Can popping pills preserve memory?

BY DAVID SCHARDT


Looking to stay mentally sharp? Those are just a few of the dozens of brain and memory supplements that would like to help you. Most are some combination of a half dozen or more “brain-boosting” compounds. Here’s the evidence behind some of the most widely used ingredients.

**DHA**

**Typical claims:** “Clinically shown to improve memory.” “Helps protect the brain against normal cognitive decline as we age.”

**What is it?** One of the two omega-3 fats in fish oil (the other is EPA).

**How companies say it works:** By stabilizing brain cell membranes and suppressing inflammation.

**The evidence:** “There is no evidence that DHA helps the cognitive skills or memory of healthy people who don’t have memory problems,” says neuropharmacologist Krista LaNctôt of the University of Toronto.

In the five largest and most recent trials, which looked at a total of roughly 1,600 healthy adults aged 20 through 80, those who took 176 to 845 milligrams of DHA every day for three to four months showed no greater improvement in memory, reasoning, or other brain function than those who were given a placebo.7-9

And in a large trial that lasted ½ years, DHA did nothing for people with dementia.6 However, DHA may make a small difference in those with mild cognitive impairment, memory complaints, or normal forgetfulness due to age.

In a recent meta-analysis by LaNctôt and her colleagues that pooled the results of three small trials and a large company-funded study of people in those three groups, taking 60 to 1,550 mg a day of DHA for three to six months had no impact on everyday activities. But it made a small difference in three of eight cognitive tests. For example, DHA takers performed better than placebo takers at recalling lists of words immediately (though not later).7 (People with mild cognitive impairment, or MCI, have a diminished ability to plan and organize. Subtle lapses—asking the same question repeatedly, for example—are often apparent to friends, relatives, and co-workers. People with MCI are more likely to develop Alzheimer’s.)

**Bottom line:** DHA may have a modest benefit for people with memory problems. “But the effect is small,” cautions LaNctôt, “and needs to be confirmed by larger trials that help us understand who might benefit.”

For healthy people, though, “taking a walk every day is probably better for your brain than taking an omega-3 supplement,” concludes Jennifer Robinson, co-director of the Prevention Intervention Center at the University of Iowa.

**Phosphatidylserine (PS)**

**Typical claim:** “The only dietary supplement with an FDA-approved qualified health claim for helping with cognitive dysfunction and dementia.” Companies that make that boast in their ads seldom show the actual wording of the claim, though. Odds are, that’s because theads would have to include the “qualified” part: “There is little scientific evidence supporting this claim.”

**What is it?** A fat-like compound found naturally in cell membranes, particularly in the brain. Until the mad cow scare of the mid-1990s, PS was extracted from cow brains. Today, it’s made from soybeans.

**How companies say it works:** By keeping brain cell membranes supple and functioning properly.

**The evidence:** There are no published studies of soy PS in healthy people without memory problems. And in people with problems, researchers have pretty much come up empty:

■ In two studies in the Netherlands and Israel on roughly 200 older adults with memory complaints, those who took 300 or 600 mg of PS every day for several months scored no better on memory tests than those who took a placebo.8 (The Israeli study has never been published in a scientific journal.)

■ In a 2010 Israeli study of 78 older adults with memory complaints, those who took 300 mg of PS that was chemically bonded to 79 mg of DHA plus EPA every day for 15 weeks performed no better than placebo takers on 14 of 15 cognitive and memory tests. In the 15th test, they were able to recall an average of six words immediately after hearing them, while the placebo takers could recall an average of 4½ words—not exactly a life-altering difference.9

■ In a 2010 study in Japan, researchers gave 100 or 300 mg of PS every day to 50 people in their 50s and 60s who complained about their memory. After six months, the PS takers scored no better than placebo takers on standardized tests for everyday memory (for names, places, and personal events). The researchers did report, though, that among 34 people who scored the worst on tests when they entered the study, PS takers were better able to remember a list of three words than placebo takers.10 But that modest finding would have to be tested again in a study designed to look separately at low scorers.

**Bottom line:** There is no good evidence that PS made from soy has any meaningful impact on memory.
HOW TO KEEP SHARP

■ Avoid strokes. “Try to prevent strokes and transient ischemic attacks—also known as TIA’s or mini strokes—which affect cognitive function,” says the University of Iowa’s Jennifer Robinson. Keep your blood pressure normal and your LDL (“bad”) cholesterol and triglycerides down, and don’t smoke.

■ Lose excess weight to prevent type 2 diabetes. Studies have consistently shown that people who have type 2 diabetes when they’re older have worse cognitive function than people who don’t have the disease,” says Francine Grodstein of Brigham and Women’s Hospital. “They have accelerated rates of cognitive decline.”

■ Cut saturated and trans fats. “In several epidemiological studies, they seem to be associated with worse cognitive decline,” Grodstein points out. Those kinds of studies can’t prove that the fats caused the decline, though.

■ Eat fish. Studies have found that people who eat more fish have better cognitive function. But it’s possible that other things that fish eaters do account for the difference.

■ Move. People who are more physically active—even those who simply walk regularly for exercise—maintain their cognitive function better as they get older, says Grodstein. “The more active one can be, both physically and mentally, the better,” says Robinson. “You’re exercising your brain muscles and if you don’t use it, you lose it.”

B Vitamins

Typical claim: “Plays a role in the functioning of the brain and nervous system.”

What are they? Typically, high doses of vitamins B-6 and B-12 and the B vitamin folic acid.

How companies say they work: By lowering homocysteine levels in the blood. High levels of homocysteine increase the risk of cardiovascular disease, which affects the brain as well as the heart.

The evidence: “There have been many trials testing B vitamins for their effects on thinking and memory, and generally they haven’t shown any difference between those given the supplements and those given a placebo,” says epidemiologist Francine Grodstein of Brigham and Women’s Hospital in Boston.

Grodstein’s own study is typical. She and her colleagues gave 2,000 women aged 65 and older either a placebo or a daily dose of 2,500 micrograms of folic acid (more than six times the government’s Daily Value), 50 mg of vitamin B-6 (25 times the DV), and 1,000 mcg of vitamin B-12 (more than 150 times the DV).

After six years, the vitamin takers performed no better on several memory tests, including one of “executive retrieval function” (naming as many animals as possible in one minute, for example), or on a general test of different types of memory (with questions like “What’s today’s date?” and “Who’s the President of the United States?”).11 However, there was a hint that B-vitamin supplements might help the cognitive function of those with low dietary intake of B vitamins in our study, or with high homocysteine levels in other studies,” says Grodstein.

For example, when people with mild cognitive impairment and higher levels of homocysteine in their blood were given high doses of B vitamins for two years, they declined more slowly—and showed a slower rate of brain atrophy—than similar people who were given a placebo.12 Studies of B vitamins in people with Alzheimer’s have come up empty.

Bottom line: B vitamins are not likely to help your memory, except possibly if you have high homocysteine levels because you’re not getting enough B vitamins. “But the evidence isn’t definitive and needs further study,” concludes Grodstein.

Red light: Too much folic acid may spur the growth of precancerous colorectal polyps. Our advice: don’t get more than 800 to 1,000 micrograms a day of folic acid from a multivitamin, other supplements (like memory pills), breakfast cereals (some contain 400 mcg, which is 100% of the Daily Value), and other fortified foods combined.

Huperzine A

Typical claim: “Powerful memory enhancer.”

What is it? A compound used in Eastern Europe and Asia to treat stroke victims (though the evidence is inconclusive, according to the Cochrane Collaboration, an international network of scientists who review medical therapies).13

How companies say it works: By increasing blood flow in the brain.

The evidence: None. No studies have looked at huperzine alone in healthy people or those with mild memory problems. Companies are relying on the unproven notion that whatever increases circulation in the brain will improve thinking.

“In healthy people, brain tissue that’s being used efficiently in the performance of a cognitive task actually requires less blood,” explains Stanford University neurologist Victor Henderson. “So something that increases blood flow without showing at the same time a cognitive benefit doesn’t mean very much.”

For example, researchers in the UK recently saw increased blood flow in the brains of 46 young men and women who took 1,000 to 2,000 mg of fish oil every day for three months. But the fish-oil takers performed no better on a battery of 20 cognitive tests than 20 similar young adults who were given a placebo.14

Bottom line: There is no good evidence that huperzine can help your memory.

Vinpocetine

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the neurotransmitter acetylcholine in the brain.

**The evidence:** There have been no trials of huperzine A in healthy people in the English-speaking world. A handful of studies in China—none are available through the National Library of Medicine or online—have reportedly found that the compound improves the memory of elderly patients suffering from forgetfulness.

**Bottom line:** There is no verifiable evidence that huperzine A can help your memory.

**Red light:** Consumerlab.com, a Web site that tests supplements, points out that huperzine A is a relatively expensive ingredient, which creates an economic incentive for manufacturers to use less. One brand it analyzed consistently had less than 15 percent of the amount listed on the label.

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**Ginkgo**

**Typical claim:** “Promotes mental alertness and memory.”

**What is it?** Extracts from the leaves of the Ginkgo biloba tree.

**How companies say it works:** Improves blood flow and functions as an antioxidant to prevent damage to brain cells from free radicals.

**The evidence:** In the largest trial testing ginkgo on cognition, U.S. researchers gave a daily dose of 240 mg of ginkgo or a placebo to 2,587 healthy men and women and 482 people with mild cognitive impairment. All were between the ages of 72 and 96. After six years, ginkgo hadn’t improved either group’s memory, attention, use of language, or ability to organize thoughts and prioritize tasks. What’s more, “we found no evidence that ginkgo slowed the rate of cognitive decline,” says study co-author Beth Snitz of the University of Pittsburgh.

As for younger people, there is “no convincing evidence that ginkgo has a positive effect on any aspect of cognitive performance in healthy people under the age of 60,” concluded the Complementary Medicine Research Group at the University of Exeter in the UK after reviewing the results of 15 randomized clinical trials.

The same is true for people with dementia. “There is no convincing evidence that Ginkgo biloba is efficacious,” noted a 2009 Cochrane Collaboration review.

**Bottom line:** In most good studies, ginkgo has no impact on memory.

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**Antioxidants**

**Typical claim:** “Especially beneficial for those concerned with maintaining optimal brain health and functioning.”

**What are they?** Vitamin C, vitamin E, and beta-carotene (vitamin A).

**How companies say they work:** By preventing oxidative damage to brain cells from free radicals.

**The evidence:** “There have been several large randomized trials of antioxidant supplements and cognitive function, and they have largely found no difference between them and a placebo,” says Brigham and Women’s Hospital’s Francine Grodstein.

Exception: male physicians who took 50 mg (83,333 IU) of beta-carotene every other day for at least 15 years were better at recalling words and scored higher on other cognitive tests than those who took a placebo.

“It is possible that antioxidant vitamins are important for memory over very long periods of time,” says Grodstein, “but that requires further study.”

**Bottom line:** Don’t count on antioxidants to help your memory.

**Red light:** Don’t take a supplement with more than the Daily Value for beta-carotene—3 mg (5,000 IU) a day. In two large studies, smokers who took 20

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**DIABETES OF THE BRAIN?**

Alzheimer’s and diabetes? Could there be a connection? After all, people with diabetes have an increased risk of Alzheimer’s. So do those who have insulin resistance but not yet diabetes.

Insulin allows your cells to take up glucose from the bloodstream and use it as fuel for your muscles or to be stored in fat cells. If you have insulin resistance, the glucose can’t easily enter cells, and blood sugar starts to rise. If it gets high enough, you have diabetes.

This year, researchers at the University of Pennsylvania showed for the first time that insulin resistance is also present in the brains of Alzheimer’s patients.

“Our research clearly shows that the brain’s ability to respond to insulin, which is important for normal brain function, is going offline at some point,” says Steven Arnold, director of the Penn Memory Center.

“We believe that brain insulin resistance may be an important contributor to the cognitive decline associated with Alzheimer’s disease.”

In May, the National Institutes of Health announced a five-year study to see if insulin inhaled through the nose—that way it’s delivered directly to the brain—can slow the decline of patients with mild cognitive impairment or early Alzheimer’s disease. That’s what happened in a pilot trial in similar people in 2011.

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