didn't register much interest. But after the fast, two areas of the brain leaped into action upon seeing the donuts. First, the limbic brain -- an ancestral part of the brain present in all animals from snakes to frogs to humans -- lit up like fireworks.

"That part of the brain is able to detect what is motivationally significant. It says, not only am I hungry, but here is food," said senior

author Marsel Mesulam, M.D., the Ruth and Evelyn Dunbar Distinguished Professor of Psychiatry and Behavioral Sciences at the Feinberg School and a neurologist at Northwestern Memorial Hospital.

Next, the brain's spatial attention network shifted the hungry subject's focus toward the new object of desire -- in this case the Krispy Kremes.

"If we didn't have this part of the brain, every time you passed by a bakery you would have no control over your eating," explained Mesulam, who also is director of the Cognitive Neurology and Alzheimer's Disease Center at the Feinberg School. "If your nerve cells fired every time you smelled something edible, then you'd eat all the time, not just when you're hungry."

"There's a very complex system in the brain that helps to direct our attention to items in our environment that are relevant to our needs, for example, food when we are hungry but not when we are full," said Aprajita Mohanty, lead author of the paper and a post-doctoral fellow at the Feinberg School. The study was published on-line last week in the journal *Cerebral Cortex*.

Mesulam noted the research demonstrates how our brain decides what to pay attention to in a world full of stimuli -- not just sweets. "If you are in a forest and you hear rustling, the context urges you to pay full attention since this could be a sign of danger," he said. "If you are in your office, the context makes the identical sound less relevant. A major job of the brain is to match response to context."

The study helped Mesulam understand his own behavior. "Now I know why I can't resist walking into the bakery some days when I smell fresh scones," he said.

Source: Northwestern University

Citation: Your brain on Krispy Kremes (2008, March 6) retrieved 20 April 2024 from <https://medicalxpress.com/news/2008-03-brain-krispy-kremes.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.