



Changes your approach to life

Psychedelic drug helps depression

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CAN a psychedelic trip change the way people with life-threatening cancer face death? It seems so.

Psilocybin, a hallucinogenic compound in magic mushrooms, was banned in the 1960s. But a better understanding of the drug has sparked a revival of research into its potential benefits for depression and anxiety.

"Anywhere from 40 to 50 per cent of cancer patients will have diagnosable anxiety or depression," says Stephen Ross at NYU Langone Medical Center in New York. Current treatments, like antidepressants, don't work any better than placebo, he says, but some small studies suggest that psilocybin could be an alternative.

To investigate, a team at Johns Hopkins University in Baltimore, Maryland, plus Ross's team, carried out two trials involving a total of 80 people with cancer and symptoms of depression and anxiety. In one trial, each person had a psychotherapy session plus

either a high or a very low dose of psilocybin. Five to seven weeks later, they had a second session with the drug dose swapped. The second trial was similar but used vitamin B₃ instead of the low dose.

During each session, the person lay blindfolded on a couch, listening to music. They were asked to focus on their inner experiences. Results from across the trials showed that psilocybin led to immediate and significant falls in measures of depression, anxiety and mood disturbance, and rises in optimism, quality of life and acceptance of death (*Journal of Psychopharmacology*, doi.org/bvd7 and doi.org/bvd8). These benefits were still present in 80 per cent of participants six months later.

The core feature of a psilocybin experience is a feeling that everything is connected, says Roland Griffiths, who led the Hopkins trial. "After this kind of experience, people feel that they've learned something that's of deep meaning to them," he

says. "They attribute changes in how they approach life, interact with people and to their value systems to that experience."

The results form the most extensive trial of psilocybin for treating depression and anxiety. But Richard Shelton and Peter Hendricks at the University of Alabama in Birmingham have questioned the design of the trials, as participants weren't asked which drug they thought they had received. This is usually done to ensure a realistic placebo—or pseudo-placebo in the case of the low drug dose—is used, and that volunteers couldn't tell which treatment they had received. But in a commentary article, the pair note that it may be unfeasible to create a placebo that is indistinguishable from the real thing due to the hallucinogenic effects of the drug.

Ross says the study must be repeated on a larger scale. "Even though our two trials together replicated the same study and would lead one to think this is a real effect, it needs to be done in a larger, nationally representative cancer sample," he says: If the findings were confirmed, then psilocybin may be developed as a drug for cancer-related anxiety and depression, he says. ■

Sea-slapping is whales' little messaging trick

THE sight of whales breaking the surface and slapping their fins on the water is a true spectacle—but it isn't just for show. Instead, all that splashing appears to be for messaging other whales, and the big splashes are long-distance calls.

Ailbhe Kavanagh at the University of Queensland in Gatton, Australia, and her colleagues inferred this by studying 94 groups of humpback whales migrating south along the Queensland coast in 2010 and 2011.

Humpbacks regularly leap out of the water and twist on to their backs—behaviour known as breaching. They also slap their tails and fins repetitively. The team found evidence that the resulting sounds, travelling underwater, could be conveying messages to other whales.

The animals were significantly more likely to breach when their nearest neighbours were more than 4 kilometres away, suggesting that the body-slapping sound of breaching was used to signal to distant groups. In contrast, repetitive tail and pectoral-fin slapping appeared to be for close-range communication: they became more common just before new whales joined, or group

"Migrating whales engage in energetic slapping and breaching behaviours despite not feeding"

members left (*Marine Mammal Science*, doi.org/bvdw).

Whales engage in these energetic behaviours despite not feeding during migration. The fact that these actions are so regular and vigorous indicates their importance, Kavanagh says.

"Although surface-active behaviours only give very simple information like location, it's possible that a succession of these surface sounds could convey a little more information," says Joshua Smith at Murdoch University in Perth, Western Australia. Alice Klein ■