

# Adults with dyslexia improve when pushed to read faster

Success of program challenges commonly accepted slow-down approaches.

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People with dyslexia are often taught to work through reading by 'slowing down and sounding it out'. Results from a computerized training program, however, suggest that 'hurrying up and getting on with it' might be a better practice. Accelerated training could improve both reading fluency and comprehension, with lasting benefits.

The training protocol speeds up reading by displaying a sentence and then systematically erasing it, letter by letter, in the direction of reading. It then asks questions to test the reader's comprehension. If the questions are answered correctly, the software moves on to the next sentence but gives the reader 2 milliseconds — the duration of an eyeblink — less reading time per letter.

"We essentially tell the brain, 'Hey, you can do better,'" says Zvia Breznitz, a psychologist at the University of Haifa in Israel and lead author of the study. "We slowly break the cycle of bad reading."

After training with the programme for three 20-minute sessions per week for two months, students with dyslexia read about 25% faster than before and comprehended more, even when allowed to read at their own pace. Their test scores ended up statistically indistinguishable from those of typical readers who had not gone through training, and the gains were still apparent six months after training ended. Typical readers also benefited from the training, but their gains were neither as significant nor as long-lasting as the dyslexics'. The findings are published today in *Nature Communications*<sup>1</sup>.

"The results are exciting," says Guinevere Eden, a neuroscientist at Georgetown University in Washington DC.

Dyslexia is thought to affect between 5 and 10% of the world's population<sup>2</sup>, but there is no gold-standard method for treating it.

## All at once

Many drills emphasize painstakingly breaking down words into sound packages, but such techniques can require several hours a day of drills and often lead only to short-term gains or to no improvements at all in reading speed and comprehension<sup>3</sup>. "This study tackles it from the other side and directly works on fluency," says Eden.

Why the method works is not entirely clear, the researchers say. The disappearance of letters might compel readers to attend more closely to the text, without dawdling and letting important contextual information slip out of limited short-term memory stores. And by consistently challenging readers to work faster than before, the training may allow new, more efficient habits to nudge out old ones. "I'm always amazed at the new ways the brain has of solving old problems," says Avi Karni, a neuroscientist at the University of Haifa and a co-author of the study.

The researchers hope to follow up their findings with an imaging study that could help to explain which brain areas are being used during the training. Eden also wonders whether the programme might help deaf readers, who, like those with dyslexia, have trouble with 'sounding out' words and tend not to read as well as hearing peers.

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## References

1. Breznitz, Z. *et al. Nature Commun.* **4**, 1486 (2013).
2. Siegel, L.S., *Paediatr. Child Health.* **11(9)**, 581–587 (2006).



Sigrid Olsson/PhotoAlto/Corbis

Adults who have trouble reading might do better if they take less time over it.

3. Alexander, A.W. & Slinger-Constant, A.-M., J. *Child Neurol.* 19 no. **10** 744–758 (2004).