

People are found to be inefficient when searching for things

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(Medical Xpress)—A trio of researchers at the University of Aberdeen in the U.K. has found that when people scan areas looking for something in particular, they tend to do so in a very inefficient manner. In their

paper published in the journal *Proceedings of the Royal Society B*, Anna Nowakowska, Alasdair Clarke and Amelia Hunt describe experiments they carried out with volunteers and what their results indicate about how people go about searching for things.

People spend a lot of time searching for things, whether it is misplaced keys, a wallet or the TV remote—it often happens because we leave objects in unfamiliar places or a cluttered environment. Few [people](#) likely think about their searching strategy when trying to find something, which might be a mistake. The researchers in this new effort discovered that most people apparently waste a lot of time searching in places where the missing object is clearly not located.

To learn more about how people search for things, the researchers enlisted the assistance of 14 [volunteers](#), each of whom was asked to look at images of lines drawn at different angles and to find the one line that was set at 45° to the right. The images were shown on a computer screen that formed a box with multiple very short equal-length lines—the lines themselves formed rows and columns, an array of sorts. Each screen was also divided in half, left and right. The left side was chaotic, with angled lines at different angles than their neighbors. The right side of the screen, on the other hand, was filled mostly with lines at the same angle, though not the 45° angle that the volunteer searched for, which made the correct one stand out—if it was there. As the volunteers searched for the line with the desired angle, their eye movements were tracked by a recording device.

After testing all of the volunteers, the researchers found that most of them spent equal amounts of time searching both sides of the screen, which logic suggests made no sense. A quick look at the right side of the screen would let the volunteer know if the line they were searching for was there, so looking at that side over and over again when the line was not there made no sense—yet most of the volunteers did it anyway.

There were exceptions, the researchers noted—one volunteer in particular did just as would be expected, glancing quickly at the right side and after noting that the target was not there, spent the rest of the time searching the left side of the screen.

More information: Anna Nowakowska et al. Human visual search behaviour is far from ideal, *Proceedings of the Royal Society B: Biological Sciences* (2017). [DOI: 10.1098/rspb.2016.2767](https://doi.org/10.1098/rspb.2016.2767)

Abstract

Evolutionary pressures have made foraging behaviours highly efficient in many species. Eye movements during search present a useful instance of foraging behaviour in humans. We tested the efficiency of eye movements during search using homogeneous and heterogeneous arrays of line segments. The search target is visible in the periphery on the homogeneous array, but requires central vision to be detected on the heterogeneous array. For a compound search array that is heterogeneous on one side and homogeneous on the other, eye movements should be directed only to the heterogeneous side. Instead, participants made many fixations on the homogeneous side. By comparing search of compound arrays to an estimate of search performance based on uniform arrays, we isolate two contributions to search inefficiency. First, participants make superfluous fixations, sacrificing speed for a perceived (but not actual) gain in response certainty. Second, participants fixate the homogeneous side even more frequently than predicted by inefficient search of uniform arrays, suggesting they also fail to direct fixations to locations that yield the most new information.

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