

# Bilingual People Are Like Brain 'Bodybuilders'

By Tanya Lewis, Staff Writer | November 12, 2014 07:07am ET



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People who speak two languages may have brains that are more **efficient** at language processing and other tasks, new research suggests.

Scientists have long assumed that the "bilingualism advantage" — the enhanced ability to filter out important information among nonimportant material — stems from how bilingual people process language. The new study confirms that assumption, and goes on to suggest that bilingual people are more **efficient** at higher-level brain functions such as ignoring other irrelevant information, said Ellen Bialystok, a psychologist at York University in Toronto, who was not involved in the research.

In the study, brain **scans** showed that people who spoke only one language had to work harder to focus on a single word, according to the study published today (Nov. 12) in the journal *Brain and Language*.

## Brain bodybuilders

In previous studies of people's eye movements, Marian and her colleagues found that when bilingual people heard a word in one language, they often looked at objects whose names sounded similar to that word in their second language. In the new study, the researchers looked at how the ability to filter information manifests itself in the brain.

The researchers used functional magnetic resonance **imaging** (**fMRI**) to scan the brains of 35 people from the University of Houston, including 17 who were fluent in both Spanish and English and 18 who spoke only English.

During the experiment, volunteers heard the name of an object and simultaneously were shown a picture of that object, as well as an object with a similar-sounding name, and two unrelated objects. For example, they might hear the word "cloud," and see pictures of a cloud, a clown and two other things. As fast as they could, the volunteers had to pick the picture that showed the word they heard.

Bilingual people were no **faster** at performing the task than monolinguals. However, their brain activity was markedly different, the scans revealed.

The brains of people who spoke only one language lit up much more than those of their bilingual counterparts in regions of the brain involved in **controlling** higher-level functions, including suppressing [competing word meanings](#). In other words, monolinguals' brains had to work much harder to perform the task, the researchers said.

The researchers compared the task with weightlifting at a gym. "The bilingual has to lift more weight than the monolingual, because bilinguals experience competition within and between both their languages while listening to speech," the researchers told Live Science, in an email signed by all of them. "But the bilingual is also stronger, because they've been mentally 'working out' like this for their whole life."

### **Bilingual benefits**

Other scientists praised the study for its approach to studying the brain activity of bilingual people.

"This study fills in one of the important missing pieces in our understanding of how bilingualism leads to cognitive benefits," Bialystok said.

Most of the previous research on the [benefits of bilingualism](#) has focused solely on behavior, which has drawn criticism from some scientists.

"There is actually a big discussion about whether the bilingual advantage exists or not," said Dr. Jubin Abutalebi, a cognitive neurologist at the University San Raffaele, in Milan, Italy.

The new **study** added to the field by showing that the task of filtering information activates different brain areas in bilinguals versus monolinguals, Abutalebi told Live Science.

Knowing multiple languages may have other benefits, too. In a previous study published in the journal *Bilingualism: Language and Cognition*, Marian and her colleagues found that bilingual **children** were able to ignore classroom noise more easily than monolingual children. Some research suggests that being bilingual may also help [stave off Alzheimer's disease](#) and dementia for a few years by keeping the brain nimble and increasing the amount of gray matter, though other studies on have had conflicting results and more research is needed, according to the [Mayo Clinic](#).