Using Vitamin D to Reduce Falls in Older Adults

Every year, falls affect approximately one in three older adults living at home, with approximately one in 10 falls resulting in serious injury. Research has shown that vitamin D plays a key role in maintaining muscle integrity and strength and some studies suggest it may reduce the risk of falls. Researchers at Wake Forest Baptist Medical Center evaluated the feasibility of delivering a vitamin D supplement through a Meals-on-Wheels (MOW) program to improve older adults’ vitamin D levels and reduce falls. Participants in the MOW program were recruited to participate in a 5-month, single-blind randomized trial.

Sixty-eight participants received either a monthly vitamin D supplement of 100,000 international units or placebo delivered with their MOW meal. The study included participants’ history of falls and fear of falling, blood tests at the beginning and end of the trial to measure 25-hydroxyvitamin D (i.e., the biomarker for vitamin D in blood), and a monthly diary recording falls during the trial period. At the beginning of the pilot study, the research team found that more than one half of participants had insufficient concentrations of vitamin D in the blood and less than one quarter had concentrations in the optimal range.

The study showed that the monthly vitamin D supplement was effective in increasing the concentrations of vitamin D in the blood from insufficient to sufficient levels in all but one of 34 participants, and to optimal levels in all but five. Participants in the vitamin D group reported approximately one half of the falls of those in the control group.


Testing Cortisol Levels to Identify Patients at Risk for Thinking Skills Problems

Testing the saliva of healthy older adults for the level of the stress hormone cortisol may help identify those who should be screened for problems with thinking skills, according to a study published in Neurology. The study found that individuals with higher levels of cortisol in the evening were more likely to have a smaller total brain volume and perform worse on tests of thinking and memory skills.

The study involved 4,244 individuals (average age = 76 years) without dementia. Participants had a brain scan to look at brain volume and took tests of their thinking and memory skills. Saliva samples were taken from participants once in the morning and evening to determine cortisol levels. Participants were divided into three groups based on cortisol levels of high, medium, and low.

Individuals with the highest level of cortisol were more likely to have a smaller overall brain volume than those with lower levels, with a difference of 16 mL between the two groups. Individuals with the highest level of cortisol also performed worse on memory and thinking tests than those with low levels.

Dementia Medications May Cause Dangerous Weight Loss

Medications commonly used to treat dementia could result in harmful weight loss, according to a study in the *Journal of the American Geriatrics Society*, and clinicians need to account for this risk when prescribing these drugs to older adults.

Researchers used national Veterans Affairs data from 2007-2010 to evaluate patients 65 and older diagnosed with dementia who received a new prescription for a cholinesterase inhibitor or other new chronic medication. The primary outcome was timed to a 10-pound weight loss over a 12-month period, as this represents a degree of loss that would be noticed by a clinician and perhaps prompt further action in considering causes and potential treatments.

A total of 1,188 patients started on cholinesterase inhibitors were matched to 2,189 patients started on other medications. At 12 months, 78% of patients were still taking inhibitors compared to 66% of patients taking other medications. Approximately 29.3% of patients taking inhibitors experienced significant weight loss compared to 22.8% of non-users.

These results demonstrated that patients started on the medications had a higher risk of clinically significant weight loss over a 12-month period compared to matched controls. Specifically, one of every 21 patients treated experienced at least a 10-pound weight loss.

Further research is needed to validate these findings and address study limitations, including if there is a specific subgroup in which starting cholinesterase inhibitors had a higher risk of weight loss.


Brain Inflammation Expressed Differently in Patients With Down Syndrome and Alzheimer’s Disease

Researchers at the University of Kentucky’s Sanders-Brown Center on Aging have completed a study that revealed differences in the way brain inflammation is expressed in different subsets of patients, particularly individuals with Down syndrome and Alzheimer’s disease.

Individuals with Down syndrome have a third copy of chromosome 21, which is responsible for the production of amyloid precursor protein. Amyloid overproduction can lead to brain plaques, which are a cardinal feature of Alzheimer’s disease, so it is not surprising that approximately 100% of individuals with Down syndrome develop Alzheimer’s disease pathology by the time they are 40 years old.

Using brain autopsy tissue from a group of patients (i.e., some with Down syndrome/Alzheimer’s disease, some with Alzheimer’s disease alone, and some healthy), researchers were able to determine differences in the way neuroinflammation was expressed in indi-
individuals with Down syndrome.

The team found that the inflammatory response in Down syndrome/Alzheimer’s disease brain tissue was significantly greater than that in tissue from patients with Alzheimer’s disease. Alzheimer’s disease in brains with Down syndrome had a different neuroinflammatory profile than Alzheimer’s disease in individuals without Down syndrome.


**Omega-3 Supplements Shown to Not Benefit Cognitive Decline**

Although some research suggests a diet high in omega-3 fatty acids can protect brain health, a large clinical trial by researchers at the National Institutes of Health found that omega-3 supplements did not slow cognitive decline in older adults.

All participants had early or intermediate age-related macular degeneration. Mean participant age was 72 years and 58% were female. Participants were randomly assigned to one of the following groups: placebo (i.e., an inert pill), omega-3, lutein and zeaxanthin (i.e., nutrients found in large amounts in green, leafy vegetables), and omega-3 and lutein/zeaxanthin.

Participants were given cognitive function tests at the beginning of the study to establish a baseline and then at 2 and 4 years. The tests, all validated and used in previous cognitive function studies, included eight parts designed to test immediate and delayed recall, attention and memory, and processing speed. Cognition scores of each subgroup decreased to a similar extent over time, indicating no combination of nutritional supplements made a difference.


**New Rapid Dementia Screening Tool**

Determining whether an individual has dementia and to what degree is a long and laborious process that can take an experienced professional approximately 4 to 5 hours to administer, interpret, and score test results. A leading neuroscientist has developed a way for a layperson to do this in 3 to 5 minutes with results that are comparable to “gold standard” dementia tests.

The Quick Dementia Rating System (QDRS), which uses an evidence-based methodology, validly and reliably differentiates individuals with and without dementia. When dementia is present, the QDRS accurately stages the condition to determine if it is very mild, mild, moderate, or severe.

The QDRS is a 10-item questionnaire that can be completed by a caregiver, friend, or family member, and is brief enough to be printed on one page or viewed as a single screenshot, maximizing its clinical use. Scores range from 0 to 30, with higher scores representing greater cognitive impairment. The questionnaire covers: (a) memory and recall, (b) orientation, (c) decision-making and problem-solving abilities, (d) activities outside the home, (e) function at home and hobbies, (f) toileting and personal hygiene, (g) behavior and personality changes, (h) language and communication abilities, (i) mood, and (j) attention and concentration.

The total score is derived by summing up the 10 fields; each area has five possible answers increasing in severity of symptoms. The 10 areas capture the prominent symptoms of mild cognitive impairment, Alzheimer’s disease, and non-Alzheimer’s neurocognitive disorders.