

Preventing and Treating Alzheimer's Disease With Food

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Abstract

Are Alzheimer's Disease and dementia a natural part of aging, or can they be prevented? The Standard American Diet, or SAD diet, has contributed to an increasingly obese population plagued with disease and Type 2 Diabetes (T2D). Rates of AD are also rising. Researchers have linked cognitive decline to brain insulin resistance, suggesting that it could be considered Type 3 Diabetes (T3D). There is increasing support of the idea that low glycemic index diets and regular coconut oil consumption can help prevent T3D. Ketogenic diets and Medium Chain Triglycerides (MCT) can help provide an alternative fuel source for the brain and reduce or even reverse the symptoms of AD.

Introduction

Alzheimer's Disease (AD) is the most common form of dementia. According Dr. Mary Newport, it is predicted that 15 million people will suffer from AD by the year 2050 (Newport, 2008). This will present a significant burden to healthcare systems if the rate of AD continues. PET scans show evidence of brain glucose hypometabolism 10 to 15 years before the onset of the very first symptoms of AD, which suggests that there is an underlying cause (Chatterjee et al., 2020).

The brain's primary fuel source is glucose. T3D occurs when the brain can no longer use glucose as an energy source. This inhibits the ability to perform basic tasks such as memory and learning. Some researchers believe that T3D is the main cause of AD (Nguyen et al., 2020). However, there is an alternative fuel source the brain can use. The brain can also use fats, or lipids, for energy if carbohydrates cannot be used for glucose production. In very low carb diets and during times of fasting, the body produces ketones in the liver, which are converted into acetyl-CoA which is oxidized for energy. Using ketones, the brain can use lipids for energy instead of glucose. Consuming coconut oil can assist with this process.

Coconut oil is made up of 60% MCTs. It is also cholesterol free and high in polyphenols and Omega 6 fatty acids. MCTs are metabolized differently than longer-chain fats because they are transported directly to the liver and are rapidly broken down into ketones, boosting ketone levels in the blood. Thus, coconut oil can help provide the brain with a ready source of energy through MCTs (Fortier et al., 2020).

Discussion

- Low glycemic index diets and strict adherence to the Mediterranean diet can decrease risk for developing AD. T2D is a risk factor for the development of AD. Coconut oil can assist in prevention due to its many benefits: increased weight loss, reduced waist circumference, and help regulating blood sugar in patients with T2D (Chatterjee et al., 2020).
- Several studies have shown that consuming coconut oil and MCT oil derived from coconut oil can improve brain functioning for those with AD. After consuming coconut oil, participants with AD had increased ketone bodies present and had improved scores on cognitive tests (Chaterjee et al., 2020).
- One study found that consuming a ketogenic MCT drink improved brain functioning in patients with AD. The participants who consumed it had improved energy, language, functional imaging, and cognition (Fortier et al., 2020).
- Dr. Mary Newport conducted a case study with 1 participant with moderate symptoms of AD to determine the effects of coconut oil on AD. She added just over 2 tablespoons of coconut oil to the participant's meals for several weeks, after which time the participant showed marked improvement. He performed a "clock drawing" cognitive test and the difference before and after consuming coconut oil was remarkable. Figure 1 shows the clock drawing cognitive test results before coconut oil supplementation and Figure 2 shows improvement after 37 days of coconut oil supplementation (Newport, 2008).
- How can coconut oil be used in everyday life? It can be used in any recipe that calls for lipids, in cooking and baking. It can be directly ingested, or it can be mixed into other foods like oatmeal (Newport, 2008). There is good evidence that consuming coconut oil as a regular part of the diet can help reduce the risk of developing AD as it gives the brain a secondary energy source from ketones (Chatterjee et al., 2020).

Figure 1

Clock #1 – The day before starting coconut oil (Newport, 2008)

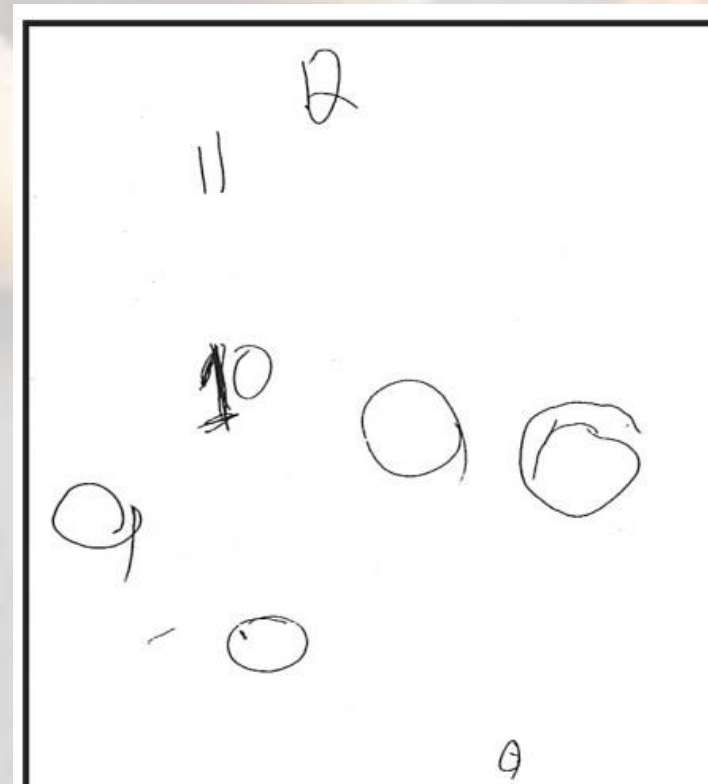
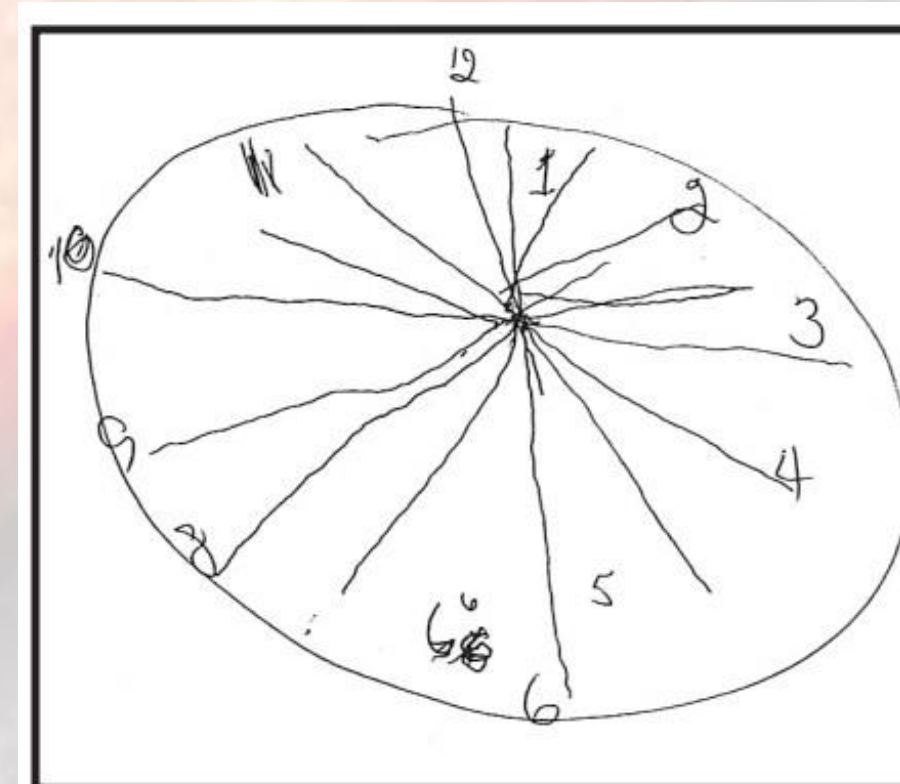


Figure 2

Clock #3 – Thirty-seven days after starting coconut oil (Newport, 2008)



Conclusion

Prevention is the best medicine. Inhibiting T3D, or brain glucose hypometabolism, can reduce the risk of developing AD. T3D is a result of the brain's inability to use glucose for energy. It is known that MCT can increase ketone bodies circulating in the blood and this can provide an alternative fuel source for the brain, where fats can be used for energy. Coconut oil is a lipid that is high in MCTs and can be used in everyday life. Consuming a low carbohydrate diet and coconut oil can also treat AD. It can improve cognitive function, language, and increase stimulation in the brains of people with AD. One important note is that coconut oil is low in Omega 3 Fatty Acids, and care should be taken to fulfill the nutritional requirement of this essential fatty acid elsewhere. Consuming salmon, flax seeds, and other Omega 3 rich foods in addition to coconut oil can meet this need.

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