

What is consciousness? Study aims to settle debate

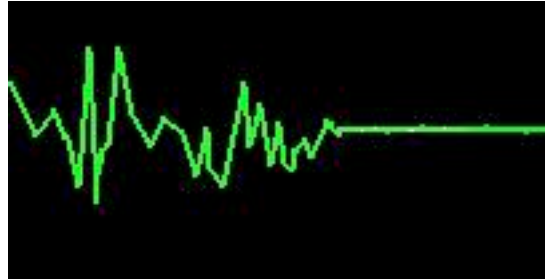
Research would also subject claims of “out of body” experiences to strict test

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In science, plenty of problems are hard. But just one is so gruesomely trying that scientists themselves have termed it, well, “the hard problem.” How does consciousness arise—the living, aware experience of being?

Some theories hold that it arises from, or is even identical to, electrical and chemical processes known to unfold in the brain. Others say it comes from something else: some yet-unknown, highly subtle brain processes, or perhaps a mind-stuff quite distinct from the brain—some call it a soul.



Few on either side claim to have final answers. But they often argue passionately over who’s at least in the right playing field.

Now a group of researchers have begun a study that they say might settle the issue. “We can actually test this, and put and end to all these debates,” said Sam Parnia, a critical care doctor at the Weill Cornell Medical Center in New York.

Parnia has spent years studying reports that some cardiac-arrest patients keep having clear, distinct thought processes after they’re clinically dead and detectable brain activity has ceased. Patients commonly recount these mental experiences, which often include seeing a light at the end of a tunnel, after being revived.

The study aims to put these reports to a test: specific sounds will be played to cardiac-arrest patients, and they’ll be asked to recall the sounds after reviving. If they do, it would confirm the accounts of thoughts without brain activity—indicating “consciousness is a separate, yet undiscovered scientific entity” from the brain, Parnia wrote in a paper in the the April 23 advance online edition of the research journal *Medical Hypotheses*.

“It looks like an interesting proposal,” wrote David Chalmers, a philosopher and director of the Centre for Consciousness at the Australian National University in Canberra, Australia, in an email. If the claims are confirmed, it would “pose an interesting challenge for scientists to explain,” remarked Chalmers, author of several books on consciousness.

But it probably wouldn’t settle the most basic, longstanding dispute, over whether mind and brain are different substances, Chalmers added. For instance, even if patients’ claims are verified, they “could be due to aspects of brain functioning during cardiac arrest that are not captured by the measurements” Parnia is using, Chalmers wrote. These measurements are taken by electroencephalogram, a technique in which sensitive electrodes attached to the head record electrical brain activity.

Parnia said the trials began on a pilot basis in January at two U.K. hospitals with 10 patients; he aims to expand the study to other countries and recruit over 1,000 patients.

Perhaps the most stringent test in the study is also the one that addresses the most extraordinary notion. Critically ill patients sometimes report “out-of-body” experiences in which they feel they have floated out of their own bodies and watch themselves from above.

Mark well: Parnia is not testing whether patients genuinely feel their minds have floated out of their bodies. He wants to test whether the minds actually do float up. The idea is controversial to say the least. Parnia plans to place pictures strategically around patients’ rooms where they’re only visible from the ceiling. “Thus, the claims of conscious awareness and out-of-body experiences will be tested independently,” he wrote in the paper.

He admitted some would find this outlandish. A study published in 2002 found that just electrically stimulating specific brain areas could trigger an out-of-body-like experience—evidence to some that the sensations are illusory, Parnia said in an interview.

Daniel Dennett, director of the Center for Cognitive Studies at Tufts University in Medford, Mass., wrote in an email that he’s never seen any evidence that they’re anything other than hallucinations. Parnia’s experiments, “if conducted with scrupulous care,” will surely confirm this, added Dennett, also author of several books on consciousness.

Yet Parnia said, in defense of the opposite view, that patients have accurately reported events in their hospital rooms that occurred during out-of-body experiences, while they were clinically dead. “If we get 200 people, and all claim to have an out-of-body experience but none can identify the images, that would very much support the idea that this is a false

memory,” Parnia said. “If on the other hand, 200 people identify these images... then we’d have to accept that maybe human consciousness, as bizarre as it may sound, could be non-local to the brain.”

Image: Cessation of brain activity is recognized when a device known as an electroencephalogram, set up to record the brain's electrical activity, detects no activity beyond the inherent internal noise of the machine itself. The read out from the device then appears as flat line.