

# Vieux, en bonne sante . . . et bilingue

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In French, that means *old, healthy . . . and bilingual*. I could just as well have used Google Translate to put that phrase into Finnish or Spanish or Chinese. The fact is, I don't speak any of those languages fluently—any language except English really. Which puts me in good company: When Senator Barack Obama was campaigning for the presidency back in 2008, he told a crowd in Dayton, Ohio: “I don't speak a foreign language. It's embarrassing.”

It is embarrassing. But worse than that, it may be unhealthy. New research suggests that bilingualism may convey previously unrecognized cognitive benefits—benefits that appear early and last a lifetime. These benefits may go well beyond language itself. Indeed, speaking two languages may shape the mind and brain in fundamental ways, creating mental reserves that help stave off the ravages of dementia.

That's the surprising possibility emerging from an ongoing research project at York University in Ontario. Cognitive psychologist Ellen Bialystok has for years been testing and comparing people who speak one or two languages, including children, adults and the elderly. Her overall conclusion is that bilingualism enhances the brain's “executive control.” That's a catchall term that encompasses the ability to pay attention, to ignore distractions, to hold information in short-term memory, to do more than one task at a time. It's mental discipline, and it typically emerges in childhood and declines in old age.

Bialystok has tested this many different ways. Here's one example: She had 4- and 5-year-old kids do a card sorting task. The cards show circles or triangles, some red and some blue, and the kids are told to sort the deck by color. Later they are told to switch—and sort the same cards by shape. Young children usually have great difficulty making this mental switch, but when Bialystok ran the experiment, bilingual kids were much better with the rule change. This indicates heightened executive control.

This advantage appears to persist into adulthood. Bialystok (working with various colleagues) compared bilinguals and monolinguals on various lab tests that require mental discipline. The Stroop test is one such test. That's the one where you have the word R-E-D printed in blue, and you have to rapidly name the ink color rather than read the word. It's hard—and again the bilinguals consistently did better than subjects who only spoke one language. Or looked at another way, monolinguals had a cognitive deficit—and this deficit appears to increase as adults get older.

Right into old age. Bialystok wanted to explore whether enhanced executive control actually has a protective effect in mental aging—specifically, whether bilingualism contributes to the “cognitive reserve” that comes from stimulating social, mental and physical activity. She studied a large group of men and women with dementia, and compared the onset of their first symptoms. The age of onset for dementia was a full four years later in bilinguals than in patients who had lived their lives speaking just one language. That's a whopping difference. Delaying dementia four years is more than any known drug can do, and could represent a huge savings in health care costs.

Is there any downside to bilingualism? Yes. As reported on-line in the journal *Current Directions in Psychological Science*, Bialystok's studies also found that bilinguals have less linguistic proficiency in either of their two languages than do those who only speak that language. They have somewhat smaller vocabularies, for example, and aren't as rapid at retrieving word meanings. But compared to the dramatic cognitive advantages of learning a second language, that seems a small price to pay. Plus you can travel to Paris without the embarrassment of constantly thumbing through your dog-eared *French for Dummies*.

Wray Herbert's "We're Only Human" column appears regularly in the magazine *Scientific American Mind*. His book, *On Second Thought: Outsmarting Your Mind's Hard-Wired Habits*, will be published by Crown in September.