# Why we can't always find what we're looking for (and sometimes find what isn't there)

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When people look for things that are rare, they aren't all that good at finding them. And it turns out that the reverse is also true: When people look for something common, they will often think they see it even when it isn't there. A new report published online on January 14th in *Current Biology,* a Cell Press publication, offers new insight into why this happens and may suggest some simple methods to help airport security personnel looking for weapons and radiologists looking for tumors get better at their jobs, according to the researchers.

"We know that if you don't find it often, you often don't find it," said Jeremy Wolfe of Harvard Medical School. "Rare stuff gets missed." That means that if you look for 20 guns in a stack of 40 bags, you'll find more of them than if you look for the same 20 guns in a stack of 2,000 bags.

But the lingering question was, why? Do people simply start going too fast, get careless, and say "no" too much? If that were true, then people looking for common stuff should also start going too fast, get careless, and say "yes" too much. It turns out that's not what they do, the new study shows. People do send false alarms when looking for common items, but they don't say "yes" faster, they say "no" much more slowly.

"When nothing is there, they don't give up on the response," Wolfe explained. "It's all terribly adaptive behavior for a beast in the world. If you know berries are there, you keep looking until you find them. If they are never there, you don't spend your time hunting."

But that adaptive inclination in nature can cause problems when people start looking for rare things, like guns in baggage or breast cancer. Airport screeners know there probably isn't a gun in your bag, and radiologists know that a tumor probably isn't going to be there, but they really want to catch it if there is. "We aren't well-built for that and make more errors than we'd like."

Wolfe thinks that there may be ways to solve this problem, or at least to improve upon our searching skills. He says that his team suspects error rates may be lowered by offering people in jobs like these some simple retraining at the start of every shift. If they spend a couple of minutes doing a simulated search for common weapons or tumors, they might then do a better job at really finding rare ones for the next 30 minutes or so.

The researchers plan to conduct tests at the clinic and the airport, to see whether the effects seen in the laboratory will hold true in the real world where the stakes are higher. They will also test strategies designed to make people less prone to making the wrong call.

Provided by Cell Press

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