

## **Vitamin B12 & Cognitive Decline**

*By Joanna Cosgrove, Nutraceuticals World*

For elderly adults, memory gaps or having difficulty with recall could be an early warning sign of dementia or even Alzheimer's disease. In an effort to uncover the mysteries surrounding the root of cognitive decline, researchers at Medford, MA-based Tufts University's Jean Mayer USDA Human Nutrition Research Center on Aging (USDA HNRCA) recently published the results of an observational study in the *Journal of the American Geriatrics Society*, during which they were able to link a mild deficiency in vitamin B12 to accelerated cognitive decline.

Led by Martha Savaria Morris, PhD, an epidemiologist in the Nutrition Epidemiology Program at the HNRCA at Tufts University, the researchers examined data from 549 men and women enrolled in a cohort of the Framingham Heart Study, focusing on scores on the Mini-Mental State Examination (MMSE), a short list of questions and tasks commonly used to screen for dementia.

The study subjects were divided into five groups that were ranked according to their vitamin B12 blood levels. The researchers noted that the subjects who were assigned to the two lowest groups were associated with significantly accelerated cognitive decline, based on an analysis of test scores from five MMSE tests given over a period of eight years.

"Men and women in the second lowest group did not fare any better in terms of cognitive decline than those with the worst vitamin B12 blood levels. Over time, their MMSE scores declined just as rapidly," Dr. Morris said. "Rapid neuropsychiatric decline is a well-known consequence of severe vitamin B12 deficiency, but our findings suggest that adverse cognitive effects of low vitamin B12 status may affect a much larger proportion of seniors than previously thought."

In their study, Dr. Morris and her colleagues wrote that MMSE scores dropped, on average, 0.24 points per year versus an average drop of 0.35 points annually in the two groups with the lowest vitamin B12 blood levels. The authors observed an even steeper decline of about 1-point per year in some people in the two lowest groups who also exhibited high blood levels of folate or took supplements containing its synthetic form, folic acid, although their models indicate the additional cognitive decline is potentially related to other health problems in this particular study population.

The subjects in the Tufts study were mostly Caucasian women with a median age of 75 who had earned at least a high school diploma. Paul Jacques, DSc, the study's senior author and director of the Nutrition Epidemiology Program, explained that the team's future research might include more diverse

populations and explore whether vitamin B12 status impacts particular cognitive skills, as the MMSE results provide only a general picture of decline. “While we emphasize our study does not show causation, our associations raise the concern that some cognitive decline may be the result of inadequate vitamin B12 in older adults, for whom maintaining normal blood levels can be a challenge,” he said.

While most elderly adults consume a minimal amount of vitamin B12 from their diet from animal proteins such as lean meats, poultry and eggs, older adults may have difficulty absorbing vitamin B12 from food. The consumption of a high amount of processed foods over the course of a lifetime can also lead to a severe vitamin B12 deficiency which can, in turn, adversely impact chemical and electrical signaling in the brain. The USDA’s 2010 Dietary Guidelines for Americans recommend that people over 50 years-old incorporate B12 fortified foods or supplements in their diets.