



communicating Food for Health

B-Vitamins Reduce Alzheimer's Disease

New research suggests that B-vitamin supplements can slow the atrophy of gray matter in the parts of the brain affected by Alzheimer's disease (AD) and dementia. In an earlier, randomized, controlled study on older subjects with mild cognitive, these same researchers found that B-vitamin supplements (800 mcg folic acid, 20 mg pyridoxine, & 500 mcg vitamin B-12) slowed the loss of brain tissue over the next 2 years. The present study goes further by demonstrating that B-vitamin treatment reduced, by as much as seven-fold, the loss of the brain's gray matter (GM) regions specifically vulnerable to AD, including in the medial temporal lobe. In the placebo group, an elevated blood homocysteine (Hcy) level at baseline was associated with significantly greater GM atrophy, but this deleterious effect was largely prevented by B-vitamin supplements.

Importantly, this study showed that the beneficial effect of B-vitamins was seen only in sub-

jects who initially had an elevated homocysteine (above the median, 11 $\mu\text{mol/L}$) and were likely deficient of one or more B-vitamins, impairing their ability to metabolize Hcy and suggesting the following chain of events: 1. Elevated Hcy levels in the blood damage GM. 2. B-vitamin supplements lower homocysteine levels in those initially deficient; 3. The reduced Hcy levels then slowed GM atrophy, thereby reducing future loss of GM and slowing loss of cognitive function. Importantly these results showed that B-vitamin supplementation slowed the atrophy of specific brain regions that are a key component of the AD process and that are associated with cognitive decline. The study was published in the May 2013 Proceedings of the National Academy of Sciences [www.pnas.org/lookup/suppl/doi:10.1073/pnas.1301816110/-/DCSupplemental].

It should be noted that the B-vitamin cocktail did not reverse the loss of prior cognitive function or restore lost GM, but

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September '13

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Dr. James J. Kenney explores new research about Alzheimer's disease.

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Regular consumption of animal foods leads to higher TMA production in the gut.

rather may act to delay the beginning of AD and then slow the progression of the disease process. Hcy is a normal metabolite of sulfur-containing amino acids. Many years ago, it was observed that people who have a genetic defect at metabolizing Hcy have very high levels in their blood and are at much greater risk for developing cardiovascular disease (CVD) and AD. A deficiency of pyridoxine, folate, and/or vitamin B-12 can result in an abnormal increase in blood Hcy levels even in people without this genetic abnormality and so can result in moderately elevated Hcy levels in the blood. Unfortunately, controlled clinical trials with these same B-vitamins lowered Hcy levels in people with advanced CVD but this reduction did not cut their future risk

of CVD events. We have long known that risk factors for CVD are similar to those for developing AD and other common forms of senility. What is so exciting about this new data is that lowering Hcy in those with moderately elevated levels ($>10\mu\text{mol/L}$) with these same B-vitamins did markedly reduce the future loss of functional GM and slows the loss of cognitive function too. Indeed, the results of this small clinical trial show that these B-vitamins work far better than any pharmaceutical agent yet developed to treat or prevent AD. Certainly larger clinical trials are needed to confirm this, but this study does strongly suggest that anyone showing early signs of dementia ought to be tested for Hcy levels and if those levels are elevated, it is likely that they are deficient

in one of those B-vitamins and so supplements could be given to correct this deficiency. Hopefully, this will lower serum Hcy levels and slow the loss of functional brain tissue. Certainly the risks associated with these B-vitamin supplements is less than the risks posed by

the drugs that are currently used to prevent and treat AD. Plus, the benefits of B-vitamin supplementation may well be much greater.

Why did these B-vitamin cocktails not reduce CVD events in those with elevated Hcy levels and advanced CVD? It may be that elevated Hcy levels damage the endothelial cells that line the artery wall. We know such damage is associated with more rapid progression of early atherosclerotic lesions. However, in advanced atherosclerotic lesions, there may too little endothelial function remaining for Hcy lowering to have much impact in those who already have advanced disease. This new research on those at risk of AD showed lowering Hcy did nothing to reverse the damage caused in the past but was successful in slowing the disease in still functioning grey brain matter.

Bottom Line: Given the huge cost to society and the devastating effects on individuals and their families caused by AD and vascular dementia, this is indeed very encouraging news. Since these B-vitamins cannot be patented, it is likely that the type of research needed to validate and extend this study will have to be funded by the NIH/NSF, not pharmaceutical companies.

By James Kenney, PhD, FACN

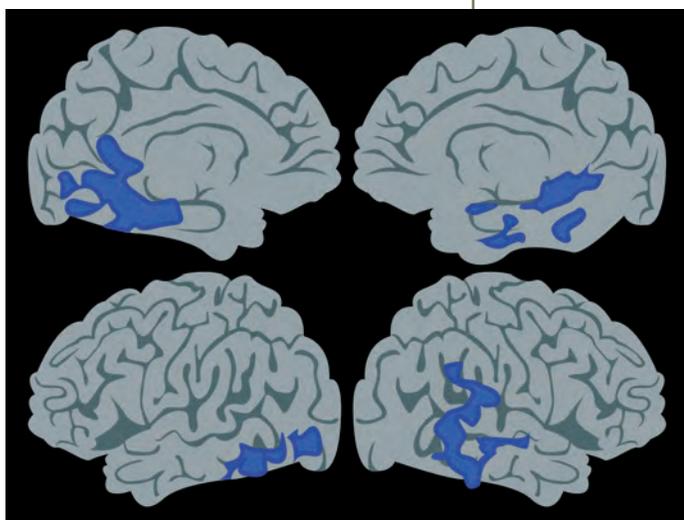


Figure 1. B-vitamin treatment significantly reduced regional loss of GM. 3D rendering of brain regions in blue-white where B-vitamin treatment significantly reduced GM loss over the 2-y period ($P < 0.05$ FWE-corrected). All blue/white areas correspond to regions of significant loss in placebo group with elevated Hcy and known to be vulnerable in Alzheimer's disease. (PNAS)

Better Breakfast, Better Weight Management

What single change at breakfast might help our patients lose more fat and less muscle while trying to lose weight? According to research, upping protein intake might increase satiety, reduce food intake later in the day and even help maintain muscle mass. In a meta-analysis of 24 trials and 1,063 adults, a higher-protein diet compared to a standard protein diet had a beneficial effect on weight loss, loss of body fat, maintenance of fat-free mass, and resting energy metabolism (1). Additional studies suggest that spreading protein intake out over the day is beneficial both for optimal weight loss and for preventing the loss of muscle mass with aging (2). Padden-Jones and Rasmussen propose including 25 – 30 grams of protein per meal to maximize muscle protein synthesis (3).

The Acceptable Macronutrient Distribution Range, established by the Institute of Medicine, for protein is 10-35% of calories for adults. Thus, consuming 25-30 grams of protein at each of three daily meals is within the recommended guidelines.

A caveat here is to help our patients understand that greater than 30 grams of protein is not needed. Most often, we will be helping our patients distribute their protein intake from heavy at the evening meal to approximately even amounts at three meals.

The following menu ideas might help patients consume adequate protein at breakfast.

- 1 cup Greek yogurt, fruit, ½ cup Post Grape-Nuts cereal
- 1 cup cottage cheese, fruit
- Veggie omelet with 2 eggs, 1 cup milk, 1 slice whole wheat bread

- Turkey sandwich (2 slices whole grain bread, 2 ½ ounces turkey)

Sources:

1. Wycherley TP, Moran LJ et al. Effects of energy-restricted high-protein, low-fat compared with standard-protein, low-fat diets: a meta-analysis of randomized controlled trials. *Am J Clin Nutr* 2012;96:1281–98.
2. Devkota S and Layman DK. Protein metabolic roles in treatment of obesity. *Curr Opin Clin Nutr Metab Care* 2010 13:403–407.
3. Padden-Jones D and Rasmussen BB. Dietary Protein Recommendations for the Prevention of Sarcopenia. *Curr Opin Clin Nutr Metab Care* 2009 1:86-90.

By Jill Weisenberger, MS, RD, CDE

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A Bread Machine: The Key to Great Pizza



Bread Machine Pizza

Serves: 8 | Serving Size: 1 slice

- 2 cups white whole wheat flour
- 1 cup warm water
- 1/2 tsp dry yeast
- 1 tsp brown sugar
- 1/2 tsp olive oil
- 1/2 cup tomato sauce
- 1 tsp Italian seasoning
- 2 cups veggies (red peppers, mushrooms, arugula, etc)
- 1/2 cup shredded mozzarella cheese

Make the dough in a bread machine by adding the flour, water, yeast, brown sugar, and olive oil to the machine and mixing on the “dough” setting. Let rise for one hour.

Preheat your oven to 450 degrees, and press the dough onto a lightly sprayed vented pizza pan or cookie sheet. Form a large round circle about 14 inches in diameter.

Bake the crust at 425 degrees for 10 minutes. Remove the crust from the oven and flip it over.

Add the sauce to the baked crust. Top with the seasoning, veggies, and cheese, then return the pizza to the oven for 10 minutes. Slice into 8 wedges and serve!

Chef's Tips:

King Arthur makes a great white whole wheat flour. You can also use all-purpose flour.

It is best to measure the flour by pouring into a cup and then leveling it off. Do not scoop the flour out of the bag with the measuring cup or you will pack it and make the dough too dry.

You can refrigerate the dough for up to 8 hours before using it. Make it in the morning and then stick it in the refrigerator until you get home. It will rise slowly all day long.

Nutrition Facts

Serving Size 1 slice
Servings Per Batch 8

Amount Per Serving

Calories 141 Calories from Fat 25

% Daily Value *

Total Fat 3g 4%

Saturated Fat 1g 4%

Trans Fat 0g

Cholesterol 4mg 1%

Sodium 49mg 2%

Total Carbohydrate 25g 8%

Dietary Fiber 4g 15%

Sugars 2g

Protein 6g 12%

Vitamin A 2% • Vitamin C 15%

Calcium 6% • Iron 5%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

BROUGHT TO YOU BY:

Toss It In the Skillet!



Chicken Noodle Skillet

Serves: 4 | Serving Size: 1 cup

- 2 tsp vegetable oil
- 1 cup onion, chopped
- 2 cups cooked chicken breast, without skin, cubed
- 2 cups frozen mixed vegetables
- 2 cups uncooked ribbon noodles
- 2 cups chicken broth (low sodium if possible)
- 1/2 teaspoon garlic powder
- 1 teaspoon oregano
- Handful of parsley, chopped
- Black pepper to taste

Heat vegetable oil in large nonstick skillet over medium-high heat. Add the onion, sauté for a few minutes; then add the rest of the ingredients.

Bring the mixture to a boil, then lower the heat and cover the pan. Simmer until the noodles are tender, about 8 to 10 minutes. Add parsley and serve hot.

Chef's Tips:

Watch your onions carefully. You want them to be golden and flavorful, not blackened or undercooked.

We recommend a pea and carrot frozen vegetable pack or a vegetable soup combination.

Did You Know?

The onion is a popular vegetable! Washington's state vegetable is the Walla Walla sweet onion, while Georgia's state vegetable is the Vidalia onion, and Utah's state vegetable is the Spanish sweet onion.

Onions are good sources of folic acid, vitamin C, and fiber.

Parsley is a natural breath freshener. Munch on a sprig or two after your meal -- you'll be amazed by the results!

Frozen vegetables can be secret sources of sodium. Make sure to get a frozen vegetable medley that is sodium-free!

Nutrition Facts

Serving Size 1 cup
Servings Per Batch 4

Amount Per Serving

Calories 240 Calories from Fat 53

% Daily Value *

Total Fat 6g 9%

Saturated Fat 1g 4%

Trans Fat 0g

Cholesterol 21mg 6%

Sodium 893mg 37%

Total Carbohydrate 33g 11%

Dietary Fiber 6g 25%

Sugars 4g

Protein 13g 26%

Vitamin A 212% • Vitamin C 11%

Calcium 5% • Iron 11%

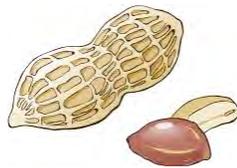
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

BROUGHT TO YOU BY:

5 Ways to Evolve Your Eating, Today!

Healthful eating is an evolution for your diet -- it's a gradual shift toward making better food choices over time. Here are five simple ways to "evolve your eating" today... for a healthier you tomorrow!

1. **Go for better-for-you butter.** Instead of traditional dairy butter, swap in nut butters like peanut and almond butter. Not only will you cut the saturated fat, but you'll add the better-for-you fats that can keep your arteries clean and flexible. Also, nuts offer a nutritional package of vitamin E, high-quality protein, and fiber.



2. **Veg out your snacks.** Replace refined crackers, cookies, and chips with sliced, chopped, or diced veggies. Not only will you be upping your veggie intake for the day, but you'll do wonders for your blood pressure -- vegetables are naturally low in sodium and high in potassium, which is a great blood pressure-regulating combination!



3. **Rethink red.** Choose red beans over red meat. Use red beans (like kidney beans, pinto beans, or red lentils) instead of red meat in your chili, salad, or soup tonight. Not only are you adding a ton of fiber, potas-



sium, and protein that is low in saturated fat to your day, but you're also decreasing your overall calories while feeling satisfied for a longer period of time. It's a win-win!

4. **L.O.V.E your appetite.** Give up battling with food. Instead build a better relationship with it. Develop a new appreciation for food by keeping an appetite log. This will allow you to: Label feelings about certain foods, observe why and when you eat, verify what your hunger and fullness mean to you, and escape habitual or mindless eating.



5. Swap out soda. In lieu of regular and diet soda, hydrate your body with your number one physiological need -- water. Every cell, organ, tissue, and metabolic process in your body relies on water in order to function properly. Sipping water throughout the day is your best bet -- get a water bottle to bring to the office, into the car, and to the gym with you.



By Victoria Shanta Retelny, RD, LDN, author of The Essential Guide to Healthy Healing Foods.

BROUGHT TO YOU BY:

Diabetes and Fasting

If you have diabetes, it's important to consider questions about the safety of fasting around Ramadan, Yom Kippur, and other times of the year. What are we talking about? Well, Muslims are instructed to abstain from food and drink from predawn to after sunset for the entire month of Ramadan. There are no restrictions between sundown and dawn. Most Muslims will eat one meal before dawn and another after sunset. During Yom Kippur, Jews fast from sundown to the following sundown. Fasting with diabetes can cause a host of problems, but, if you choose to fast anyway, consider the following...

According to a 2005 commentary in *Diabetes Care*, the risks associated with fasting for people with diabetes are the following:

- **Hypoglycemia.** Hypoglycemia is another word for low blood sugar and happens when your glucose levels drop dangerously. When fasting, hypoglycemia can come from lack of food intake and improper medication adjustments.
- **Hyperglycemia.** Hyperglycemia is also known as high blood sugar. It happens when there's too much glucose in your bloodstream. You can get hyperglycemia when you fast if you excessively reduce your medication in an attempt to prevent hypoglycemia.
- **Diabetic ketoacidosis.** When you fast, you can get diabetic ketoacidosis, which is when your body doesn't have the insulin it needs to proc-



ess glucose. This is more common in patients with type 1 diabetes, especially if they are in poor glycemic control before the fast.

- **Dehydration:** You can get dehydrated from lack of fluid intake or as a side effect of hyperglycemia.
- **Thrombosis.** A thrombosis is a blood clot, and you can get one while you fast, thanks to increased blood viscosity, secondary to dehydration.

These risks can be minimized when you make sure that you are in good glycemic control prior to the fast. This means no blood sugar highs and crashes. These risks can also be reduced if you adjust your medication thoughtfully. If you wish to fast for spiritual reasons, visit with your physicians weeks before the religious event in order to discuss appropriate treatment changes during, and possibly prior to, the fast.

Want More Information? Try...

- Al-Aourj M, Bougerra R, et al. Recommendations for Management of Diabetes During Ramadan. *Diabetes Care*. 28:9 (2005).
- Grajower M. Management of Diabetes Mellitus on Yom Kippur and Other Jewish Fast Days. *Endocrine Practice*. 14:3 (2008).

By Jill Weisenberger, MS,
RD, CDE

BROUGHT TO YOU BY:

Hope or Hype?

Every day it seems that there's a new supplement on the market, promising to increase your stamina, decrease your weight, or help you put on more muscle mass. So... do they work, or are they just a waste of money? Check out our rundown of three of the latest ones supplements— green coffee bean extract, raspberry ketones, and garcinia. We'll find out whether they'll bring you hope, or whether they're all just hype.

Green coffee bean extract, a compound found in unroasted coffee beans, is supposed to help you lose body fat. But what's the science behind the claim? It turns out that there was only one (poorly regulated) study of 16 people, and that's what proponents of green coffee bean extract are relying on. Plus, the same thing is also found in roasted coffee and black tea.

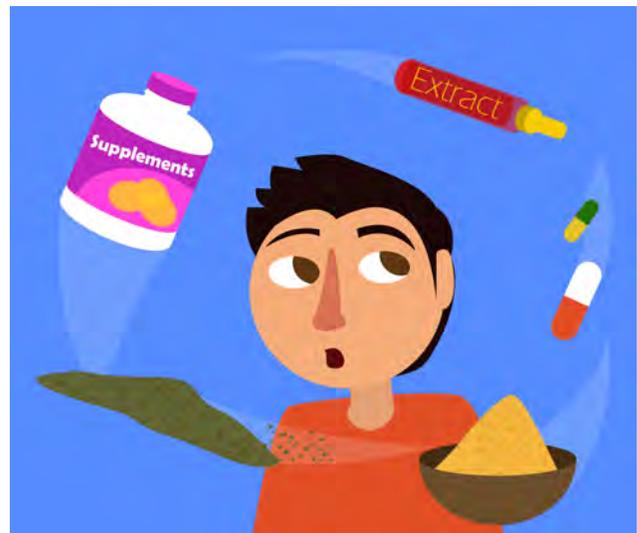
The Verdict? Hype.

Raspberry ketones are what give red raspberries their distinctive aroma. The ads for raspberry ketones assert that they will increase fat loss... even though no human clinical trials have been conducted. How can they support this claim?

The Verdict? Hype.

Garcinia cambogia (aka HCA) is from the tamarind, a fruit that's commonly used as a condiment in Thai and Indian cuisine. The claim is that garcinia cambogia will help weight loss by suppressing appetite, increasing metabolism, and reducing body fat. However, three studies found that that garcinia cambogia doesn't help decrease weight or increase metabolism in obese people.

The Verdict? Hype.



So, if there's not enough solid evidence behind these supplements, why do people buy them? When we keep hearing about these supplements (mostly from paid ads), we assume that companies couldn't make these claims unless they were true. Unfortunately, the vitamin and supplement industry is not regulated by the FDA and thus false health claims are made.

People may also use these supplements because a friend has used them successfully. Most of these results are from the placebo effect. With these pills, people tend to make other changes that can improve their health, but then they assume it was all due to the pill.

Two signs often indicate hype. One, the product description includes "miracle," "magic," "secret," etc. Two, it promises that it needs no change in diet or lifestyle for dramatic results. Save your money and stick with what really works – eat less and move more.

By Dr. Jo, a.k.a. Joanne Lichten, PhD, RD

BROUGHT TO YOU BY:

Let's Talk About Flax Milk



choice for people who need to increase their omega-3 consumption.

Now let's talk flavor, because even the most nutritious milk won't do you any good if you can't bear to drink it. Good news! The flavor is outstanding! It's even been successfully teenager tested. During testing, I heard that the milk "tastes like cake batter." While I cannot remember the last time I served cake batter, I think this remark bodes well for the milk's palatability.

The only drawback I could find for this milk was the cost. That said, \$5.99 per half gallon is certainly not a dealbreaker.

All in all, flax milk seems like an excellent choice, especially for people with lactose intolerances, soy or wheat allergies, or who wish to avoid consuming animal products.

By Judy Doherty, PC II

Flax milk is a relatively new player in the milk scene, so I thought I would see what all the fuss is about. Last week, I bought a carton and brought it home with me to experiment.

The first thing that caught my eye was the calorie content. Flax milk has just 50 calories per cup, which is very low. Skim milk has 80 calories per cup, while whole milk has a whopping 150 calories per cup. So hooray for the low calorie content -- 50 calories per cup is great.

Flax milk also contains a hefty level of omega-3 fatty acids. In fact, its omega-3 content was the highest out of all the milks I researched, which makes it an excellent



BROUGHT TO YOU BY: