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Vitamin D and mental agility in elders

This release is available in [Spanish](#).

At a time when consumer interest in health-enhancing foods is high, Agricultural Research Service (ARS)-funded scientists have contributed to a limited but growing body of evidence of a link between vitamin D and cognitive function.

Cognitive function is measured by the level at which the brain is able to manage and use available information for activities of daily life. Alzheimer's disease, the most common form of age-related dementia, affects about 47 percent of adults aged 85 years or older in the United States. Identifying nutritional factors that lower cognitive dysfunction and help preserve independent living provides economic and public health benefits, according to authors.

The study, which was supported by ARS, the National Institutes of Health, and others, was led by epidemiologist Katherine Tucker with the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University in Boston, Mass. Tucker collaborated with HNRCA laboratory directors Irwin Rosenberg, Bess Dawson-Hughes and colleagues.

Metabolic pathways for vitamin D have been found in the hippocampus and cerebellum areas of the brain involved in planning, processing, and forming new memories. This suggests that vitamin D may be implicated in cognitive processes.

The study involved more than 1,000 participants receiving home care. The researchers evaluated associations between measured vitamin D blood concentrations and neuropsychological tests. Elders requiring home care have a higher risk of not getting enough vitamin D because of limited sunlight exposure and other factors.

The participants, ages 65 to 99 years, were grouped by their vitamin D status, which was categorized as deficient, insufficient, or sufficient. Only 35 percent had sufficient vitamin D blood levels. They had better cognitive performance on the tests than those in the deficient and insufficient categories, particularly on measures of "executive performance," such as cognitive flexibility, perceptual complexity,

and reasoning. The associations persisted after taking into consideration other variables that could also affect cognitive performance.

The 2009 study appears in the *Journals of Gerontology, Series A, Biological Sciences and Medical Sciences*.

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