

Does bilingualism delay dementia?

Anyone compiling a list of the most important 21st-century Canadian contributions to brain health would be hard pressed to top the evidence that being bilingual can delay the onset of dementia and Alzheimer disease by four to five years.

That figure was first reported in a study of patients at a memory clinic in Toronto's Baycrest Health Sciences and published in a 2007 study in *Neuropsychologia*. Since then, further research at Baycrest, as well as studies from India, Belgium and elsewhere, seem to confirm the link between bilingualism and delayed onset of Alzheimer disease. Hundreds of articles commenting on that link have also appeared in the media.

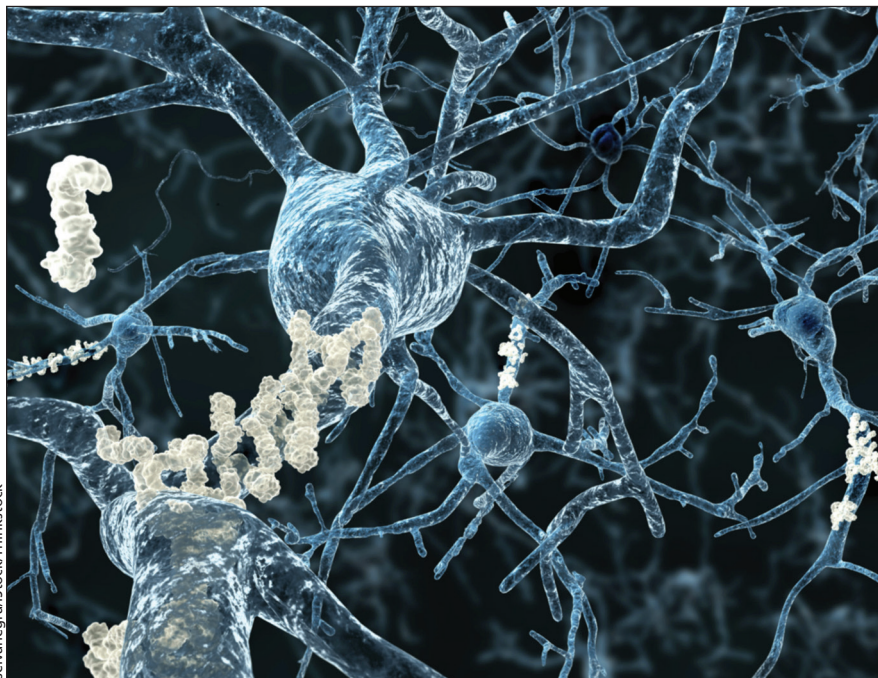
With this research as a backdrop, language companies are promoting their products as a way not only to speak to others, but also to reduce the risk of dementia. One striking example is the emphatic headline of a blog from the language teaching company Rosetta Stone: "Worried About Alzheimer's? Learn a Second Language."

Only it may not be so.

Since 2009, a number of large-scale studies — including one from Montréal published in 2010 in *Alzheimer Disease & Associated Disorders* — have reported no definite connection between knowing another language and a later onset of Alzheimer and dementia.

The expanding controversy has also taken on a distinctly Canadian colouring. Esme Fuller-Thomson, a professor of social work at the University of Toronto with a cross appointment to the Faculty of Medicine, says she was initially excited by the Baycrest finding. However, as large contradictory studies started appearing — she counts at least four — she began publishing articles arguing that a likely explanation for many of the positive findings was the "healthy migrant" effect.

"If you have the wherewithal to immigrate to a new country and in order to qualify as an immigrant, you can't have physical disabilities, then you are already far ahead of the average person in that



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Experts disagree over whether bilingualism can delay the onset of Alzheimer disease, depicted above, and dementia.

country," says Fuller-Thomson. This skew in immigrant physical and mental health might explain the later onset of Alzheimer disease and dementia.

In opposition to this, the Baycrest group's lead researcher Ellen Bialystok, a professor of psychology at York University who is renowned for her bilingualism research, says that a number of articles by Fuller-Thomson and other critics ignore both physical evidence that bilingualism changes the brain and the collective weight of confirming studies. "People who say that they couldn't replicate the Baycrest study and so it must be wrong, ignore the fact that there are 73 other studies out there that have replicated it and have shown the same effect," says Bialystok.

In response to the healthy immigrant explanation, she points to bilingualism's brain protective effect in people from Hyderabad, India, whose families aren't recent immigrants but have been multilingual for hundreds of years.

All of this raises two questions.

Given that there is no effective phar-

maceutical treatment for Alzheimer disease — something that Bialystok said has substantially fuelled the interest in the Baycrest research — shouldn't someone conduct a definitive study that proves or disproves this link?

Unfortunately, everyone agrees the methodology for such a study is beyond complex. The problem begins with defining bilingualism: Are we referring to people who speak another language every day? Who write it? Do we mean people who learned it as children? Is there a different brain effect if languages are similar — Spanish and French, for example — as opposed to radically different, like Chinese and English? Even accounting for all that, how would you construct a long-term study in which one randomized group of people are required to learn an additional language and another is forbidden to do so? To date, no single study has been able to resolve all these issues.

Then there is the cultural and political context in which bilingualism takes place. Thomas Bak, a University of Edinburgh cognitive neurologist and

coauthor of the Hyderabad paper, points out that most of the positive results have come from places like Canada, Belgium, India and the Catalan area of Spain where bilingualism is both culturally and politically mandated. But many of the negative correlations have come from the officially unilingual United States, where in many parts of the country, there is an active resistance to bilingualism

and bilingual education, particularly as related to speaking Spanish. “So the elephant in the room when interpreting [the American studies] is the incredible negativism toward bilingualism in the US,” Bak says.

So what is a doctor supposed to say to patients when they ask if they or their children should study another language to put off dementia and Alzheimer disease?

Failing a definitive study, there is no agreement among the disputing parties; however, Yaakov Stern, professor of neuropsychology at Columbia University and a coauthor of one of the negative studies, describes one thing everyone does agree on: “It can’t hurt.” — Stephen Strauss, Toronto, Ont.

CMAJ 2015. DOI:10.1503/cmaj.109-5022