

## Mind chemical 'controls choice'

**Dopamine, a chemical with a key role in setting people's moods, could have a much wider-ranging impact on their everyday lives, research suggests.**

Experiments show that altering levels of the chemical in the brain influences the decisions people make.

One expert said the results showed the relative importance of "gut feeling" over analytical decision making.

The Current Biology study could help understand how expectation of pleasure can go awry, for example in addiction.

It follows previous research by the University College London team, which, using imaging techniques, detected a signal in the brain linked to how much someone enjoyed an experience. They found that signal could in turn predict the choices a person made.

With the suspicion that the signal was dopamine, the researchers set up a study to test how people make complex decisions when their dopamine system has been tampered with.

The 61 participants were given a list of 80 holiday destinations, from Greece to Thailand, and asked to rate them on a scale of one to six.

**" Dopamine has a role in signalling the expected pleasure from those possible future events "**

Tali Sharot Wellcome Trust Centre for Neuro-imaging

They were then given a sugar pill and asked to imagine themselves in each of 40 of the destinations.

Researchers then administered L-Dopa, a drug used in Parkinson's disease to increase dopamine concentrations in the brain, before asking them to imagine the other holidays.

They rated all the destinations again, and a day later they were asked where they would prefer to go, out of paired lists of holidays.

The extra dopamine gave people higher expectations when rating holiday options.

And that translated into the choice of trip they made a day later.

Study leader Dr Tali Sharot, from the Wellcome Trust Centre for Neuro-imaging at UCL, said humans made far more complex decisions than other animals, such as what job to take and whether to start a family, and it seemed dopamine played an important part in that.

**" It is a sort of shortcut in our thinking "**

Professor John Maule Leeds University

She said they had been surprised at the strength of the effect they had seen.

"Our results indicate that when we consider alternative options when making real-life decisions, dopamine has a role in signalling the expected pleasure from those possible future events.

"We then use that signal to make our choices."

Dr Sharot added that addicts overestimated the pleasure they would gain from something, be it heroin or gambling, because their dopamine system was dysfunctional, and the latest research underpinned that the choices they made would be influenced by that.

### **Gut instinct**

She added: "For many conditions we have medication which changes dopamine function, so knowing we may be changing people's expectations and their decision making might change how we think about giving these types of medications."

Professor John Maule, an expert in decision making, at Leeds University Business School, said that in recent years people had begun to realise emotional or "gut instinct" decision making was just as important in human choices as analytical decision making.

"At any one time you will have both these processes going on, so it's not surprising to see these results, especially when it comes to emotionally based decisions, such as holidays.

"It is a sort of shortcut in our thinking."

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