

# What bilingualism and crosswords have in common

Bilingual people with dementia show symptoms at a later age than do those who speak just one language -- a finding with important societal implications, says York University psychology professor Ellen Bialystok.

Bialystok, who studies how bilingualism affects the brain, recently published research that made headlines across Canada. All other things being equal, her work shows that bilingual people with dementia start having problems with cognitive function four years later than do their monolingual counterparts.



That's an important finding. The longer a person can stave off the symptoms of dementia, the lesser the social and economic burden.

"I'm not saying bilinguals don't get Alzheimer's disease," stresses Bialystok. "I'm saying that when they get Alzheimer's, they have more reserves to cope with it."

## Loading up the gas tank

Bialystok is talking about cognitive reserve -- a concept in brain research that is gaining traction.

"The idea is you can load up the gas tank so that when it runs out, you still can keep going. The way you do it is by stimulating activities. Like doing crossword puzzles, joining a club, doing physical exercise," explains Bialystok. "Stimulating activities can protect your brain."

Speaking two languages is a pretty stimulating activity as Bialystok and her colleagues at Toronto's Rotman Research Institute at Baycrest have discovered.

Published in 2007, their study examined nearly 200 patients with dementia who were referred to the Memory Clinic at Baycrest. About half were bilingual -- those who grew up bilingual and who continued to switch back and forth between languages. The other half spoke only one language.

To determine the age of onset, each patient's family was asked when they first started noticing symptoms. While Bialystok admits this is a subjective way of determining at what age patients began having cognitive problems, she says there is no reason to believe monolingual and bilingual families would differ in their judgment.

Next, Bialystok and her team assessed the patients' symptoms and found that among patients with comparable symptoms, the bilingual patients were on average four years older than the monolingual ones.

### **Multiple languages keep symptoms at bay even longer**

Bialystok, who won the [2010 Killam Prize](#) for her research into bilingualism and the brain, is now figuring out just how bilingual a person needs to be to benefit from a topped-up cognitive reserve.

To keep their comparisons simple, she and her fellow researchers weeded out patients who used to be bilingual or were partly bilingual. So the question of levels of bilingualism and consequent levels of cognitive protection remain.

But Bialystok can make some educated guesses about a few things. She points to recent research out of McGill and Concordia universities in Montreal which suggests multi-lingual people can ward off the symptoms of dementia even longer than bilingual people.

"The story is complex. We don't know all of the parameters yet and that's why we have to keep looking," she said."

*Professor Ellen Bialystok was awarded an Alzheimer Society of Canada's 2008-10 research grant for "The effect of lifelong bilingualism on the onset and progression of Alzheimer's."*