

THE RUBBER-HAND ILLUSION

A classic experiment to test the idea of body ownership is to have volunteers place a hand out of view under a table and set a rubber hand on the top table. When researchers touch the real hand and the rubber hand synchronously, participants will feel as if the rubber hand were their own. Researchers have observed that brain areas including the premotor, somatosensory, and parietal cortices, candidate regions for identifying and representing self, are activated in response to the now-embodied fake hand **1**.

If the rubber hand is physically threatened, volunteers will often begin to sweat, indicating they feel as if they are at risk of injury. At the same time, activity increases in the insula and anterior cingulate cortex, deep brain regions responsible for bodily awareness and pain anticipation (*PNAS*, 104:9828-33, 2007) **2**.

Meanwhile, the real hand that is under the table—known as the “neglected” limb—experiences a decrease in skin temperature, suggesting reduced blood flow, and an increased innate immune response, suggesting that the body has begun to reject the real hand as it accepts the artificial one as its own **3**.

