

Mood makes food taste different

Taste test could be used to pinpoint chemical causes of depression.

Keri Smith

Feeling anxious? Your mood may actually change how your dinner tastes, making the bitter and salty flavours recede, according to new research.

This link between the chemical balance in your brain and your sense of taste could one day help doctors to treat depression. There are currently no on-the-spot tests for deciding which medication will work best in individual patients with this condition. Researchers hope that a test based on flavour detection could help doctors to get more prescriptions right first time.

It has long been known that people who are depressed have lower-than-usual levels of the brain chemicals serotonin or noradrenaline, or in some cases both. Many also have a blunted sense of taste, which is presumably caused by changes in brain chemistry.

To unpick the relationship between the two, Lucy Donaldson and her colleagues at the University of Bristol, UK, gave 20 healthy volunteers two antidepressant drugs, and checked their sensitivity to different tastes. The drug that raised serotonin levels made people more sensitive to sweet and bitter tastes, the team reports in the *Journal of Neuroscience*¹. The other, which increased noradrenaline, enhanced recognition of bitter and sour tastes.

In healthy people, volunteers whose anxiety levels were naturally higher were less sensitive to bitter and salty tastes.

Bitter pill

"What hasn't been done before is to look precisely at which tastes are affected in depression," says Donaldson. Now the results are in, "we can discriminate between the chemicals and the tastes that seem to be altered," she says.

Testing sensitivity to sweet and sour tastes could potentially help doctors to pick up on which chemicals are dipping, guiding them when choosing which drug to rectify the problem.

Currently, doctors rely on physical and emotional symptoms to make a best guess at an individual's imbalance, prescribe a drug and wait about a month to check on any improvement. Good doctors have about a 60-80% success rate in selecting the right drug the first time, says psychiatrist Jan Melichar, a co-author on the paper. Are there any decent tests for prescribing drugs for depression? "No. We do a best guesstimate," says Melichar. "I'm excited by this finding because in 3, 5 or 7 years we could have a simple taste test."

Taste sensation

Next the team plans to perform similar tests in depressed people, and in healthy volunteers given another brain chemical called tryptophan. This chemical would lower the healthy subjects' levels of serotonin, as actually happens in depressed patients.

The work has also generated interest from flavour houses — companies that develop chemicals for the food and drink industry — who are interested, for example, in making foods taste just as sweet with half the amount of sugar. "Theoretically there would be the possibility of enhancing your meal with drugs that affect brain chemicals so that things would taste better — you could have a 'designer taste tablet'," Donaldson says. "But we're not expecting a call from Gordon Ramsay anytime soon."

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Anxiety can make people less sensitive to bitter and salty tastes.

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References

1. Heath T., *et al.* *Journal of Neuroscience*, doi: 10.1523/JNEUROSCI.3459-06.2006 (2006).