

Promoting Healthy (Mental) Aging 2: Diet, Supplements, and Medication

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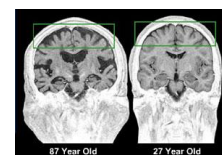
Supported by Goldfarb Center Collaborative Research Grant 01.2450

The purpose of this presentation is to provide an overview of some of the dietary and nutritional behaviors we can engage in at any point of our life to enhance the aging process.

Brain Food. Brains require nutrients as much as (if not more) than bodies. They consume 20-30% of nutrients at rest, more during activities and depend on a steady source of glucose. Lack of nutrients can negatively affect development. Older adults often have low levels of some nutrients, especially vitamins D and B. This can be due to poor nutrition, socio-economic factors, metabolic changes, and might be a sign of dementia, as is weight loss.



Aging Brains. The nerve cells in the brain change as we age – there is an accumulation of certain pigments associated with use, loss of myelin (fatty coating essential for communication), and general reduction in size and connections of neurons and brain regions, along with an overall decrease in volume. Diet can affect how neurons communicate and the brain's ability to learn and adapt.



Challenges. It can be difficult to establish strong causal relations between certain nutrients and cognitive health, because there are numerous other factors that researchers cannot control (physical health, access to food, socio-economic factors, etc.). The strongest evidence comes from randomized controlled trials; however, these are often of limited duration and size. Some studies find strong evidence in animals, but these do not always translate to human studies.

Vitamins

- Folate (B9) – no strong evidence that supplementation aids cognitive aging; high doses might increase some cancers.
 - Sources: fortified grains, fruits, legumes, leafy greens
- B6 and B12 – low levels of these are related to homocysteine, which increases with dementia. Some studies show benefits of supplementation in case of deficiency.
 - Sources: B6 is found in beans and legumes, nuts, fish, breads. B12 is found in animal products (meat, eggs, dairy)
- Vitamin E – antioxidant properties, protective against free radicals. No strong evidence that supplementation promotes cognitive performance
 - Sources: nuts, leafy greens, wheat germ
- Vitamin C – antioxidant, critical for brain development. Up to 30% of older adults have low levels of Vitamin C. *Might* be associated with cognitive health.



- Sources: citrus, green peppers, strawberries, tomatoes, broccoli
- Vitamin D – low levels are associated with dementia risk factors such as diabetes, depression, cardiovascular disease. *Might* be associated with cognitive health.
 - Sources: fortified dairy, fish, sunlight

Fats (Lipids)

- Omega 3 fatty acids – essential for healthy brain functioning, primarily derived from fish sources. Recent reviews fail to find evidence for independent effect on cognitive health – but there are cardiovascular benefits and it is associated with depression.
 - Sources: fish, walnuts, flax
- Trans and saturated fats – can increase neurological dysfunction. Rats fed a “junk food” diet showed signs of cognitive impairment after only 3 weeks.
 - Sources: animal products, high fat dairy, fatty meats, some oils

The Mediterranean Diet

Diets high in whole grains, fruits and vegetables, fish, and low in meat and dairy consumption are associated with a reduced risk of dementia and cognitive decline, especially combined with exercise. Use of healthy oils, like olive oil, is also beneficial.



Supplements. The FDA only regulates these after they hit the market if there are adverse effects. Many products are marketed as “memory boosters” or “enhancers.” To date, there is no strong evidence these work. A recent review found no evidence Ginkgo Biloba helped promote cognitive aging. Resveratrol is currently being investigated in humans.

Alcohol and Caffeine – consumption in moderation appears to be beneficial, with women showing some benefits from moderate caffeine consumption.



Medications and Anesthesia. Many drugs taken commonly by older adults for a variety of ailments have an anticholinergic effect. They can interfere with normal choline activity (choline is essential for brain functioning). These drugs can cause changes in cognitive functioning and have been associated with a higher risk of developing dementia. It is unclear whether anesthesia causes long-term impairment, but there is some evidence of a short-term effect. Many patients (about 17%) on chemotherapy have reported negative effects on cognition.

Aluminum – according to the Alzheimer’s Association, there is no link between dementia and aluminum, but Al is a known neurotoxin and can be absorbed through many sources. It might be beneficial to avoid unnecessary consumption.

In sum, a healthy, balanced diet is probably the most effective strategy, although checking for nutritional deficiencies might be good. Exercise can enhance the effects of some nutrients, and excessive caloric intake can negate the benefits of a healthy diet.

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