

## Alien limb syndrome: Understanding how brain injuries can rob the sense of free will

When Ryan Darby was a neurology resident, he was familiar with something called alien limb syndrome, but that did not make his patients' behavior any less puzzling. Individuals with this condition report that one of their extremities—often a hand—seems to act of its own volition.

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They seem to have lost agency—that unmistakable feeling of ownership of one's actions and an important component of free will.

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[H]e and his colleagues compiled findings from brain-imaging studies of people with the syndrome.

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Using a new technique, the researchers compared lesion locations against a template of brain networks—that is, groups of regions that often activate in tandem.

Lesions associated with alien limb syndrome all mapped onto a network of areas connecting to the precuneus, a region previously linked to self-awareness and agency. In patients with akinetic mutism, the lesions were part of another network centered on the anterior cingulate cortex, which is thought to be involved in voluntary actions. These two networks also include brain regions, which, when stimulated by electrodes in previous studies, altered subjects' perceptions of free will.

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The study suggests at least some components of free will—volition and agency for movements—are not localized in any one brain area but instead rely on a network of regions.

**Read full, original post:** [How Brain Injuries Deprive People of a Sense of Free Will](#)