

Study discovers clues into how eyes search

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Like the robots in the "Terminator" movies, our eyes move methodically through a scene when seeking out an object. If we don't immediately find what we're searching for, our attention leaves the already-scanned area behind and moves on to new, unexplored regions of a scene, still seeking the target.

"Inhibition of return" -- in which our [attention](#) rarely or slowly returns to objects we've already looked at -- is what many believe makes visual search so efficient. But how do our eyes behave when we're not specifically hunting for something? A University of Nebraska-Lincoln-led research team recently found clues suggesting our vision, unlike those "Terminator" machines, can lock in on certain targets more quickly if they're not in search mode.

Mike Dodd, a UNL professor of psychology, worked with researchers from Utrecht University in the Netherlands and the University of Iowa in tracking [eye movements](#) as subjects viewed various scenes. Using high-tech equipment that followed [eye](#) movements in real time, researchers recorded where their subjects' attention was focused at each moment.

The participants were divided into four groups: One searched scenes for a specific target; one memorized each scene; one rated how pleasant the scenes were; and one was told to "free-view" the scenes -- to look anywhere they liked.

When a target would appear in the participants' line of sight -- either in an old location or in a spot where their eyes had yet to focus upon -- all

four groups were instructed shift their eyes to the target. But the study's findings, published this month in Psychological Science, suggest that "inhibition of return" happens during visual search and not during other visual tasks.

That is, those in the group told to search for a specific object were slower to shift their eyes back to areas they had already examined. Those in the other three groups, however, had the opposite reaction. They shifted their eyes back much faster to areas they had already looked at than to new locations.

"This was surprising because people have often talked about inhibition of return being the default setting for attention," Dodd said. "Our results indicate that the exact opposite is true. People are actually faster to go back to previously viewed locations when they are doing anything other than search."

The practical importance of knowing how attention behaves is key to thinking about how to arrange the world around us. Simple applications could mean rethinking how to arrange maps, where to place street signs, or how to configure warning lights in cars or airplanes, he said. The information could also be applied to the design of vehicles and equipment to make them as user-friendly as possible.

"Anything we know about visual attention in the big picture is useful, making our findings important since it is in direct opposition to how people usually think attention works in most settings," Dodd said.

Source: University of Nebraska-Lincoln ([news](#) : [web](#))

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