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Creating Health

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PERSONAL TRAINING & FITNESS SOLUTIONS

HEALTH TOPIC OF THE WEEK

1/15 - Brain Health

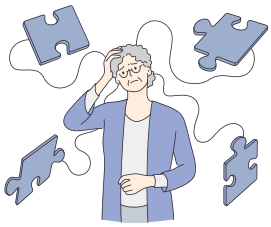
Introduction

A discussion on brain health and healthy aging would be remiss without briefly defining dementia and Alzheimer's disease. Dementia is a general term for a decline in mental ability severe enough to interfere with daily life, while Alzheimer's is a specific disease. Alzheimer's is the most common cause of dementia. Our initial focus is dementia.

Dementia is often associated with old age, but it is not a normal part of aging. Let me repeat that. Dementia is not a normal part of aging! As we will see, it is caused by damage to brain cells that affects their ability to communicate, which in turn affects thinking, behavior and feelings.

Dementia

If you're older, the mere mention of dementia evokes fear. If you're younger, you may not be thinking about it now, but you certainly will eventually. Deteriorating brain function is as devastating, if not worse, \than bodily deterioration.



Dementia refers to a decline in cognitive abilities that leads to loss of function. An estimated 4.5 million older adults in the United States suffer severe neurological impairment. This total number is expected to triple in the coming decades.

The deterioration of brain cells leads to memory loss, changes in mood and personality, anxiety, depression, irrational thoughts, paranoia and delusions. No wonder we fear developing dementia.

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Brain Health and Connectivity

Our brains contain approximately 100 billion cells called neurons. For neurons to communicate, they must connect to one another. A synapse is the connection that allows information to pass from one neuron to the next. Synapses are essential for the brain to function properly. Not only are the synapses crucial for short and long-term memory for the young, but their health is vital for aging individuals seeking to stave off cognitive impairments. Healthy synapses equal healthy brain function.

When Synapses Degrade

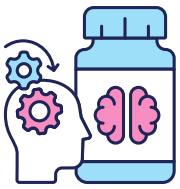
Aging brains can develop accumulation of non-functioning plaque in the neurons, resulting in a loss of their ability to communicate. This plaque buildup is seen in dementia and Alzheimer's disease and is the cause of severe cognitive impairment.

Before neurons encounter this severe damage from plaque buildup, they decline in density. Loss of density causes a decline in connectivity, an early warning sign of plaque buildup and the eventual diagnosis of dementia.

Controlling Your Rate of Brain Aging

Good News - We can exert significant control over the rate at which our brains age. This means we can improve our cognitive function. When it comes to preventing dementia and other cognitive impairments, there is no single smoking gun or best approach. I've categorized what can be done to reduce the risk of dementia into four categories:

1. Lifestyle
2. Healthcare
3. Mental and social well-being
4. Brain supplementation



<u>Lifestyle</u>

- Exercise
  - Besides being beneficial to every physiological system in our body, exercise is extremely healthy for the brain. It increases blood flow and stimulates new neuron growth in areas of the brain that regulate memory and emotion.
- Proper nutrition
  - The most valuable step you take is to reduce processed foods and replace them with whole foods. Whole foods are plants and animals that you eat while processed food is synthetically created inside commercial buildings.
- Minimal to moderate alcohol consumption
- Adequate sleep and rest
- Do not smoke

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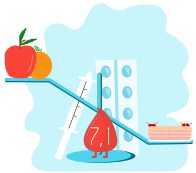
Healthcare

- When we hear the term healthcare, we usually think of seeing our physician and receiving treatment for a disease. This certainly is an aspect of healthcare, but it should occur only after we have exhausted preventative lifestyle changes.
- Control blood pressure
  - Everyone should strive for the lowest possible blood pressure. Elevated blood pressures are not just bad for your heart, they're also bad for your brain.

- Control blood sugar
  - Elevated blood sugar can lead to prediabetes and diabetes. Just like the body, the brain can also become insulin resistant. This means there is inadequate fuel for brain neurons, which hastens disease progression.



- Choose holistically oriented medical practitioners
  - Holistic doctors use a whole-body approach. They focus on your body, mind, spirit and emotions when diagnosing and treating you. Holistic doctors use traditional medicine, but also consider your lifestyle, diet, sleep habits and stress level.

Mental and Social Well-Being Activity

1. Actively learn new things
2. Stay curious and interested
3. Maintain social networks and friendships

Brain Supplementation

Let's return to why I mentioned a decline in neuron density leading to plaque buildup and diseased brains. Robust animal and human research indicates that several supplements can slow the decline of neuron density or even improve these brain cells by making them denser! While there are many noteworthy studies, I would like to share just a few:

- A research study compared un-supplemented groups, serving as controls, to those who were supplemented with magnesium L-threonate. After one month, the supplemented group showed a 67% higher synaptic density.
- A study measured brain age through complex MRI imaging. A placebo group maintained their brain age, but those receiving magnesium L-threonate decreased their physiological brain age a remarkable nine years!
- Another human trial showed promising preliminary results in patients diagnosed with mild to moderate dementia. Even at this more advanced stage of cognitive decline, magnesium L-threonate led to improvements in cognition and higher brain function.

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Now the bad news - The recommendations I've given are extremely difficult for most of us to implement. What type of exercise is best? How do I even know what to eat with all the conflicting information out there? How can I make the necessary lifestyle changes?

Now the good news again - EPT is here to help. This is what we do all day, every day. We promote health and help people prevent disease by offering expert individualized exercise, nutrition counseling and behavior modification.

What's your next step?

CONTACT US

This article was contributed by Dave Trumbore PT, DPT, CSCI, CWT, CPI, CFNP. For his bio, please see https://www.eliteptf.com/david-trumbore

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References

1. Available at: https://lpi.oregonstate.edu/mic/health-disease/cognitive-function-in-brief#:~:text=Cognition%20basically%20means%20using%20your,problem%20solving%2C%20and%20multitasking). Accessed September 28, 2023.
2.Temido-Ferreira M, Coelho JE, Pousinha PA, et al. Novel Players in the Aging Synapse: Impact on Cognition. J Caffeine Adenosine Res. 2019 Sep 1;9(3):104-27.
3.Subramanian J, Savage JC, Tremblay M. Synaptic Loss in Alzheimer's Disease: Mechanistic Insights Provided by Two-Photon in vivo Imaging of Transgenic Mouse Models. Front Cell Neurosci. 2020;14:592607.
4.Maier JAM, Locatelli L, Fedele G, et al. Magnesium and the Brain: A Focus on Neuroinflammation and Neurodegeneration. Int J Mol Sci. 2022 Dec 23;24(1).
5.Zhou H, Liu G. Regulation of density of functional presynaptic terminals by local energy supply. Mol Brain. 2015 Jul 17;8:42.
6.Yamanaka R, Shindo Y, Oka K. Magnesium Is a Key Player in Neuronal Maturation and Neuropathology. International Journal of Molecular Sciences. 2019;20(14):3439.
7.Slutsky I, Abumaria N, Wu LJ, et al. Enhancement of learning and memory by elevating brain magnesium. Neuron. 2010 Jan 28;65(2):165-77.
8.Barbagallo M, Veronese N, Dominguez LJ. Magnesium in Aging, Health and Diseases. Nutrients. 2021 Jan 30;13(2).
9.Li W, Yu J, Liu Y, et al. Elevation of brain magnesium prevents synaptic loss and reverses cognitive deficits in Alzheimer's disease mouse model. Mol Brain. 2014 Sep 13;7:65.
10. Wroolie TE, Watson K, Chen K, et al. Open Label Trial of Magnesium L-Threonate in Patients with Dementia. Innov Aging. 2017 Jul Jun 30;1(Suppl 1):170. doi: 10.1093/geroni/igx004.661. eCollection 2017 Jul.
11. Surman C, Vaudreuil C, Boland H, et al. L-Threonic Acid Magnesium Salt Supplementation in ADHD: An Open-Label Pilot Study. J Diet Suppl. 2021;18(2):119-31.

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