

# McGill discovery: Alzheimer's drugs make bones stronger

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(Medical Xpress) -- The drugs commonly used to treat memory loss in Alzheimer's patients can make bones stronger, according to a recent study led by Faleh Tamimi, assistant professor at McGill University's Faculty of Dentistry. The findings, published in *Journal of Bone and Mineral Research* and highlighted in *Nature Reviews: Endocrinology*, could help further research into the idea that bone strength is controlled centrally within the brain.

Two drugs frequently used to treat Alzheimer disease (AD), donepezil and rivastigmine, are known to stimulate a group of neurons in the brain that play a major role in maintaining memory. While these drugs have been widely used in the treatment of AD and other forms of dementia since the mid-1990s, their potential effect on [bone](#) biology had not been explored.

Recent research indicated that certain neurons can regulate bone metabolism and that their damage results in weaker bones. But little was known about the potential that increased activity by these neurons might have on bone. The McGill-led team determined that the use of donepezil and rivastigmine, two drugs that in theory could increase the activity of bone-regulating neurons, is associated with a beneficial effect on bone strength and a decreased risk of [hip](#) fracture in Alzheimer's patients.

The researchers studied Alzheimer's patients, aged 75 or older, who were treated at a single hospital in Spain. Eighty recorded cases of hip fractures were compared with 2,178 patients without hip fracture

(control group). The study showed that patients who were receiving donepezil and rivastigmine were associated with a lower risk of hip fracture.

"These findings improve our understanding of bone disease and open a new therapeutic window for the treatment of osteoporosis," explained Prof. Tamimi. "An added value of this discovery is that the drugs we found to be beneficial for preventing hip fractures are readily available in pharmacies. Even though more tests are required to confirm our findings, the fact that donepezil and rivastigmine have been proven safe will facilitate the translation of our discovery into clinical application for treating [patients](#) suffering from osteoporosis."

**More information:** To view the full paper in *Journal of Bone and Mineral Research*: [www.jbmr.org/details/journalArticleDetails.do?articleId=12345](http://www.jbmr.org/details/journalArticleDetails.do?articleId=12345)

To read the review in *Nature Reviews: Endocrinology*: [www.nature.com/nrendo/journal/v12/n6/full/nrendo.2012.68.html](http://www.nature.com/nrendo/journal/v12/n6/full/nrendo.2012.68.html)

Provided by McGill University

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