

# Big decisions 'best made on full stomach'

**By Roger Highfield, Science Editor**

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The big decisions in life are best made on a full stomach, according to a new study.

Skipping meals can lead to reduced levels of a brain chemical that helps to keep careless and impulsive behaviour in check.

Equally, a good meal can help prevent people behaving in a cranky, aggressive and unfair way by maintaining levels of serotonin, says a study by a Cambridge University team.

advertisement Serotonin has become known as a "feel-good" chemical because low levels have been linked to crotchety behaviour.

Since the key chemical the body uses to manufacture serotonin - an amino acid called tryptophan - only comes from diet, levels of the chemical decline between meals. This in turn can lead to aggressiveness and impulsiveness, say the team.

In the new study, published in the journal *Science* by Molly Crockett, Prof Trevor Robbins, and colleagues at Cambridge and the University of California, Los Angeles, the team cut brain serotonin levels in healthy volunteers for a short time by manipulating their diets.

Some foods are particularly rich in the amino acid, notably chicken soup and chocolate. Red meat, dairy products, nuts, seeds, bananas, tuna, shellfish, and soya products are also good sources.

They then compared them with a group of volunteers on a placebo, who did not know whether or not their serotonin levels were being cut, when playing the 'Ultimatum Game'. In this game one player proposes a way to split a sum of money with a partner. If the partner accepts, both players are paid accordingly. But if he rejects the offer, neither player is paid.

The study of 20 volunteers showed that normally people tend to reject about half of all offers less than 20-30% of the total stake, despite the fact that this means they receive nothing - but rejection rates increased to more than 80% after serotonin reductions.

People with depleted serotonin levels are far more likely to reject unfair offers even when they report no moodiness or other impairment that might affect their choices.

Ms Crockett, a PhD student, said: "Our results suggest that serotonin plays a critical role in social decision-making by normally keeping aggressive social responses in check. Changes in diet and stress cause our serotonin levels to fluctuate naturally, so it's important to understand how this might affect our everyday decision-making."

Serotonin is known to have a significant effect on mood.

Too little leads to depression, while too much can produce feelings of euphoria - as happens when people get high on the drug ecstasy.

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