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What's mine is mine: Brain scans reveal what's behind the aversion to loss of possessions

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Did you ever wonder why it is so difficult to part with your stuff? A new study reveals fascinating insights into the specific neuropsychological mechanisms that are linked with the potential loss of possessions. The research, published by Cell Press in the June 12 issue of the journal *Neuron*, has important implications for both neuroscience and economics and may even explain why you are reluctant to sell your iPod.

People tend to prefer the items they own when compared to similar items that they do not own. This phenomenon, known as the "endowment effect," violates rational choice theory which states that ownership should not influence preferences. "While the endowment effect occurs regularly and robustly in both laboratory and natural settings, the psychological and neural mechanisms underlying this effect remain unclear," says study author Dr. Brian Knutson from Stanford University.

Dr. Knutson and colleagues used event-related functional magnetic resonance imaging to scan subjects' brains while they engaged in tasks designed to elicit the endowment effect. Subjects were asked to buy certain products, sell other products given to them before the experiment, and choose between yet other products and cash.

The researchers focused on three relevant brain regions, the nucleus accumbens (NAcc), which is associated with the prediction of monetary

gain and product preference, the insula, which is associated with the prediction of monetary loss, and the mesial prefrontal cortex (MPFC), which is implicated in updating initial predictions of monetary gain.

Subjects showed greater NAcc activation for preferred products across buying and selling conditions combined. In contrast, MPFC activation correlated negatively with price during buying, but positively with price during selling. Interestingly, right insular activation in response to preferred products predicted individual differences in susceptibility to the endowment effect.

Taken together, these results indicate that the endowment effect is not promoted by an enhanced attraction to possessions but that ownership increases value by enhancing the salience of the possible loss of preferred products.

"Our findings provide support for one mechanism involving increased aversion to loss of possessions during selling and illustrate that neuroscience methods can advance economic theory not only by breaking down apparently unitary phenomena, such as choice, into constituent components, like anticipation of gain or loss, but also by specifying when each of these components matters," concludes Dr. Knutson.

Source: Cell Press