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### ***Ways to Keep Your Brain Healthy & Manage Mild Cognitive Impairment (MCI)***

A recent study of several thousand people helped support the notion that there are things you can do to significantly reduce your risk for dementia. Scientists watching people over time discovered five important lifestyle factors: 1) not smoking; 2) engaging in physical exercise; 3) no more than light alcohol consumption; 4) consuming a high-quality Mediterranean-DASH diet (you can find this online or ask for a visit with a nutritionist to guide you), and 5) regularly engaging in socially- and mentally stimulating activities.

Let's talk more about these and add some extra information about things that tend to reduce risk for developing more serious memory loss:

- Research into what helps with MCI has tended to show that various forms of mental “exercise” (e.g., crossword puzzles, brain games, online brain training programs, etc.) may have some mild and short-term effects, but do not seem to produce lasting benefits or prevent dementia. Feel free to do them if you enjoy them, but don't expect this will do the trick in preventing dementia.
- Dietary supplements don't appear to consistently improve memory in otherwise healthy people without obvious nutritional deficiencies. A normal part of a work-up for memory loss is to check your hormonal and vitamin levels to make sure these issues are not a culprit. If you have abnormally low levels of certain hormones, vitamins, or minerals, be sure to work with your doctor to replace these. If you are already healthy and have a good diet, taking supplements is probably a waste of money and could create side effects.
- You may see TV ads for memory-boosting supplements that are “clinically proven” to make you mentally sharper and are “#1 Pharmacist Recommended.” This is big business; not big science. Because these are supplements and not prescribed medication, no actual scientific requirements are needed to make such claims. Companies can say anything they want, and almost none are based on real research. Some supplements have generated initial excitement and become popular for a time, but then fade when more careful research shows disappointing results. For example, ginkgo biloba *may* slightly improve brain blood flow which *could* slow symptoms, but doesn't prevent dementia from developing. Here are a few other memory supplements that may also have some potential, but require much more study:
  - Omega-3 fish oil supplements have been of great interest based on studies showing people who naturally eat omega-3 rich foods such as cold-water fish, plant, and nut oil seem to develop dementia at a lower rate. However, there is no clear evidence that taking a fish oil pill actually does anything for your memory. Does it hurt to use them? Probably not, but it is much better to simply eat more cold-water fish, plants, and nut oils.
  - Huperzine A is a Chinese club moss that may work in a similar way as Alzheimer's drugs, but we yet have any evidence to show it is both safe and effectiveness.

- A few studies suggest that Acetyl-L-carnitine might help memory in Alzheimer's patients, but it only slows things a little bit in people with early-onset and quickly progressing dementia.
- Vitamin E was all the rage for a while. More research showed it does not decrease the risk of developing Alzheimer's but *may* slightly slow its progression. However, the extreme dosages required to make any difference makes many people sick to the point it may not be worth the tiny benefit. Be sure to consult with your doctor before taking this supplement.
- Vitamin D may help prevent or delaying dementia in some people.<sup>1</sup> We know people with low vitamin D tend to have more cognitive problems, but it's still unclear if people with normal vitamin D levels benefit from adding more. It's also important to know that too much vitamin D can cause increased calcium, which has its own set of side effects. The positive effects of vitamin D were most clear in women with otherwise normal cognitive function and who do have the genetic markers for dementia risk. Vitamin D does not seem to reverse memory loss or prevent dementia in those genetically programmed to develop it, but keeping your vitamin D in good levels seems to reduce your chances of developing memory disorders.

So, with all the above, is it worth taking any type of supplement? Very recent research indicates a qualified "Maybe."<sup>2</sup> Preserving memory remains an important goal in older adulthood. Your nutrition is important because we know the brain need several nutrients to stay healthy, and lacking one or more of these nutrients may speed mental decline. This includes having enough different B vitamins, lutein (a plant-based substance found in leafy greens and carrots that helps with eye health), magnesium, and zinc.

When talking about vitamins or supplements to help with memory, you need to keep two things in mind: First, pills can never take the place of a healthy diet and healthy lifestyle. You should not try to make up for a poor diet by adding vitamins. Multivitamins combined with a healthy diet can be helpful. Second, too much of something is not necessarily better. High doses of specific vitamins can become toxic and interfere with your body's ability to absorb other needed nutrients. As noted previously, vitamin E is a good example. This was shown to help memory, but the doses needed were so high it made people sick.

A very recent study of 3500 people over 60 or older looked at whether or not a common multivitamin seemed to help with memory. It turns out that the multivitamin group did a bit better on memory tests than those taking a fake pill. The benefit kept going across the 3 years people took the pill. People with a history of heart disease showed the most benefit. While Centrum Silver was used, other high-quality multivitamin brands should also work just fine.

The take-home messages are these:

1. Your brain benefits much more from a good diet and lifestyle than it does vitamins and supplements. Don't expect a vitamin to save you from the effects of neglecting your diet.
2. You are more likely to benefit from spending your time and money on other activities outlined in this document.
3. If medical tests show that you are low on certain vitamins, minerals, or hormones, it is important to fix the problem and replace these with what your doctor prescribes. B complex and D vitamins seem most important.
4. Do not take too much of any specific vitamin or mineral. More than you need is not better.

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<sup>1</sup> Ghahremani, M, et al. Vitamin D supplementation and incident dementia: Effects of sex, APOE, and baseline cognitive status. *Alzheimer's Dement.* 2023; 15:e12404

<sup>2</sup> COSMOS (Cocoa Supplement and Multivitamins Outcome Study, 2023)

5. Taking a high-quality multivitamin per the instructions on the bottle seems to be a good idea for most anyone, especially if you have heart disease. This may help slow memory loss.
  6. Ultimately, this is about getting a sense of power over something that seems scary and out of your control. Taking supplements can at least provide the feeling you are doing *something*. The mental benefit of taking charge is important and should be respected. Thus--unless there are reasons not to take them--adding a quality multivitamin in normal doses will do no harm and may help you feel, and think, better.
- Finding a prescription medicine to prevent, reverse, or treat dementia-related memory loss remains a “Holy Grail” of medicine. There is much interest in managing this disease, which is becoming more common as our population lives longer. Prescription drugs available now tend to be expensive, have nasty side effects, and often have limited effectiveness during a short window of time in the dementia process when memory loss is mild. Using them over time does not reverse the disease but can help people remain independent for a short while longer. A very recent and still experimental medicine seems to produce improvement in brain health in persons with Alzheimer’s, but it also shows little impact on a person’s actual day-to-day functioning. Another disappointment. There also remains optimism that we are learning a lot about this disease and that real breakthroughs will be made in the next few years.
  - Build in mild aerobic exercise for at least 30 minutes at a time, 3-5 days per week. This could include walking, swimming, biking, or some combination of activities that get your heart and lungs moving to pump fresh blood and oxygen into your brain.
  - Keeping your mind active with reading, learning, and active hobbies. Napping and watching TV most of the time is a passive activity that does not help, and may make things worse. Being a couch potato is among the *worst* things for your brain health.
  - In addition to physical exercise, the most powerfully helpful activity is doing interesting things with people you enjoy. This type of positive social interaction is a powerful boost to brain health. Isolation and loneliness will make memory problems get worse much faster.
  - Good sleep habits are extremely important. Sleep is a time where the brain cleans house, repairs itself, and resets memory systems. Taking a short cat nap mid-day can help with energy and clear your mind. Having enough quality sleep is critical. This includes aggressive and sustained treatment of sleep apnea. Keep working with your provider until you find a device that works, and train yourself to tolerate it. If you have or are at higher risk for MCI, going untreated should not be an option no matter how much you may dislike your machine.
  - Other medical conditions you might have (e.g., high blood pressure, A-fib, cholesterol, diabetes, thyroid, vitamin deficiencies, etc.) must be under good and consistent management. These problems increase your risk for dementia. Work with your doctor closely to make sure these are being watched and well-treated.
  - New research clearly shows a link between memory decline and hearing and vision loss. If your hearing is poor, this doubles your risk for memory disorders. Poor vision triples your risk. When both hearing and vision problems occur, you have an *eightfold* increased risk of mental impairment. It’s still not clear whether hearing/vision loss directly *causes* the cognitive decline, but there is no question it makes it worse and progress more quickly. This is likely due to your brain receiving less stimulation from these senses, which results in a withering of brain cells. Your brain is a tidy housekeeper. When cells are not used, they are lost. If you have hearing and/or vision loss, it is critical to get this checked out. Get good hearing aids and wear

them most all the time, whether you like them or not. Follow your eye doctor's recommendations closely, get a current eyeglass prescription and wear them, and get cataract surgery if this is needed.

- Staying sufficiently hydrated. Your brain is not a muscle. It is mostly water and fat. Dehydration quickly reduces its ability to function.
- Your brain uses a hormone called acetylcholine (ah-see-tell-CO-leen) to form new memories. You may need to take certain medications to manage your health, but some medications block this hormone and can make your memory worse. Drugs used to treat common conditions such as COPD, overactive bladder/ incontinence, gastrointestinal disorders such as diarrhea, asthma, dizziness/motion sickness, Parkinson's disease, anxiety, and movement disorders associated with antipsychotic medications may have strong effects on this memory hormone. Over-the-counter drugs such as allergy and sleep aids like diphenhydramine (Benadryl) will also do this. Talk with your doctor or pharmacist to see if any of your medications or supplements may have this memory-impairing effect. While you may still need to take them to best manage your health, cutting down or finding alternatives could be important if you also have a memory disorder.
- Another risk factor for dementia is anxiety. Chronic anxiety may have been around for many years, while new-onset anxiety may have just come on more recently. Both chronic and new-onset anxiety are linked to a threefold increased risk for dementia onset in later life.<sup>3</sup> If you've had anxiety in the past but it has since gone away, this does not seem to increase your dementia risk. It's not exactly clear why anxiety is a risk factor. It may be that stress and anxiety reduce acetylcholine (see above), but it also might be that having anxiety leads to other poor health decisions such as avoiding medical care, smoking or drinking, poorer diets, not taking care of yourself, and other bad habits. Regardless, if you have anxiety, make sure and get this treated as soon as possible. This will help both your brain and your quality of life.
- You doctor may also refer you to a speech or occupational therapist for some memory exercises and to learn ways keep organized and work around your memory problems. Learning some memory tricks, how to use memory aids, and adjusting the way you do things can go a long way to reducing frustrations in day-to-day living. This tends to be most helpful when memory loss is mild rather than in more advanced dementia.
- Heavy or binge drinking is a known risk for several types of dementia. If you have MCI, avoid alcohol or at least limit this to one drink per day taken with food, such as a small glass of red wine with dinner. Wine may have helpful compounds that beer and spirits do not.<sup>4</sup> Don't start drinking to help your health, and keep in mind that any more than a little alcohol is toxic to your brain. Most people with healthy livers and brains handle small amounts fine. If you have MCI, this means your brain is already struggling and does not need another challenge. This is especially true if you have liver disease and/or take medications altering your body's ability to process alcohol. Watch yourself carefully and limit alcohol intake. If you feel it affecting your head, you've had too much.
- If you smoke: STOP. Today. This is the single biggest gift you can give your brain. Nicotine is a quick and powerfully addictive brain chemical. That's why you keep wanting it, and that's why tobacco companies spike cigarettes with nicotine to keep you addicted and buying more. Smoking increases dementia risk by 30-50%, while stopping at any age reduces this risk back to normal. The decision to stop smoking is a no-brainer. Talk with your doctor if you need help.

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<sup>3</sup> The effect of anxiety on all-cause dementia: A longitudinal analysis from the Hunter Community Study. *J Am Geriatr Soc.* 2024; 1-8.

<sup>4</sup> Wojtowicz JS. Long-Term Health Outcomes of Regular, Moderate Red Wine Consumption. *Cureus.* 2023 Oct 10;15(10):e46786.

- Avoid banging your head. Concussions from falls and other accidents may create minor brain injuries that accumulate over time even when they do not create any obvious or immediate symptoms. This means protecting your head and avoiding in risky activities. For some, this may include high-risk sports such as horseback riding, football, hockey, and soccer. This would also include activities without proper safety equipment such as skiing or biking without a helmet. For older adults with MCI, the biggest risk is falling and bumping your head. Talk with your doctor about ways to reduce your fall risk. This might include a visit to a physical therapist. Other head injuries can come from car accidents and physical abuse.
- Driving safety remains important to consider. Most people with MCI drive just fine. Forgetting items on your shopping list or missing an exit is aggravating, but not necessarily a safety hazard. There are some guidelines to follow:
  - If your memory loss results in becoming occasionally lost while driving and not knowing how to get home, this is a serious problem suggesting you need to cut back on your driving, stick only to well-known routes, and use a GPS navigation system with your home and other important places programmed in. If you get disoriented, pull over, tell the device where you want to go, and let it guide you there. You should avoid going on drives to places you have never been or may leave you out of cell-phone range.
  - Add a tracking program to your cellular phone that allows a trusted friend or family member to see where you are. If you get disoriented and can't get back on track, pull off safely and call them to help see where you are and how best to get home. Most Apple products have a "Find My" program already built in. Life360 is also a free and easy-to-use application. Keep in mind this only works if you have cellular signal and a charged battery, so don't venture too far off-road and carry a car charger.
  - Understand the concept of "cognitive demand." Most driving around town to places you have been hundreds of times is routine and easy for experienced drivers. This places low demand on your cognitive skills. There are also circumstances that place high demand on your brain. These include city- and rush-hour traffic, navigating crowded and noisy streets or parking lots, unfamiliar roads and highways, finding places you have never been, night driving, and bad weather. If you have MCI, you can probably handle low-demand driving, but your brain is much less capable of handling high-demand situations. Driving in these situations places you and others at risk. You should adjust your driving to go only during low-demand conditions, such as to the store at less busy times, follow well-known routes, driving during the day, and have someone else drive in rush-hour traffic, bad weather, or to unfamiliar places.
  - There are some cognitive tests that tend to predict your ability to drive safely. Your unique pattern of strengths and weaknesses can suggest how confident you should be in your ability to drive under high demand situations. If your impairments include specific problems of concentration, visual ability, and reaction time, this means you should drive **only** under low-demand conditions--if at all.