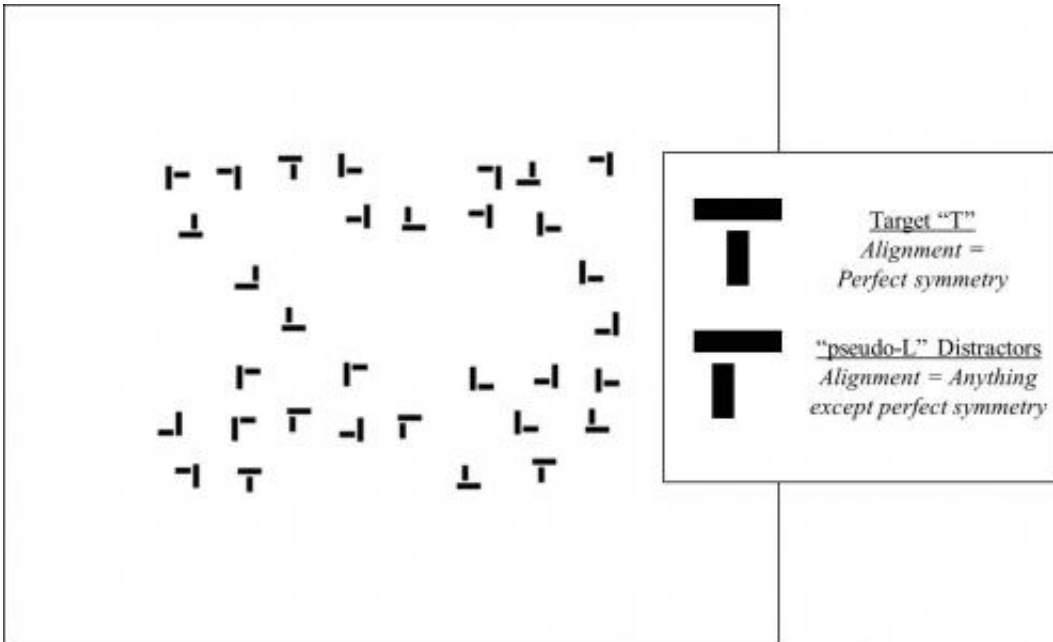


# Slow and steady wins the baggage search

June 17 2013

---



Within this set of 32 figures, there is just one that forms a T shape. Professional searchers took longer to search patterns like this, but with higher accuracy than civilians. Credit: Adam Biggs, Duke University

Next time you're doing a slow burn in security screening at the airport, calm yourself with the assurance that a more deliberate baggage scanner may do a better job.

In a [laboratory test](#) of visual searching ability, scientists found trained [Transportation Security Administration](#) (TSA) screening officers were a lot slower than undergraduate students and other civilians. But the

amateurs were sloppier.

The test is part of ongoing research by Duke University psychologist Stephen Mitroff to understand how the brain manages visual searching, which is important not only to security but also to [cancer screening](#). Adam Biggs, a postdoctoral associate in Duke's Center for [Cognitive Neuroscience](#), ran this series of tests on 206 TSA professionals based at Raleigh-Durham Airport (RDU) and 93 Duke undergraduates.

Participants performed an artificial search test on a computer screen in which they had to identify one particular T-shaped arrangement of two rectangles in a field of eight to 32 similar shapes. Half of the screens they looked at didn't include the correct shape.

Though not as complex or difficult as looking at real bags, the artificial test put the students and professional searchers on equal footing. "If we just showed undergrads real baggage images, they wouldn't know what to look for," Biggs said.

The researchers measured searchers' speed and accuracy over 256 tests per participant. They also split the TSA screeners into two groups to distinguish those with less than 3 years experience and those with more than 6 years experience, but they didn't find any significant differences between them in basic screening abilities. Both TSA groups, who have been trained on how to search, outperformed the undergrads.

The students were 82 percent accurate at finding the target shapes, but on average only took 3.86 seconds per scan. The TSA searchers took longer—more than 6 seconds on average—but had accuracy rates of 87 and 88 percent.

The students also showed more variability in response time as the set of objects got larger; the professionals were more consistent.

Biggs said the professional screeners who took the test may be slower on the artificial task because their training makes them take more into consideration. Eye-tracking wasn't used in these experiments, but measures of their speed and consistency indicate it's likely the trained searchers were more systematic and methodical.

Earlier research by Mitroff's group and others has shown that memory plays an important role in searching. A slower, more consistent pattern of searching frees up some of the brain's processing, because the searcher doesn't have to remember what has already been examined. To experience the cognitive slowdown, Biggs suggests trying to recite the alphabet out of order. You slow down trying to remember which letters you've already used.

"We gain a lot by doing things consistently," Mitroff said. The takeaway for the Department of Homeland Security, which helped fund the research, is that training screeners to use methodical, consistent search patterns is the most effective way to improve performance. Biggs said that consistency by itself probably doesn't yield immediate benefits until a search pattern becomes second nature and doesn't have to be thought about, but they haven't measured that effect yet.

**More information:** The study appears online in *Visual Cognition*.

Provided by Duke University

Citation: Slow and steady wins the baggage search (2013, June 17) retrieved 27 April 2024 from <https://medicalxpress.com/news/2013-06-steady-baggage.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.