



REVIEW ARTICLE

**SURPRISING NATURAL TREATMENT FOR ALZHEIMER'S DISEASE: COCONUT OIL**

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**ABSTRACT:**

Alzheimer's disease is among the most devastating diseases anyone can face. Alzheimer's patients lose their memories, independence, relationships and ultimately their lives. Family and caregivers are often pushed to their limits as they care for a loved one who is gradually slipping away. Fiscally, Alzheimer's is a costly burden on the health care system which will only increase in the coming years as the number of Alzheimer's patients grows. Alzheimer's disease is an irreversible, progressive brain disease that slowly destroys memory and thinking skills, and eventually even the ability to carry out the simplest tasks. In most people with Alzheimer's, symptoms first appear after age 60. Coconut oil, especially virgin coconut oil, has starred in recent years in several internet and newspaper anecdotes as providing significant cognitive improvements in people with ADRD. A comprehensive literature review found only two studies examining the impact of coconut oil in humans though neither study dealt with ADRD. Research on dementia leading to diminishing cerebral glucose metabolism has reported on the benefit of ketone food. More controlled research is needed about the value of ketone foods, such as the varieties of coconut oil and MCT Oil. Though well researched the FDA-regulated (2009) ketone-medical-food Axona® which contains some coconut oil ingredients has shown evidence of cognitive improvements in people with mild to moderate Alzheimer's disease but more research is needed to clarify individual sensitivities, side effects, and health risks such as acidosis or hypocalcemia, possible with long-term use by people with Alzheimer's.

**INTRODUCTION:** Alzheimer's disease (AD) is the leading cause of dementia worldwide, affecting more than half of the overall number of demented individuals, which has been estimated to be around 24 million across all nations [Ballard C,2011].The prevalence of dementia is expected to further increase in the forthcoming decades, as a consequence of the steady growth of ageing population in both developed and developing countries. According to World Health Organization projections, about three-quarters of the estimated 1.2 billion elders will be living in low- and middle-

income countries by the year 2025[WHO, 2002].

Age-adjusted estimates of dementia prevalence are high (above 5%) in most Asian and Latin American Countries . However, prevalence rates of dementia seem to be lower (1-3%) in India and sub-Saharan Africa [Kalaria RN,2008].

Epidemiological studies conducted in India between 1996 and 2006 indicated that dementia affects 2.7% of the population, AD being the most common cause (1.3%) [Kalaria RN,2008]. It is noteworthy that these numbers parallel the estimates of dementia and AD in Western societies cut by half; nonetheless the proportion of cases of AD amongst dementia is basically the same. Lower rates of dementia in India might be interpreted as related to environmental and biological factors such as dietary habits, lifestyle, sociocultural, cardiovascular, and genetic [Tripathi M, 2012].

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Alzheimer's (AHLZ-high-merz) is a disease of the brain that causes problems with memory, thinking and behavior. AD robs a person of everything they hold dear: their memories, all their relationships, their own personality, their ability to care for themselves, and, ultimately, their life.

It is not a normal part of aging. Alzheimer's disease is the most common cause of dementia among older people. Dementia is the loss of cognitive functioning like thinking, remembering, and reasoning and behavioral abilities, to such an extent that it interferes with a person's daily life and activities. Dementia ranges in severity from the mildest stage, when it is just beginning to affect a person's functioning, to the most severe stage, when the person must depend completely on others for basic activities of daily living.

Alzheimer's disease is named after Dr. Alois Alzheimer. In 1906, Dr. Alzheimer noticed changes in the brain tissue of a woman who had died of an unusual mental illness. Her symptoms included memory loss, language problems, and unpredictable behavior. After she died, he examined her brain and found many abnormal clump (plaques) and tangled bundles of fibers (tangles). Plaques and tangles in the brain are two of the main features of Alzheimer's disease. The third is the loss of connections between neuron in the brain.

Alzheimer's disease was first identified more than 100 years ago, but research into its symptoms, causes, risk factors and treatment has gained momentum only in the last 30 years. Although research has revealed a great deal about Alzheimer's disease, the precise changes in the brain that trigger the development of Alzheimer's disease, and the order in which they occur, largely remain unknown. The only exceptions are certain rare, inherited forms of the disease caused by known genetic mutations. Alzheimer's disease affects people in different ways. The most common symptom pattern begins with a gradually worsening ability to remember new information. This occurs because the first neurons to die and malfunction are usually neurons in brain regions involved in forming new memories. As neurons in other parts of the brain malfunction and die, individuals experience other difficulties. The

common symptoms of Alzheimer's disease include:

- Memory loss
- Challenges in planning or solving problems
- New problems speaking and writing
- Misplacing things
- Decreased or poor judgment
- Withdrawal from work or social activities
- Changes in mood and personality
- Confusion with time or place
- Trouble understanding visual images

Individuals progress from mild AD to moderate and severe disease at different rates. As the disease progress, the individual's cognitive and functional abilities are also decline. In advanced AD, people need help with basic activities of daily living, such as bathing, dressing, eating and using the bathroom. Those in the final stages of the disease lose their ability to communicate, fail to recognize loved ones and become bed-bound and reliant on around-the-clock care. When an individual has difficulty moving because of AD, they are more vulnerable to infections, like pneumonia.

Although we still don't know how the Alzheimer's disease process begins, it seems likely that damage to the brain starts a decade or more before problems become evident.

During the preclinical stage of AD, people are free of symptoms but toxic changes are taking place in the brain. Abnormal deposits of proteins form amyloid plaques and tau tangles throughout the brain, and once- healthy neurons begin to work less efficiently. Over time, neurons lose their ability to function and communicate with each other, and eventually they die. Before long, the damage spreads to a nearby structure in the brain called the hippocampus, which is essential in forming memories. As more neurons die, affected brain regions begin to shrink. By the final stage of AD, damage is widespread, and brain tissue has shrunk significantly.

Scientists don't yet fully understand what causes Alzheimer's disease, but it has become increasingly clear that it develops because of a complex series of events that take place in the brain over a long period

of time. It is likely that the causes include genetic, environmental, and lifestyle factors. Because people differ in their genetic make-up and lifestyle, the importance of any one of these factors in increasing or decreasing the risk of developing Alzheimer's may differ from person to person.

Alzheimer's disease can be definitively diagnosed only after death, by linking clinical measures with an examination of brain tissue and pathology in an autopsy. But doctors now have several methods and tools to help them determine fairly accurately whether a person who is having memory problems has "possible Alzheimer's dementia" or "probable Alzheimer's dementia".

To diagnose Alzheimer's, doctors may:

- Ask questions about overall health, past medical problems, ability to carry out daily activities, and changes in behavior and personality
- Conduct tests of memory, problem solving, attention, counting, and language
- Carry out standard medical tests, such as blood and urine tests, to identify other possible causes of the problem
- Perform brain scans, such as computed tomography (CT) or magnetic resonance imaging (MRI) to distinguish Alzheimer's from other possible causes for symptoms, like stroke or tumor

Having an early diagnosis helps families plan for the future, make living arrangements, take care of financial and legal matters, and develop support networks.

There is no cure for Alzheimer's disease, so the chief goals of treatment are to:

- Maintain quality of life
- Maximize function in daily activities
- Enhance cognition, mood and behavior
- Foster a safe environment
- Promote social engagement, as appropriate

One can prevent AD by leading a healthy life style,

which includes;

- *Limit fructose:* Most people will benefit from keeping their total fructose consumed below 25 grams per day.
- Only use moderate amounts of protein
- *Improve your magnesium levels:* There is some exciting preliminary research strongly suggesting a decrease in Alzheimer symptoms with increased levels of magnesium in the brain. Unfortunately most magnesium supplements do not pass the blood brain barrier, but a new one, magnesium threonate, appears to and holds some promise for the future for treating this condition.
- *Optimize your vitamin D levels with safe sun exposure:* Strong links between low levels of vitamin D in Alzheimer's patients and poor outcomes on cognitive tests have been revealed.<sup>4</sup> Researchers believe that optimal vitamin D levels may enhance the amount of important chemicals in your brain and protect brain cells by increasing the effectiveness of the glial cells in nursing damaged neurons back to health. Vitamin D may also exert some of its beneficial effects on Alzheimer's through its anti-inflammatory and immune-boosting properties. Sufficient vitamin D is imperative for proper functioning of your immune system to combat inflammation that is also associated with Alzheimer's.
- *Keep your fasting insulin levels below:* This is indirectly related to fructose, as it will clearly lead to insulin resistance. However other sugars (sucrose is 50 percent fructose by weight), grains and lack of exercise are also important factors.
- *Vitamin B12:* People who consume foods rich in B12 may reduce their risk of Alzheimer's in their later years. For each unit increase in the marker of vitamin B12 (holotranscobalamin) the risk of developing Alzheimer's was reduced by 2 percent. Very high doses of B vitamins have also been found to treat Alzheimer's disease and reduce memory loss.
- *Eat a nutritious diet, rich in folate:* Eat plenty of fresh raw veggies every day.

- *High-quality animal-based omega-3 fats, such as krill oil:* High intake of the omega-3 fats EPA and DHA help by preventing cell damage caused by Alzheimer's disease, thereby slowing down its progression, and lowering your risk of developing the disorder.
- *Coconut Oil:* This may offer profound benefits in the fight against Alzheimer's disease. One of the primary fuels your brain uses is glucose, which is converted into energy. When your brain becomes insulin resistant, atrophy due to starvation can occur. However, ketone bodies, or ketoacids can also feed your brain, perhaps better, and prevent brain atrophy. It may even restore and renew neuron and nerve function in your brain after damage has set in. In fact, ketones appear to be the preferred source of brain food in patients affected by diabetes or Alzheimer's. Ketones are what your body produces when it converts fat (as opposed to glucose) into energy, and a primary source of ketone bodies are the medium chain triglycerides (MCT) found in coconut oil.
- *Astaxanthin:* It is a natural pigment with unique properties and many clinical benefits, including some of the most potent antioxidant activity currently known. As a fat-soluble nutrient, astaxanthin readily crosses your blood-brain barrier. One study<sup>6</sup> found it may help prevent neurodegeneration associated with oxidative stress, as well as make a potent natural "brain food."
- *Eat plenty of blueberries:* Wild blueberries, which have high anthocyanidin and antioxidant content, are known to guard against Alzheimer's and other neurological diseases.
- *Ginkgo biloba:* Many scientific studies have found that Ginkgo biloba has positive effects for dementia. Ginkgo, which is derived from a tree native to Asia, has long been used medicinally in China and other countries. Sixteen years ago, in one of the first issues of my newsletter, I posted the results of a 1997 study from JAMA that showed clear evidence that Ginkgo improves cognitive performance and social functioning for those suffering from dementia. Research since then has been equally promising. One study in 2006 found Ginkgo as effective as the dementia drug Aricept (donepezil) for treating mild to moderate Alzheimer's type dementia. A 2010 meta-analysis found Ginkgo biloba to be effective for a variety of types of dementia.
- *Alpha lipoic acid (ALA):* It can help to stabilize cognitive functions among Alzheimer's patients and may slow the progression of the disease.
- *Avoid and remove mercury from your body:* Dental amalgam fillings, which are 50 percent mercury by weight, are one of the major sources of heavy metal toxicity; however you should be healthy prior to having them removed.
- *Avoid aluminium:* such as antiperspirants, non-stick cookware, vaccine adjuvants, etc.
- *Exercise regularly:* It's been suggested that exercise can trigger a change in the way the amyloid precursor protein is metabolized and thus, slowing down the onset and progression of Alzheimer's. Exercise also increases levels of the protein PGC-1alpha. Research has also shown that people with Alzheimer's have less PGC-1alpha in their brains and cells that contain more of the protein produce less of the toxic amyloid protein associated with Alzheimer's.
- *Avoid flu vaccinations as most contain mercury and aluminum,* well-known neurotoxic and immunotoxic agents.
- *Avoid anticholinergic and statin drugs:* Drugs that block acetylcholine, a nervous system neurotransmitter, have been shown to increase your risk of dementia. These drugs include certain nighttime pain relievers, antihistamines, sleep aids, certain antidepressants, medications to control incontinence, and certain narcotic pain relievers. Statin drugs are particularly problematic because they suppress the synthesis of cholesterol, deplete your brain of coenzyme Q10 and neurotransmitter precursors, and prevent adequate delivery of essential fatty acids and fat-soluble antioxidants to your brain by inhibiting the

production of the indispensable carrier biomolecule known as low-density lipoprotein.

- **Challenge your mind daily:** Mental stimulation, especially learning something new, such as learning to play an instrument or a new language, is associated with a decreased risk of Alzheimer's. Researchers suspect that mental challenge helps to build up your brain, making it less susceptible to the lesions associated with Alzheimer's disease.

**The diabetes-dementia link:** Sugar (glucose) is a brain cell's preferred form of fuel. Brain scans of Alzheimer's surface indicate that, as the disease progresses, certain sections of the brain start to have trouble using sugar as energy-an issue not unlike the problem that diabetics have when their bodies can no longer produce the insulin necessary to ferry glucose into their cells.

The outcomes of an increasing number of scientific studies have begun to highlight the connection between diabetes and Alzheimer's. The link has become so strong that some medical professionals have even gone so far as to dub Alzheimer's disease, "Type III diabetes."

Diabetics who don't keep their blood sugar levels in check can experience a certain amount of cognitive impairment, according to the National Institutes of Health (NIH). Japanese researchers recently discovered that people with diabetes have an overall increased risk of developing dementia, regardless of whether their disease is well managed, or not. On the flip side, people with mild Alzheimer's have been found to derive a minor memory boost, after receiving insulin, according to scientists from the University of Washington, School of Medicine.

**Alzheimer's disease and coconut oil:** Alzheimer's disease is one of the most devastating causes of memory loss, and there is no cure. Prescribed medications often fail to halt the decline and certainly do not reverse the disease. But may be surprised to learn that a number of Alzheimer's patients now swear that taking coconut oil has relieved many of their Alzheimer's symptoms,

including problems with memory, vision, and walking.

**How It Works?:** The brain survives on "glucose", a form of sugar which is the primary source of fuel for brain cells. In Alzheimer's disease, the brain starts to have problems absorbing glucose. Brain cells that don't get enough glucose wither and die, resulting in poor concentration and memory.

Coconut oil (and the related MCT oil) provides brain cells with an alternative fuel, called "ketones". These ketones are easily absorbed by brain cells as a source of energy. Having sufficient fuel improves brain cell health, thereby reducing or even reversing the symptoms of Alzheimer's dementia.

Coconut oil was discovered as a natural treatment for Alzheimer's disease by Dr. Mary Newport whose husband, Steve, was diagnosed with early-on set Alzheimer's.

**How Does Coconut Oil Reverse Alzheimer's Symptoms?:** Coconut oil is special. Unlike most cooking oils, salad oils, and oil supplements (such as fish oil, olive oil, canola oil, or peanut oil), coconut oil contains a high percentage of a molecule called medium chain triglycerides (MCT). These MCT molecules are converted to ketones in the liver. Ketones cross the blood-brain barrier and can act as an alternative food for brain cells

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Normally your brain receives its energy from glucose, a sugar molecule. But in many Alzheimer's patients, the brain's cells (called neurons) lose the ability to absorb glucose. Brain cells then literally starve to death. This problem with glucose absorption was described as "Type 3 Diabetes" of the brain in a landmark 2005 research study by Brown University

## Medical School.

Diabetes of the brain is a problem of insulin, a hormone produced by the pancreas. Insulin is used by the body to drive glucose into cells. In Alzheimer's disease, this insulin-glucose interaction begins to fail in two ways:

1. Insulin levels in the brain are lower than normal (insulin deficiency), and
2. The ability of insulin to "open up" cells to receive glucose is decreased (insulin resistance).

These problems with insulin prevent glucose from entering brain cells normally, and these cells are starved of fuel. Ketones do not require insulin to enter brain cells and essentially bypass this problem. The idea that ketones can be used by brain cells for energy is not controversial. In people who lack glucose due to starvation, the body automatically switches to the production of ketones from stored fat for the brain to use as energy. This is well established.

What's new is Dr. Newport's insight that glucose starvation of brain cells in Alzheimer's disease is similar to glucose insufficiency during actual starvation. In both situations, brain cells cannot get enough glucose. In both situations, an alternative brain fuel - ketones - offers neurons a chance to survive. That's why supplementing with coconut oil and MCT oil acts as a natural treatment for Alzheimer's.

These oils are not a cure for Alzheimer's. The tangles and plaque are not removed from the brain. The problem of glucose metabolism and insulin is not solved. But rather than dying sooner from lack of glucose, neurons in the Alzheimer's patient's brain can survive longer using ketones as alternative fuel.

***Discovery of Coconut Oil as a Natural Treatment for Alzheimer's:*** Coconut oil entered the national conversation as a natural treatment for Alzheimer's symptoms in 2008, largely due to the efforts of a single person: Dr. Mary Newport, a neonatologist in Tampa, Florida.



Figure 1

Dr. Newport's husband, Steve, was diagnosed with severe early on set Alzheimer's disease, and Dr. Newport was determined to find an effective treatment.

Steve's memory and quality of life worsened rapidly. Prescribed medication failed to slow his decline. When, during a cognitive test administered by his physician, Steve was asked to draw the face of a clock, the sketch at right is what Steve drew. (I have reprinted Steve's clock tests here with Dr. Newport's permission.)

As a neonatologist, Dr. Newport has a strong background in medicine. She began reading study after study about Alzheimer's treatment. Dr. Newport made the connection that ketones could be an alternative source of brain fuel for her husband.

Dr. Newport was struck by the findings of a particular study of a compound called AC-1202. The study found that AC-1202 actually improved the memory of participants who had Alzheimer's disease. She describes her surprise that memory improvement was observed. The substances tested in other studies did not improve memory, but only slowed the rate of cognitive decline.

Long story short, she looked up the patent application for AC-1202 and found the main ingredient to be medium chain triglycerides (MCTs). Dr. Newport realized that some foods contain MCTs naturally, and that MCTs are converted into ketones naturally by the liver. She pinpointed coconut oil as containing a much higher percentage of MCTs than almost any other food.

So, she immediately started giving her husband two tablespoons of coconut oil three times per day. Within two weeks, he scored significantly higher on the Mini-Mental Status Exam (MMSE), an Alzheimer's cognitive function test assigned by his doctor. The dramatic improvement in Steve's thinking and memory is obvious from the clock test given to him again at 14 days and 37 days after starting on coconut oil. Those drawings actually resemble a clock!



Figure 2

According to Dr. Newport, Steve soon became more like his old self. His sense of humor returned. He became far more energetic. He was able to hold conversations again, read, and do chores around the house. Steve says, "The light switch came back on" that day. Such a reversal is normally unheard of in Alzheimer's disease.

**CONCLUSION:** The growing population dealing with Alzheimer's disease or related dementias, the lack of a cure or long-lasting, effective treatments, and increased cost have motivated families to use inexpensive products that the media publish as highly successful treatments for cognitive dysfunction. Stories in newspapers and on the internet have promoted coconut oil as leading to significant cognitive improvements in people with Alzheimer's disease or related dementias. Before

trying these published "treatments", families should consult their medical provider for guidance. However, more research is needed to help physicians determine the potential harmful versus beneficial effects for patients, given their individual differences, and the different types of progressive dementias. Insufficient research information handicaps physician recommendations regarding emerging popular treatments such as coconut oil for patients dealing with Alzheimer's disease, related dementias, and co-occurring chronic health conditions such as cardiovascular problems, hormonal imbalances, or other systemic health changes.

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