Could we ‘rewire our brains’ to stop sugar cravings?

Imagine if we could rewire our brains so that tastes we usually crave became unpleasant—or even nullify responses to taste completely. New research from a group led by neuroscientist Charles Zuker of Columbia University’s Zuckerman Institute suggests this may be possible. The research shows the brain is hardwired to generate responses to specific tastes, and the resulting feelings of pleasure or revulsion separate out from the qualities of tastes that allow us to identify them. Knowledge of this circuitry might eventually allow scientists to “switch off” a craving for sweets by altering or blocking these responses.

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Directly stimulating these neurons using light-sensitive proteins activated via fiber-optic cables—a technique called optogenetics—causes mice to behave as though they are experiencing specific tastes. “Simply activate a few hundred cells in the bitter cortex and the animal not only thinks it’s tasting bitter but executes all the associated behaviors, including gagging, cleaning its mouth and so forth,” Zuker says.

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This is fundamental research with no immediate clinical relevance, but it could ultimately have implications for researchers looking to treat people with severe obesity problems by blocking certain responses to certain tastes. There may even be implications for understanding eating disorders because food’s valence may be connected to the guilt experienced in conditions like anorexia.

Read full, original post: A Matter of Taste: Can a Sweet Tooth Be Switched Off in the Brain?