

Craving carbs? Blame your brain, Japan study finds

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Under pressure and gobbling pizza or chocolate? It may not be your fault, according to Japanese researchers who have isolated the neurons that drive a craving for carbs.

The team at Japan's National Institute for Physiological Sciences found

that activating neurons known to respond to [social stress](#) increased the appetite in mice for carbohydrates.

Rodents with the neurons activated ate high-carbohydrate [food](#) at a rate of three times the mice under normal conditions.

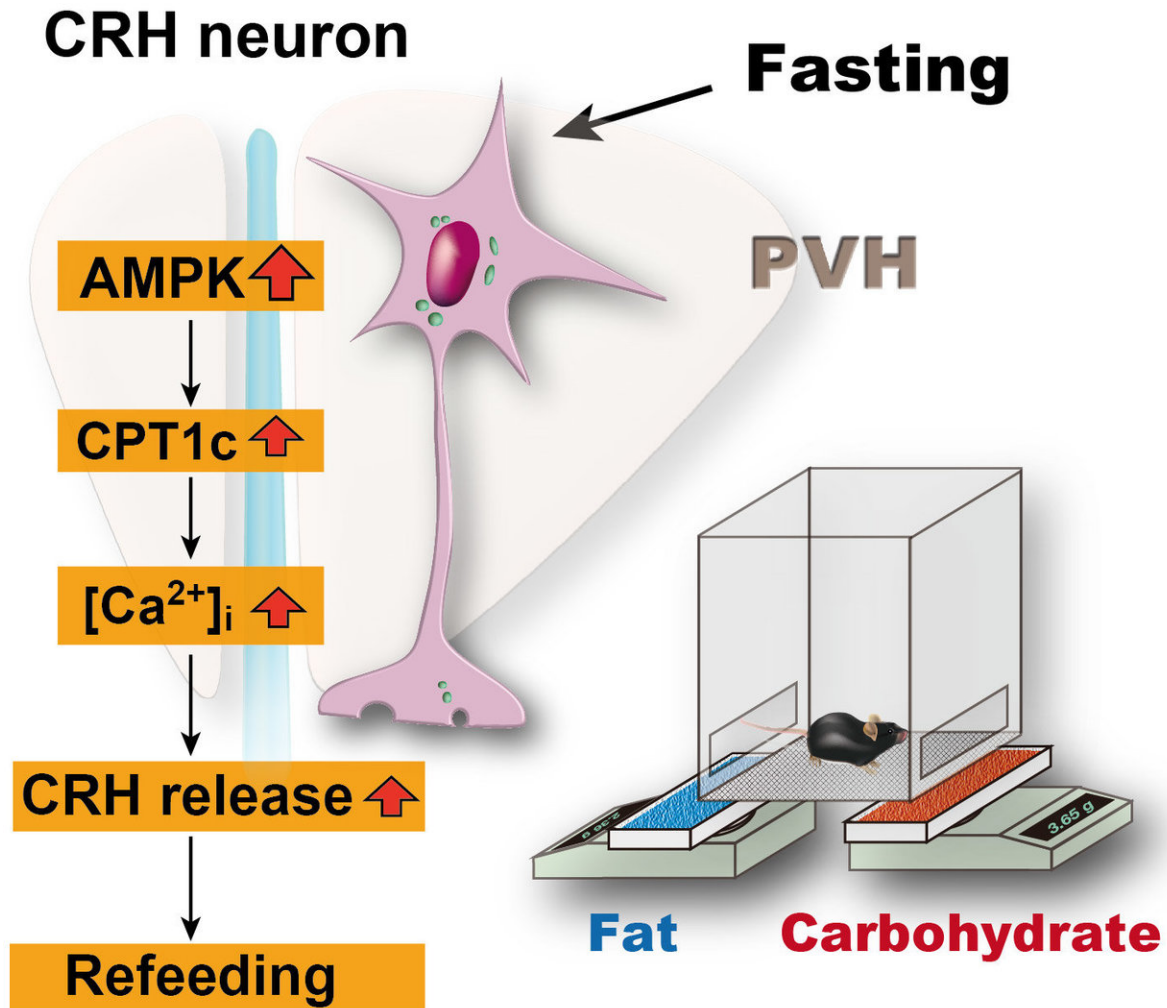
They also roughly halved their intake of [high-fat food](#), the study found.

The research is the first to demonstrate the way that the brain plays a role in the preference for carbohydrates or fats, said Yasuhiko Minokoshi, a scientist at the institute, who led the study.

The teams said the study could help find a way to shift people away from gorging on sugary treats or unhealthy junk food.

Humans generally select what to eat based on taste, as well as the nutritional state of the body, but the exact mechanism involved in the selection has remained largely a mystery.

"Many people who eat sweets too much when stressed tend to blame themselves for being unable to control their impulses," Minokoshi told AFP.



Carbohydrate selection ↑

Plasma ketone body levels ↓

NIPS-led researchers identified that activation of a subset of corticotropin-releasing hormone (CRH)-positive neurons in the paraventricular hypothalamus (PVH) induces dietary preference for carbohydrate over fat in mice during refeeding after overnight fasting, resulting in a rapid recovery from the change in ketone metabolism. These neurons manifest activation of AMP-activated protein kinase (AMPK), a metabolic sensor from yeast to mammals, and carnitine palmitoyltransferase 1c (CPT1c) during food deprivation, and this activation is necessary and sufficient for selection of a HCD over a HFD. Credit:

NIPS, University of the Ryukyus

"But if they know it's because of the neurons", they might not be so hard on themselves, he said.

Minokoshi cautioned that it would be difficult to immediately apply the findings to improving human diets.

Simply suppressing the neurons could trigger side effects, as they have many other important roles, he said.

"However, if we could find a particular molecule in the [neurons](#) and target it specifically to suppress part of its activities, it could curb excessive eating of carbohydrate-heavy food," he said.

On the other hand, a substance to activate it could be used to treat people who consume excessive fat.

The study is to be published in the online edition of the US journal *Cell Reports* soon.

Many researchers suspect a certain mechanism could be responsible for prompting some animals to choose high-protein food, but a definitive process has not yet been discovered.

More information: "Activation of AMPK-regulated CRH neurons in the PVH is sufficient and necessary to induce dietary preference for carbohydrate over fat" *Cell Reports* (2018).

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