

# Being bilingual may delay Alzheimer's and boost brain power

Research suggests that bilingual people can hold Alzheimer's disease at bay for longer, and that bilingual children are better at prioritising tasks and multitasking

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Alok Jha, science correspondent

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The onset of Alzheimer's disease seems to be delayed by around four years in bilingual speakers. Photograph: Sarah Lee/Guardian

Learning a second language and speaking it regularly can improve your cognitive skills and delay the onset of dementia, according to researchers who compared bilingual individuals with people who spoke only one language.

Their study suggests that bilingual speakers hold Alzheimer's disease at bay for an extra four years on average compared with monoglots. School-level language skills that you use on holiday may even improve brain function to some extent.

In addition, bilingual children who use their second language regularly are better at prioritising tasks and multitasking compared with monolingual children, said Ellen Bialystok, a psychologist at York University in Toronto.

"Being bilingual has certain cognitive benefits and boosts the performance of the brain, especially one of the most important areas known as the executive control system," said Bialystok on Friday at the annual meeting of the American Association for the Advancement of Science in Washington, DC.

"We know that this system deteriorates with age but we have found that at every stage of life it functions better in bilinguals. They perform at a higher level. It won't stop them getting Alzheimer's disease, but they can cope with the disease for longer."

In her research, published recently in the journal Neurology, Bialystok looked at 211 people with probable Alzheimer's disease, 102 of whom were bilingual and 109 monolingual, and noted the age at which the patients' cognitive impairment had

started. Her results showed that bilingual patients had been diagnosed 4.3 years later, on average, and had reported onset of symptoms 5.1 years later than monolingual patients.

She said switching between different languages seems to stimulate the brain so that it builds up a cognitive reserve. "It is rather like a reserve tank in a car. When you run out of fuel, you can keep going for longer because there is a bit more in the safety tank."

The effect was greatest for people who had to use the language every day and choose between two sets of words all the time. Nevertheless, learning a language at school and continuing to practise it was also useful, she said. "It works best for people who speak two languages every day, like immigrants moving to a new country who speak their own language at home. But every little bit helps."

Bialystock said her team was now researching whether using two or more languages resulted in any physical changes to the brain, in addition to improving cognition. Early results suggest that it may change brain size.

Another study of bilingual people carried out by Judith Kroll, a psychologist at Penn State University, supported the idea that speaking more than one language keeps the brain in shape and bolsters mental function. She found that bilingual speakers could outperform single-language speakers in mental tasks such as editing out irrelevant information and focusing on important details. Bilinguals were also better at prioritising and multi-tasking, she said.

"We would probably refer to most of these cognitive advantages as multi-tasking," said Kroll. "Bilinguals seem to be better at this type of perspective-taking."

Her findings conflict with the idea that speaking several languages confuses the brain and might even hinder cognitive development. "The received wisdom was that bilingualism created confusion, especially in children. The belief was that people who could speak two or more languages had difficulty using either. The bottom line is that bilingualism is good for you."

When speaking to each other, bilingual people can quickly switch between two languages, usually choosing the word or phrase from the language that best expresses their thoughts. But bilinguals rarely slip into a second language when speaking to people who only speak one language.

"The important thing that we have found is that both languages are open for bilinguals. In other words, there are alternatives available in both languages," said Kroll. "Even though language choices may be on the tip of their tongue, bilinguals rarely make a wrong choice."

"The bilingual is somehow able to negotiate between the competition of the languages," Kroll said. "The speculation is that these cognitive skills come from this juggling of languages."