



ARBOR FARMS MARKET

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Our March 2019 Newsletter for Healthy Living

Give Your Brain a Boost

Recent research from Washington University School of Medicine in St. Louis reveals women's brains appear to be about three years younger, metabolically speaking, than men's brains of the same chronological age. The finding offers a clue as to why women tend to maintain their mental acuity longer than men. The original study can be viewed for free online, but is summarized by *Science Daily*:

"Time wears differently on women's and men's brains. While the brain tends to shrink with age, men's diminish faster than women's. The brain's metabolism slows as people grow older, and this, too, may differ between men and women ... The brain runs on

sugar, but how the brain uses sugar changes as people grow and age.



Babies and children use some of their brain fuel in a process called aerobic glycolysis that sustains brain development and maturation. The rest of the sugar is burned to power the day-to-day tasks of thinking and doing. In adolescents and young adults, a considerable portion of brain sugar also is devoted to aerobic glycolysis, but the fraction drops steadily with age, leveling off at very low amounts by the time people are in their 60s."

While gender differences have been found, it's still unclear exactly how brain metabolism differs between men and women, and why. The research team sought to determine how the brain uses sugar by studying 205 individuals (121

women and 84 men) ranging in age from 20 to 82. Using PET scans, they measured oxygen flow, blood flow and glucose levels in the brain, and determined how much glucose was being used up in aerobic glycolysis in the various brain regions of each person. An algorithm was then used to identify the relationship between chronological age and brain

mean that the reason women don't experience as much cognitive decline in later years is because their brains are effectively younger, and we're currently working on a study to confirm that."

While these findings are interesting, it is perplexing to speculate as to what the reason is. However, there's no reason for men to fret as research clearly

"...The brain runs on sugar, but how the brain uses sugar changes as people grow and age."

metabolism. Based on this algorithm, the women's brains were found to be, on average, 3.8 years younger, metabolically, than their actual chronological age, and this was true even for women in their 20s. On the other hand, men's brains were found to be, on average, 2.4 years older than their chronological age.

What these findings suggest is that women's brains somehow convert more glucose to energy than men do during adulthood. As noted in *Science Daily*: *"The average difference in calculated brain age between men and women is significant and reproducible, but it is only a fraction of the difference between any two individuals. It is stronger than many sex differences that have been reported, but it's nowhere near as big a difference as some sex differences, such as height. It's not that men's brains age faster — they start adulthood about three years older than women, and that persists throughout life. What we don't know is what it means. I think this could*

shows that diet and other lifestyle strategies can have a significant impact on your brain's rate of aging. It's well worth noting that while your brain is known to use glucose for fuel, it's not the sole fuel for your brain. Ketones — water-soluble fats produced by your liver during the conversion of fats into energy — are actually a preferred fuel for your brain, which is in part why a ketogenic diet is so beneficial for your brain function. In fact, a ketogenic diet has been shown to protect against Alzheimer's disease by keeping your brain healthy and youthful.

In one study, the researchers concluded the ketogenic diet acted as a veritable "fountain of youth," significantly improving neurovascular and metabolic functions in lab rodents, compared to those eating an unrestricted diet, and neurovascular function and integrity plays a significant role in determining your cognitive capacity. High-fat diets have also been shown to lower your risk of dementia by 44 percent,

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- Organic Produce CSA Subscription
- Boost Your Brain, *continued*
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2019 Organic Produce CSA

Homer Organic Family Farms



Our Farming Practices

Our farming practices will take you back to the 1930's. Our fields are plowed and worked with horses. Our large families provide many hands to do the hoeing and many other tasks that can only be done by hand. Food that was raised in the 1930's had much better flavor and many more nutrients because farmers were not dependent on the chemicals, pesticides and GMO seeds that most farms use today. Food that has been organically grown doesn't just taste better, but it's also better for you!

We want you to enjoy better health. It is important to know where our food is coming from. Everyone needs a farmer. Who or where is your farmer?

About Us

We farmers (there are now seven participating farmers in our Homer Community) have been raising produce for several years, providing fresh vegetables for Farmers Markets and several of the Ann Arbor food stores. In 2008, we decided to begin a farm share program (CSA). Being a farm share member connects you directly to the farm your food is coming from. We usually offer a couple farm visits during the summer months. A farm visit will not only acquaint you with our farming community, but also offers a glimpse of the efforts made to provide you with good, clean, wholesome food.

We, being of the Amish faith, do not have phones, computers or email, so our communication needs to be by mail, at the farmers markets or through our friends at Arbor Farms. Of course, you are always welcome to come out to our farms.

We welcome you for a farm visit!

What is a CSA Program?

By subscribing to a CSA you are investing in a share of the farmer's harvest. The CSA farm share program then provides you with fresh vegetables every week. The early harvest begins May 29th, continues throughout the summer, and ends October 10th (for a total of 20 weeks).

Not only are subscribers getting the freshest food, but they are also showing their support for the small farmer. The program works well for the farmers and members both. The farmer can plan how much to grow. The member knows they have a box of vegetables coming every week. It makes shopping quite simple. It broadens your eating habits, as you will try new things you've never had before. It can challenge the cook. A seed catalog to us is like a cookbook to you. Sometimes we like to try new items. So be our guest and enjoy the food.

What might I see in my weekly box?

Early Season: May/June

Asparagus
Leaf Lettuce
Swiss Chard
Kale varieties
Collards
Zucchini and Summer Squash
Peas: Snap and Shell
Salad Greens
Rhubarb

Summer Season: June/July/August

Lettuce, Broccoli, Cabbage
Radishes, Beans, Peppers
Zucchini, Cucumbers, Hot Peppers
Carrots, Peas, Tomatoes
Sweet Potatoes, Basil
Potatoes, Cantaloupe
Green Onions, Sweet Corn
Onions, Eggplant
Beets, Garlic, Watermelon

Late Season: September/October

Remaining summer crops,
Red Peppers
Hard Squash
Spinach
Late Greens
Turnips
Parsnips
And wrapping up the garden.

Community Supported Agriculture (CSA)

Subscribe now-May 15th.

Give Your Brain a Boost, *continued from page one*

whereas high-carb diets increase your risk by 89 percent. Indeed, glucose directly contributes to atrophy of the hippocampus, which means that even if you're not insulin resistant or diabetic, excess sugar in your diet may still be

tional session over the phone on how to improve their brain health, but were asked not to change their exercise or dietary habits. Here's what they found at the end of the six-month-long study: the first group, who exercised but did not

"MCT supplementation boosted cognition in individuals with cognitive impairment ... after just a single dose."

negatively affecting your memory.

Ketones appear to be the preferred source of energy for the brain, particularly in people affected by diabetes, Alzheimer's and Parkinson's, because in these diseases certain neurons have become insulin resistant or have lost the ability to efficiently utilize glucose. As a result, neurons slowly die off. The introduction of ketones may rescue these neurons and they may still be able to survive and thrive. In multiple studies, ketones have been shown to be both neurotherapeutic and neuroprotective. They also appear to lower markers of systemic inflammation.

Exercise has also been shown to play an important role in the aging of your brain, and together, diet and exercise is a winning combination, as recently reported in the journal *Neurology*. According to the researchers, this was the first study to look at the separate and combined effects of diet and exercise on cognitive decline in those who are vulnerable to developing dementia later in life. In all, 160 adults (average age 65) were recruited. All had a history of high blood pressure or other cardiovascular risks, never exercised, and had cognitive challenges in executive functioning. None had a diagnosis of dementia.

At the beginning of the study, the average cognitive skills in the participants were similar to those of individuals 93 years old — 28 years older on average than the actual age of the participants. The volunteers were divided into four groups: the first participated in a structured aerobic exercise program for the first three months and were given exercises to do at home in the last three months; the second group were asked to eat a low sodium DASH diet (which reduces processed foods and increases intake of whole foods) but did no exercise; the third group were asked to exercise and change their diet at the same time; the fourth group served as a control and received a 30-minute educa-

change their diet, had greater improvements in executive functioning than the group who did not exercise; those who followed the DASH diet with no exercise experienced no significant improvement in thinking skills; the group who changed their diet and exercised reversed their brain age by nine years, bringing their average mental age to 84; the control group's executive function declined.

Importantly, research shows muscle strength, especially your leg muscles, impacts neurosignaling, thereby playing a role in brain deterioration. This connection is why neurological functioning in patients tends to decline when their physical mobility is limited. Another key factor is how exercise affects brain-derived neurotrophic factor (BDNF), found in both your brain and muscles. Exercise stimulates production of a protein called FNDC5, which in turn triggers BDNF. In your brain, BDNF preserves existing brain cells, activating them to convert into new neurons and promoting actual brain growth.

In addition to a ketogenic diet, certain nutrients are also vital for brain health, while others can be helpful. Among the most important are vitamin D and marine-based omega-3, which contains two long-chained fatty acids that are vital for brain health: docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). Other nutrients known to influence your brain health and cognition include:

Choline — Recent research demonstrates the importance of choline for brain health and prevention of neurodegenerative diseases such as Alzheimer's. Choline is a precursor to acetylcholine, a neurotransmitter required for the proper function of your brain and nervous system, and helps protect against Alzheimer's by reducing your homocysteine level and inhibiting microglia activation.

Phosphatidylserine — This is another supplement that can help improve cognitive function and protect against Alzheimer's disease. Phosphatidylserine is an amino acid derivative that is highly prevalent in neural tissue and plays an important role in the cellular function in your brain.

Vitamin B12 — Research shows people with high levels of mark-

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ers for vitamin B12 deficiency are more likely to score lower on cognitive tests and have a smaller total brain volume, which suggests a lack of B12 may contribute to brain shrinkage. Research has found that supplementing with B vitamins, including B12, helps to slow brain atrophy in elderly people with mild cognitive impairment.

MCT oil — As mentioned, ketones are what your body produces when it converts fat (as opposed to glucose) into energy, and a primary source of ketone bodies are medium chain triglycerides (MCT). While coconut oil is one healthy option, MCT oil is a more concentrated source of ketones. As noted by Mental Health Daily: *"In small scale human trials, MCT supplementation boosted cognition in individuals with cognitive impairment and mild forms of Alzheimer's disease after just a single dose."* Herbs that have been found to improve cognitive function include ashwagandha, bacopa and curcumin.

Reference: Proceedings of the National Academy of Sciences February 4, 2019. *Science Daily* February 4, 2019. Alzheimer's Association, 2011 *Alzheimer's Disease Facts and Figures. Scientific Reports* 2018; 8:6670. *Journal of Alzheimer's Disease* 2012; 32(2):329-39. *Neurology* 2018; doi.org/10.1212/WNL.0000000000006784. *Frontiers in Neuroscience* May 23, 2018. *Molecular Psychiatry* January 8, 2019. *Neurochemistry International* 2012 July; 61(1):100-107. PLOS ONE September 8, 2010. *Mental Health Daily* April 13, 2015. *Journal of Dietary*



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2019 Organic Produce CSA Homer Organic Family Farms

**Duration: 20 weeks/
May 29 - October 10**

Cost: \$400

Share Size: 1/2 Bushel box
(2-person size, about 9-10 lbs
will vary w/ seasonal contents)

Subscriber Information

Name(s) _____ Phone # _____

Address _____ Phone # _____

City/Zip _____ E-mail _____

Choose your Pickup Time: (circle one)

Wednesdays @ 7:30AM or **Thursdays @ 2:30PM**

Picking up your box within one hour of designated time will yield the freshest produce. All pickups will take place in a designated area in front of Arbor Farms , outside the store and under our canopy to protect from the elements as much as possible. **You will be able to park, pick up your box, and be on your way in as little as 60 seconds!** Please note that boxes not picked up within 36 hours will be donated to Food Gatherers.

Choose your Payment Schedule:

\$400 paid in full

\$200 now, remaining \$200 by May 27th