

Looking for something? Surprising number of neurons help find it

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A person searching for a ripe tomato at the grocery store is more likely to notice apples, strawberries and other red fruits as well, according to a new study that measured changes in blood flow in the brain. The researchers also discovered that more neurons are called into action to help the eyes find a particular object than has previously been documented.

Using functional magnetic resonance imaging (fMRI), researchers observed systematic changes in brain activity when participants focused on observing a certain object in motion, no matter where it appeared in their visual field.

"This increased activity in the brain is what helps you find objects you are looking for, even when you don't know exactly where the objects are," said UC Irvine cognitive scientist John Serences.

The study, co-authored by Serences and University of Washington associate professor Geoffrey Boynton, is published in the July 18 online edition of the journal *Neuron*.

In their study, researchers presented participants with a computer display of objects moving in different directions. Participants were asked to pay attention to objects moving only in a particular direction (for example, the object moving to the left). Using noninvasive fMRI to indirectly measure neural activity, researchers demonstrate that patterns of brain activity change when people pay attention to objects moving in different

directions.

In addition, paying attention to one direction of motion makes the brain more responsive to other objects moving in that direction, no matter where the other objects appear in their visual field - a phenomenon that has not previously been documented.

This research may enhance scientists' understanding of problems such as Attention Deficit Hyperactivity Disorder, while also explaining how healthy people's brains create awareness of their surroundings.

"By gaining a more thorough understanding of how a healthy human brain functions, we will be better equipped in the future to recognize, diagnose and treat abnormalities within the brain," Serences says.

Source: UCI

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