Eat your porridge, don't lose your cool, new brain study suggests
Body needs serotonin, produced from tryptophan in meat, cheese, oats, chocolate

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New research suggests why skipping breakfast before work is a bad idea: A nutrient in some foods is critical in regulating the emotions and keeping aggressive impulses in check.

The findings by University of Cambridge scientists suggest that serotonin - a chemical that brain cells use to communicate with one another - helps the brain regions involved in self-control do their job.

The brain makes serotonin from tryptophan, an amino acid obtained exclusively through diet, especially cheese, poultry, meat, oats and chocolate.

"The brain requires certain nutrients to make chemicals that are essential for proper functioning," said Molly Crockett, a Gates Scholar at the University of Cambridge Behavioral and Clinical Neuroscience Institute.

Serotonin has long been suspected in playing a role in aggression and emotional regulation. Certain groups - including alcoholics, people who attempt suicide and violent criminals - have been shown to have abnormally low serotonin levels.

"What they may have in common is impairment in regulating their emotions in social situations or in decision-making," Crockett said.

But it's not clear if it's a cause-and-effect phenomenon. In other words, "if serotonin is playing a causal role in these kinds of behaviour."

So Crockett's team set out to directly manipulate serotonin levels in people's brains and then test their reaction to what they perceived as unfairness.

The study involved 20 healthy volunteers who fasted overnight and then were taken into the lab the next morning. In one experiment, the group was given a protein shake that contained all amino acids, except tryptophan. In another, it was given the same shake but with a few added grams of tryptophan.

After waiting five hours, the volunteers played the Ultimatum Game, where one player proposes a way to split a sum of money with the other partner. If he accepts, both players are paid accordingly. But if the offer is rejected, neither one gets paid.
"What's interesting in this game is that if you do the math and look at what's happening in terms of financial gain, no one should ever reject an offer because it means they don't get any money," Crocket said.

Normally, people tend to reject about half of all offers less than 20 to 30 per cent of the total stake. But when volunteers were depleted of serotonin, the rejection rates increased to more than 80 per cent.

Writing in Science Express, the team says the results suggest that lowering serotonin levels made people more likely to retaliate against what they saw as unfair offers, even if it meant they lost more in the end.

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