

## Web Roundup: It's Alive! Not! Well, Maybe? Brain Death and BrainEx ?

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By

Four hours after slaughter, 32 pig brains in a BrainEx system were busy metabolizing, showing [signs of life, if not consciousness](#), despite their bodily separation. The pig brains were part of an experiment conducted by a [neuroscience lab at Yale University](#) with first author contributions by [Zvonimir Vrselja](#) and Stefano G. Daniele. According to the findings published in [Nature](#) on April 17, despite common perceptions that mammalian brains quickly deteriorate after circulation stops, the brain might in fact hold a “greater capacity for metabolic and neurophysiological resilience to anoxic or ischaemic insult than currently appreciated.” Which meant – well, something.

*Yale News* quoted Vrselja as saying, [“Clinically defined, this is not a living brain, but it is a cellularly active brain”](#), which didn't stop popular or scientific presses from quickly jumping into the [ethical mire](#) otherwise known as “brain death;” or rather, the mire surrounding what *counts* as brain death. Experimenters constantly monitored the brain for signs of [electrical activity](#), one of the indicators of consciousness, and were prepared to deliver doses of [anesthesia and other remedial medication](#) should they find any. They did not. Still, the lack of evidence for reading the BrainEx system as a tool for reviving full brain function has only provided additional fodder for debates over the future possibilities of [brain resuscitation](#), the [1968 definition of “irreversible coma”](#), and [even the ethical frameworks of using brains for experiments](#), given that we don't exactly know how to tell if they are “alive” – [or even what that means](#).

In January, the American Academy of Neurology published a [position piece](#) arguing that public trust in the meaning of brain death would be increased with clarified medical practices. The authors stressed the need for “uniformity” in practices surrounding clinical determination of death, responding to persistent contestation between invested parties over [how the end of life should be defined](#). For example, in late 2013 the parents of [Jahi McMath](#) sued UCSF Benioff Children's Hospital Oakland in order to continue her treatment with life sustaining measures, such as a ventilator, after disagreeing with [physician determined brain death](#). Several years after winning the rights to remove her from the hospital, the family's lawyer reported that [McMath's death by liver failure](#) occurred at home.

While not directly cited, such cases challenge [physician authority](#) to interpret a set of biological indicators as indicative of brain activity, or not.

As [Dr. Nathaniel Robbins wrote](#) in one of several follow-up commentaries published in *Neurology*, the ability to determine brain activity via bedside examination is imperfect. Robbins suggests that enhancing trust between providers and patients might require less “dogmatic defense” of current practices, and more acknowledgment of the limitations of different forms of evaluating consciousness. Such acknowledgement would seem to require providers to do more than simply describe the limitations of their technologies, and instead, attend to the persistent, contested, questions of what actually constitutes consciousness.

The graphic of the BrainEx system is replete with red and blue arrows, exchange solution bags filled with yellow and magenta fluids, and, of course, prominently features a disembodied brain mass. The diagram struck me immediately as fantastical, even as eerie, and made BrainEx seem more like a Frankenstein-esque experiment than anything with immediate pragmatic medical consequences. And I was not alone: outlets from [National Geographic](#) to [Vox](#) referenced Mary Shelley’s iconic representation of life crafted out of death in order to draw readerly imaginations to the potential impacts of the BrainEx experiment.

[Shelley’s](#) 1818 *Frankenstein* is often hailed as the progenitor of [modern science fiction](#). In the interim 200 or so years since her work was first anonymously published, artists and scholars have revived *Frankenstein* again and again as a representation of the complex relationships between technologies and the determination of life. In just the last few months, [Manual Cinema’s](#) immersive theatrical rendition of the novel premiered in Chicago and then New York, while pilot season in Los Angeles saw CBS ordering a show that features a back-from-the-dead, crime-solving cop who turns out to be, yes, [Frankenstein](#).

The academy is, of course, itself saturated in *Frankenstein* imagery and ideas. In the *Journal of Gay and Lesbian Studies*’ 25th anniversary edition (also released this past January), Susan Stryker revisited her iconic essay, [“My Words to Victor Frankenstein Above the Village in Chamounix: Performing Transgender Rage”](#). In [“More Words About ‘My Words to Victor Frankenstein’ ”](#), Stryker reflected on the absence of a critical race lens in her original work, while also discussing the ways “My Words” has helped to usher in an era of thinking on modes of embodiment deemed not-quite-human. And, there has been a wealth of important scholarship deeply invested in understanding how the division between lives considered worth living and those qualified as expendable, even monstrous, has come to shape medical and scientific practices.

We in the United States, in particular, are in an era where ongoing experimentation and technological advancements continually seem to shift the boundaries between the living and nonliving. Often, though, the promissory notes of these advancements are built upon assumptions about value of a single life and its significance. Yet, a even a brain dead patient exist in relations with others. A body remains embedded in networks of relations, even builds new ones, as the [29,680 organ donations in 2018](#) indicate. The decision to donate organs is [often left to families](#), whose grief and loss entangle with their own conceptions about what medicine should and could do to preserve the lives of their loved ones; even when that life might take a new and different form. Developments in life-saving technologies, even hypothetical or fictional ones, thus always hold the potential to reshape ethical relations between people and further display underlying notions of who and what is valued.

Truthfully, perhaps no character has ever done as much as Frankenstein to ["shape the way people imagine science and its moral consequences"](#). Rather, technological capacities to extend bodily functioning, like the BrainEx system, continue to circulate the same questions forever haunting medical innovations and academic theorizing on the relationships between consciousness, life and ethical responsibility. The perception (or possibility) of a ["partially alive"](#) brain shakes up common perceptions about what technological capacities we currently have, as well as provides new insight into the capabilities of the brain itself; but the question of what counts as living is as persistent, and as confounding, as the iconic monster itself.

### **Works Cited:**

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