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Predicting Recovery of Disorders of Consciousness

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Predicting Recovery of Disorders of Consciousness

Teagen Kew, MSc. Physics

When a loved one suffers a brain injury and develops a disorder of consciousness (DOC) it's difficult to know what to do. It is a challenge to diagnose those with a DOC, and as a result patients can be misdiagnosed. It is our hope that with fMRI imaging and a proposed theory of consciousness, Integrated Information Theory (IIT), we can improve diagnostic tools and predict how a diagnosis will progress. The patients are separated into two groups: positive outcome - those whose diagnoses improves over a two-year period, and negative outcome - those whose diagnoses remain the same or have deceased. IIT aims to quantify consciousness, or perhaps more accurately, perception. We apply IIT to the groups' fMRI scans, looking at specific brain networks. So far, we have found that the positive group tends to have a higher "consciousness number" and is significantly higher in four out of eleven networks.