

Power Foods for the Brain:

Surprising Facts about Diet and Dementia



Introduction

As science advances and our understanding of food's impact on our body grows, it becomes increasingly clear that much of the popular wisdom heard in kitchens and dining rooms across America is true. Fruits and vegetables do play an important role in keeping the brain healthy. But other facts about food and brain health aren't so well known. Did you know that a chemical found in microwaved popcorn has been linked to dementia?

This short guide is designed to give you the know-how to help keep your memory sharp and your brain healthy. You'll learn what mouth-watering foods can make you healthier and why. We've even included sample recipes for a brain-healthy meal plan to help you get started creating meals that are both delicious and great for the brain.

Of course nutrition is just part of the equation. Alzheimer's and other kinds of dementias have a genetic component. But by providing your brain with the right kind of nourishment, you will give yourself the best chance to have a strong memory your whole life. Bon appetit!!

The Science Behind Diet and Dementia

Omega-3s, vitamin D, zinc—these nutrients and others have been linked to the prevention of dementia and Alzheimer’s disease. But how do vitamins and minerals actually work to reduce the risks—and even the symptoms—of dementia? It’s a lot more complex than simply taking a few supplements here and there. Read on to find out what scientists are discovering about these powerhouse nutrients, and the best ways to consume them so that your loved ones can benefit.

Can You Reverse Dementia Symptoms By Changing Your Diet?

The Importance of Hydration, Medication Coordination and Accommodating Specific Dietary Needs

In some cases, yes, changing what you eat can reduce dementia symptoms and improve mental clarity. Heather Schwartz, a Registered Dietitian and geriatric nutrition expert for A Place for Mom, says, “I’ve seen this occur in persons with documented anemias (either from iron, B12 or foliate) who were given supplements. And of course in people with food allergies and intolerances, I’ve been told many times that once they avoided the food(s) that caused them to react, that their mental abilities skyrocketed. The other case where I’ve seen this happen is when patients on medications for Alzheimer’s or other dementia related issues start taking their medications correctly. That is, previously they were taking them sporadically, or with food when the medication’s directions were to take it without food, etc. Once they stabilized their medication routine, they began to notice the positive effects of the medications.”

Getting enough water is also important. Not only can dehydration directly lead to confusion, fatigue and other problems, it can also affect the absorption of necessary vitamins and minerals. “I’ve had patients who, after re-hydrating themselves and eating a more balanced diet, became significantly brighter, awake and alert,” says Schwartz. “I’ve had many patients say to me, ‘it’s like someone turned on the lights!’ I associate this with adequate hydration and increasing the availability of vitamins and minerals to the brain.”

Overall Diet is The Big Picture

Recent research also shows that overall dietary changes, not just adding or subtracting a single food, is what can help reduce a person’s risk of dementia and Alzheimer’s. The study, conducted by Veterans Affairs Puget Sound Health Care System, found that a diet low in saturated fat and simple carbohydrates improved biomarkers associated with the risk of developing Alzheimer’s.

“A more promising approach to the study of dietary factors in Alzheimer’s disease might entail the use of whole-diet interventions,” noted Jennifer L. Bayer-Carter, MS, from Veterans Affairs Puget Sound Health Care System, and colleagues. “Our study supports further investigation into the possibility that consumption of a diet high in saturated fat and simple carbohydrates may contribute to pathologic processes in the brain that increase the risk of Alzheimer’s disease. Conversely, diets low in saturated fat and simple carbohydrates may offer protection against Alzheimer’s disease and enhance brain health.”

Dr. Lindsay Jones-Born, a naturopathic physician and another A Place for Mom senior nutrition expert also notes that a “Mediterranean diet and a diet rich in polyphenols, antioxidants and phytonutrients, including green tea, have shown to not only reduce the risk of Alzheimer’s disease, but also help slow the progression and improve the senior’s quality of life.” Dr. Jones-Born stresses that exercise can also play an important role in tandem with eating right as it’s all about a healthy balance.

Nutrients Linked to Dementia Prevention

Researchers studying Alzheimer's disease are finding out more and more about basic nutrients that can help reduce the risk of dementia, or even slow the progress of Alzheimer's. There's definitely a link between a healthy diet and a healthy brain. High intake of carbohydrates and sugar has been associated with a higher risk of mild cognitive impairment, according to a recent Mayo Clinic study. Seniors should make sure to consume enough protein, especially healthy lean protein like poultry and fish. Some of the most promising compounds they've studied over the past few years include:

Vitamin D: A 2012 study in *Current Alzheimer Research* indicated that low vitamin D is associated with Alzheimer's. Another study from late 2012, conducted in France, confirmed that a higher intake of vitamin D is associated with a lower risk of developing Alzheimer's.

Vitamin C: In a 2011 study in the *Journal of Biological Chemistry*, vitamin C treatments successfully dissolved amyloid plaques in the brains of mice—the same type of protein plaques that affect people with Alzheimer's.

Vitamin B12: In 2011, the journal *Neurology* reported that low vitamin B12 is a risk factor for cognitive impairment. An earlier study in 2010, also reported in *Neurology*, found that higher concentrations of B12 in the body were associated with a lower risk of Alzheimer's.

Vitamin E: The *Journal of Alzheimer's Disease* reported in 2010 that higher plasma levels of vitamin E in older adults correlated with a reduced Alzheimer's risk.

Omega-3s: A 2012 study in *Neurology* showed that people whose diets contained more omega-3 fatty acids had lower levels of Alzheimer-associated beta-amyloid in their blood.

Zinc: A 2012 study in *Biofactors* showed that not only were patients with AD relatively deficient in zinc, treatment with zinc provided cognitive benefits in animal models.

Other nutrients such as vitamin B1, Folic Acid, phosphatidylserine, and antioxidants like CoQ10 have also shown some promise in treating cognitive decline, as well as some herbs like Ginkgo Biloba and panax ginseng. Heather Schwartz cautions, "The research is still not clear on exact amounts of these [vitamins/nutrients] to take (outside of the RDI for each of these). Most of the research I am familiar with does not differentiate the amounts from food vs supplements; which can be a major slip-up when trying to translate findings to the public domain."

Dr. Lindsay Jones-Born also has insight into dementia-fighting nutrients. "Many nutritional interventions have shown to improve most, if not all parameters of AD risk and attenuation of disease progression." According to Dr. Jones-Born, the following are what constituents the best evidence in human trials:

- B12 & folic acid (Clarke 1998)
- Curcuminoids (turmeric) (Baum 2008)
- Vitamins D, B-vitamins, omega 3 essential fatty acids (Cordoso 2013)
- Citicholine (Alt Med Review 2008)
- B12 and folic acid (Clarke 1998)
- Acetyl-L-carnitine (Pettegrew 1995)
- Vitamin E (Mangialasche 2010)
- Huperzine (Desilets 2009)

The Risks of Taking Vitamin Supplements

Many vitamins can be toxic at high levels. Fat soluble vitamins such as A, D, E and k are often more harmful than water soluble ones (vitamin C, Bs) as they are stored in adipose tissue and can build up over time, causing toxicity. However water soluble vitamins can cause problems when taken in excess. Schwartz says she's seen many well-intentioned patients harm themselves in their quest to improve their health, "I have had several patients come to see me for digestive issues like abdominal cramping and diarrhea and when I reviewed their diets, medications and supplements, it was discovered that they were taking high doses of Vitamin C. I have had patients with cognitive impairment that accidentally over dosed on Vitamin C or other vitamins and minerals as they had forgotten they had already taken them, only for their caregivers to discover they had finished a whole bottle of the supplements in a few days.

Also, it's important to note that the liver and kidney are the organs that metabolize most vitamins and minerals, so when you ingest large volumes of these, you are asking these organs to work harder than usual. Taxing these organs over long periods of time can be detrimental, especially in those with preexisting kidney or liver issues. And occupying the kidney or liver with metabolizing these supplements can deter them from doing other important tasks, like metabolizing important medications."

The Bottom Line: A Well-Balanced Diet Pays Off

"Vitamins should optimally come from food," says Heather Schwartz. "The only time I recommend vitamin supplements is when a person's diet is limited, such as in the case of food allergies, intolerances, medication side effects, dislike, etc." Vitamins are absorbed better when they come from food; conversely, some vitamins are toxic at high levels, meaning you should check with a doctor before adding supplements to your loved one's diet.

"If you eat fast food several times a week, this is likely causing more damage in the body and/or brain than daily supplements of phosphatidylserine could ever possibly address. Optimizing and balancing the thousands of chemicals you eat every day has a much more significant effect on the body and brain than does a supplement with a single nutrient that you take once a day or so," Schwartz says.

Sandra Burton, a Registered Dietitian and another geriatric nutrition expert for A Place for Mom, agrees that a well-balanced diet is the most important: "As I think about the ever-growing baby boomer population and what they should eat and what their caregiver should prepare for them, there seems to be a common theme: Lean protein, healthy fruits and vegetables and whole grains. This is what I recommend for Alzheimer's patients. In fact, from a nutritional standpoint, it's just important to follow the basics."

Sandra does, however, comment that diets need to be adjusted for the aging population and catered to a senior's specific dietary needs. "As we age, our liver slows down the process of making amino acids. By the time we hit 70 years, we have lost 20% of our muscle mass so it's imperative to try to get in protein to preserve our muscles in our bodies. And Alzheimer's patients struggle with many issues. While one patient may have lost the connection that tells them they are full—so they want to eat all the time—another may have lost the connection that tells them to eat when their body needs nourishment; so they may struggle keeping weight on. The types of meals being prepared by the caregiver or family member need to not only be healthy; consisting of a lean protein, vegetable and whole grain starch, but also need to be in compliance with whatever disease the patient has."

Memory Boosting Super-Foods

In order to get enough of these brain boosters, you'll want to make sure your loved one stocks up on these foods:

Vegetables, especially leafy greens like spinach, kale and turnip greens and cruciferous vegetables like broccoli, have been strongly linked with lower levels of cognitive decline in older age, according to a study in the Annals of Neurology.

Salmon and other cold-water fish such as halibut, tuna, mackerel and sardines are rich in omega-3 fatty acids. Other omega-3 sources include beans, some nuts, flax seeds and healthy oils like olive oil.

Berries and dark-skinned fruits are rich in antioxidants. According to the Alzheimer's Association, some of the fruits that pack the most punch are blueberries, blackberries, strawberries, raspberries, plums, oranges, red grapes and cherries.

Coffee and chocolate are surprisingly good for you. Recent studies have shown that caffeine and coffee can be used as therapeutics against Alzheimer's disease. The caffeine and antioxidants in these two tasty treats may help ward off age-related memory impairment, along with cinnamon, olive oil and curry.

Extra virgin olive oil contains a substance called oleocanthal that helps boost the production of key proteins and enzymes that help break down the amyloid plaques associated with Alzheimer's disease.

Cold-pressed virgin coconut oil is a heart-healthy oil that is free of cholesterol and trans-fats, and boosts ketones. Coconut oil has been shown to improve the body's use of insulin, increase HDL (good cholesterol), boost thyroid function and acting as an antioxidant and natural antibiotic.

Foods Linked to Increased Rates of Alzheimer's Disease

Cured meats such as bacon, smoked turkey from the deli counter and ham have all been linked to Alzheimer's. All of these smoked meats contain nitrosamines which cause the liver to make fats that are toxic to the brain. These nitrosamines have the ability to enter the brain and are linked to Alzheimer's.

Processed foods, especially cheeses, such as American cheese, mozzarella sticks, Laughing Cow, Cheez Whiz and other processed cheese are linked to protein buildups associated with Alzheimer's.

Beer is on the "problem list" for Alzheimer's as many processed beers contain nitrites. You can try to find beers without nitrites, but it is difficult as most beers do not have an ingredient list.

White foods made with white flour including pasta, cakes, white sugar, white rice and white bread are all foods that bump up your insulin and send toxins to your brain.

Microwave popcorn contains a chemical called 'diacetyl' that is also found in candy, baked goods and margarine. Preliminary research suggests that this chemical may increase amyloid plaques in the brain that are associated with Alzheimer's disease.

Cooking for a Loved One with Alzheimer's: Taste and Presentation Tips

Being Cognizant of Senior Health

Tastebuds diminish with age and some Alzheimer's patients might not be able to taste food. Nutrition expert Sandra Burton recommends using a variety of natural herbs and spices to help flavor foods. She cautions to stay away from salt and any spice that has the word "salt" in it, such as garlic salt. "Alzheimer's patients may need food hotter, colder, sweeter or spicier," Burton notes. "Dental issues the senior may have may also need to be considered since many seniors have dentures that don't fit right which often cause wounds and bacteria, making eating sometimes unpleasant."

Burton further stresses that caregivers need to take into account the disease state of the Alzheimer's patient, know their dental health and be aware of what medications they are on. "Some patients are on anti-clotting meds, which means the patient has to watch certain types of foods. When a person is on Coumadin they need to avoid Vitamin K+ rich vegetables and fruits—leafy greens, coffee, tea and cranberry juice." Keeping food natural and not using frozen meals and processed foods greatly helps with nutrition. "The food doesn't have to be organic, it just needs to be healthy," Burton notes.

Good Presentation Helps

Use these three food presentation tips when you're cooking for a loved one with Alzheimer's disease or another kind of dementia. Like any of us, people with Alzheimer's and dementia are more likely to eat and enjoy food that's attractively plated and garnished.

Shaved Colorful Veggies

Use a peeler or mandolin to shave a selection of easy to peel colorful vegetables that are packed with anti-oxidants and vitamin C, such as carrots, cucumbers, beets, green squash, red and green pepper, yellow zucchini or onion. The shaved vegetables form their own unique twists and curls which, when tossed in a salad, provide that "wow factor." Toss with a light olive oil or vinaigrette for a delicious, nutrition-packed side dish or main course. Add a few toasted nuts or sunflower seeds for even more texture and vitamin power.

Bite-Sized Shapes

Redesign soft fruits like watermelon or cantaloupes with a melon baller. Slice cherries, cherry tomatoes, strawberries or grapes into halves or quarters. Or try cutting carrots or apples into thin, short strips. Not only does the fruit look appealing, the bite-sized pieces are easier to eat. You can also use small cookie cutters to create different shapes out of thinly sliced melons and cucumbers.

Nutrient Packed Garnishes

Dress up salads, soups, baked chicken or fish and give it a nutrition boost at the same time by adding one or more colorful toppings. Place a few sliced beets on top – this power vegetable is loaded with vitamins A, B and C. Golden raisins will bring a dash of color and sweetness, plus they are packed with iron. Sprinkle fresh finely chopped or minced spinach or soft Lacinato kale over soup or a main protein dish for a pop of color, subtle flavor and extra beta carotene, vitamin K, vitamin C, and calcium. Toasting pine nuts, slivered almonds or walnuts takes only a few minutes and really brings out their flavor and aroma. Sprinkle a few on your meal, along with some crumbled feta or bleu cheese, and you have created a very pretty and delicious meal.

Sample Brain Health Recipes

Breakfast: Pumpkin Oatmeal

Yield: 4 servings

Ingredients

- 1/2 cup steel cut oats
- 1 cup water
- 1/3 cup pumpkin (canned pumpkin)
- 1/2 cup skim milk (cow, goat, rice milk or soy milk)
- 1 tsp vanilla
- 1 dash cinnamon
- 1 dash nutmeg
- 1 tbs raw walnuts and almonds(crushed or slivered)
- 1 tsp maple syrup

Preparation

1. Add oats and water to a 2 quart sauce pan
2. Bring to a boil, stirring occasionally
3. Turn down to simmer
4. Cook until creamy for about 8-10 minutes
5. Add pumpkin
6. Add milk
7. Add vanilla, nutmeg and cinnamon
8. Add nuts and or maple syrup

Lunch: Spring Vegetable Soup

Yield: 4 servings

Ingredients

- 1 tbsp extra-virgin olive oil
- 1/4 red cabbage (about 2 cups, finely shredded)
- 2 ripe tomatoes (medium, seeded and chopped)
- 1/2 cup canned artichoke hearts (drained & chopped)
- 1 cup green peas (frozen or fresh)
- 2 1/2 cups vegetable juice (low-sodium tomato or)
- 1 cup water
- 2 tsps dried basil
- Salt and freshly ground black pepper, to taste

Preparation

1. In large soup pot, heat oil over medium heat. Sauté cabbage, tomatoes, artichoke hearts and peas for 10 minutes.
2. Add tomato juice and water. Bring to boil. Reduce heat, add basil and simmer for 10 minutes, or until all vegetables are tender and soup is piping hot.
3. Serve in individual serving bowls. Season to taste with salt and pepper.

Dinner Main Course: Chicken with Herb-Roasted Tomatoes and Pan Sauce

Yield: Makes 4 servings Active time: 30 minutes Total time: 40 minutes

Ingredients

- 1 1/2 lbs cherry tomatoes or other small vine tomatoes
- 6 tbsp olive oil, divided
- 2 tbsp herbes de Provence
- 1 tsp kosher salt plus more
- Freshly ground black pepper
- 1 tbsp Worcestershire sauce
- 1 pound skinless, boneless chicken breasts
- 1 small shallot, minced
- 2 tbsp red wine vinegar
- 3 tbsp flat-leaf parsley leaves
- 3 tbsp fresh tarragon leaves

Ingredient info: Herbes de Provence, a dried herb mixture, can be found at specialty foods stores and in the spice section of most supermarkets.

Preparation

1. Preheat oven to 450°F.
2. Combine tomatoes with 2 tbsp oil and herbes de Provence in a large bowl.
3. Season with salt and pepper; toss to coat. Heat 1 tbsp oil in a large heavy ovenproof skillet until oil shimmers.
4. Carefully add tomatoes to pan (oil may spatter).
5. Transfer skillet to oven and roast, turning once, until tomatoes burst and give up some of their juices, about 15 minutes.
6. Transfer to a medium bowl and drizzle with Worcestershire sauce.
7. Meanwhile, season chicken with 1 tsp salt and pepper.
8. Heat 2 tbsp oil in a large ovenproof skillet over medium-high.
9. Sear chicken on both sides until golden brown, 6–8 minutes.
10. Transfer pan to oven and roast chicken until cooked through, 8–10 minutes.
11. Transfer chicken to a cutting board and leave to rest for at least 5 minutes.
12. Add remaining 1 tbsp oil to the same skillet; heat over medium.
13. Add shallot and cook, stirring often, until fragrant, about 1 minute.
14. Deglaze pan with vinegar, scraping up browned bits from bottom of pan.
15. Add tomatoes and their juices and simmer until sauce is just beginning to thicken, about 1 minute. Season sauce to taste with salt and pepper.
16. Slice chicken; divide among plates. Spoon tomatoes and sauce over; garnish with herbs. Enjoy!

Dinner Salad: Greek Salad

Yield: 4 servings

Ingredients:

- 12 cups salad greens
- 6 TBS chopped mint
- 8 TBS crumbled feta cheese
- 6 TBS chopped olives
- 1 1/2 cup garbanzo beans
- 3 TBS extra virgin olive oil
- 3 TBS red wine vinegar
- sea salt and pepper to taste

Preparation

1. Combine first five ingredients.
2. Toss with olive oil and vinegar, and add salt and pepper to taste.

References

- Baum L, et al. Six-month randomized, placebo-controlled, double-blind, pilot clinical trial of curcumin in patients with Alzheimer disease. *J Clin Psychopharmacol*. 2008 Feb;28(1):110-3
- Cardoso BR. Importance and management of micronutrient deficiencies in patients with Alzheimer's disease. *Clin Interv Aging*. 2013;8:531-42.
- Clarke R, et al. Folate, vitamin B12, and serum total homocysteine levels in confirmed Alzheimer disease. *Arch Neurol*. 1998 Nov;55(11):1449-55.
- Desilets AR, et al. Role of huperzine a in the treatment of Alzheimer's disease. *Ann Pharmacother*. 2009 Mar;43(3):514-8.
- Gu Y, et al. Food combination and Alzheimer disease risk: a protective diet. *Arch Neurol*. 2010 Jun;67(6):699-706.
- Lourida I, et al. Mediterranean diet, cognitive function, and dementia: a systematic review. *Epidemiology*. 2013 Jul;24(4):479-89.
- Mandel SA, et al. Understanding the Broad-Spectrum Neuroprotective Action Profile of Green Tea Polyphenols in Aging and Neurodegenerative Diseases. *J Alzheimers Dis*. 2011;25(2):187-208.
- Mangialasche F, et al. High plasma levels of vitamin E forms and reduced Alzheimer's disease risk in advanced age. *J Alzheimers Dis*. 2010;20(4):1029-37.
- Pettegrew JW, et al. Clinical and neurochemical effects of acetyl-L-carnitine in Alzheimer's disease. *Neurobiol Aging*. 1995 Jan-Feb;16(1):1-4.
- Scarmeas N, et al. Physical activity, diet, and risk of Alzheimer disease. *JAMA*. 2009 Aug 12;302(6):627-37.6. Unlisted.
- Citicoline. *Alt Med Rev*. 2008;13(1):50-7.