

Preventing and Arresting Memory Decline Linked to Aging



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Dementia and Memory Loss

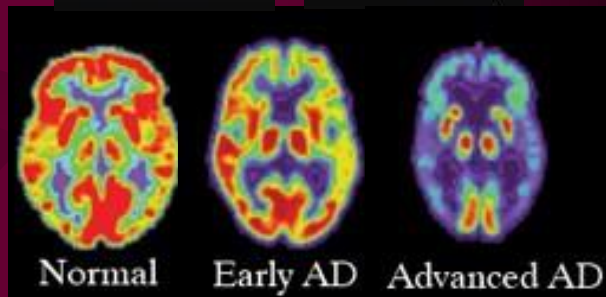
Alzheimer's Disease is associated with **60 to 80%** of all **dementia**, a category of brain diseases that causes a long term and often gradual decrease in the ability to think and **remember** that **affects** a persons **daily functioning**.



Normal Brain



Alzheimers Brain



Normal

Early AD

Advanced AD

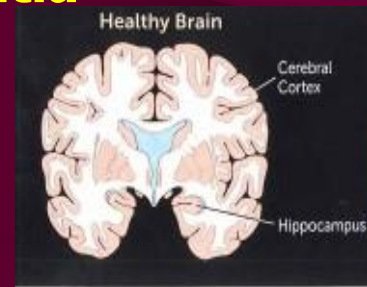
In the Advanced Alzheimer's brain there is **very little color and very little blood glucose activity**.

Stages of Dementia

STAGE 1: PRECLINICAL

Can last 20 or more years

- Appears normal with occasional forgetfulness



STAGE 2: MILD COGNITIVE IMPAIRMENT

Can last 20 years

- Occasional forgetfulness; others may notice
- Can still do daily activities

STAGE 3: MILD COGNITIVE IMPAIRMENT

Last 1 to 3 years

- Forgetfulness noticed by others
- May be anxious; difficulty at work
- Can still do daily activities



Stages of Dementia

STAGE 4: MILD TO MODERATE DEMENTIA

Lasts 2 to 3 years

- A formal diagnosis is often made
- Difficulty with driving
- Anxious, aggressive or withdrawn
- May have difficulty with finances

STAGE 5: MODERATE TO SEVERE DEMENTIA

Last 1 ½ to 2 years

- Now has difficulty with finance
- Unable to drive
- Anxious, aggressive, or withdrawn
- Confusion pronounced; often forgets address and numbers
- Hygiene is now often affected



Stages of Dementia

STAGE 6: SEVERE DEMENTIA

Lasts 2 to 2 ½ years

- Unable to do any daily activities
- Professional care is needed
- Sometime doesn't recognize close family
- Personality changes (aggression or silence)
- Completely bound to one caregiver
- Sleep cycle severely affected



STAGE 7: THE FINAL STAGE OF DEMENTIA

Last 1 to 2 years

- Now needs help with all daily activities
- May become unresponsive and often refuses to eat
- Other refuses to eat and has difficulty walking
- Often losses control of urine and bowel movement
- Little or no language of often experiences less anxiety

The Smell Test for Detecting Early Alzheimer's

A change in the sense of smell is among **the first clinical signs of Alzheimer's** occurring during the "preclinical phase."



The **left side of the brain** primarily processes what we **smell** through our **left nostril**, and the **right side of our brain** covers the **right nostril**, and **Alzheimer's strikes the left side more than the right**.



Researchers at the University of Florida discovered all we may need is some **peanut butter and a ruler**.

The Smell Test for Detecting Early Alzheimer's

4 Step Smell Test:

1. **Close your eyes and mouth** and breathe normally through the nose.
2. Then **close one nostril** and hold a foot-long ruler out from the open nostril.
3. Next open a container of peanut butter at the bottom of the ruler and **move closer 1 centimeter upon each exhaled breath** until the odor of peanut butter is detected.
4. Then **repeat the procedure again using the other nostril**.



The Smell Test for Detecting Early Alzheimer's

Results:

In the normal **elderly controls**, they smelled the peanut butter when it came within 18 centimeters or **about 7 inches from either nostril**.

The Alzheimer's patients smelled the peanut butter at about **7 inches from the right nostril**, but only at **2 inches from the left nostril every time**.

This test was **from 92 to 100%** accurate in picking up cases of Alzheimer's.



J Neurol Sci. 2013 Oct 15;333(1-2):19-24.

Alzheimer's Statistics



Starting out of nowhere a few decades ago, Alzheimer's is now the **4th leading cause of death** in Bermuda.

In Bermuda we now have an estimated **2000 persons living with Dementia.** *BEAMS*

Alzheimer's Disease in Bermuda

"The **cost of treating dementia** patients on the Island is more than cancer, heart disease and stroke combined.



Government statistics predicting that **senior citizens** will account for **22%** of the population by **2030** and **25%** by **2050.**

Bermuda's **home-care infrastructure cannot support the needs** of those with dementia today."

Elizabeth Stewart Action on Alzheimer's and Dementia (AAD)

Intermediate to complex level residential nursing care could cost closer to **\$120,000/year (10,000/month).**

Drug Treatment for Alzheimer's Disease

"At this time, there is no treatment to delay, stop, or cure the progression of Alzheimer's disease." The Alzheimer's Association



Several **drugs approved to treat Alzheimer's**, including donepezil (Aricept) and memantine (Namenda) **don't delay the onset** of Alzheimer's **or improve or maintain mental function**.

The federal Agency for Healthcare Research and Quality. April 2010

Pfizer Stops Work on New Drugs to Fight Alzheimer's and Parkinson's Disease

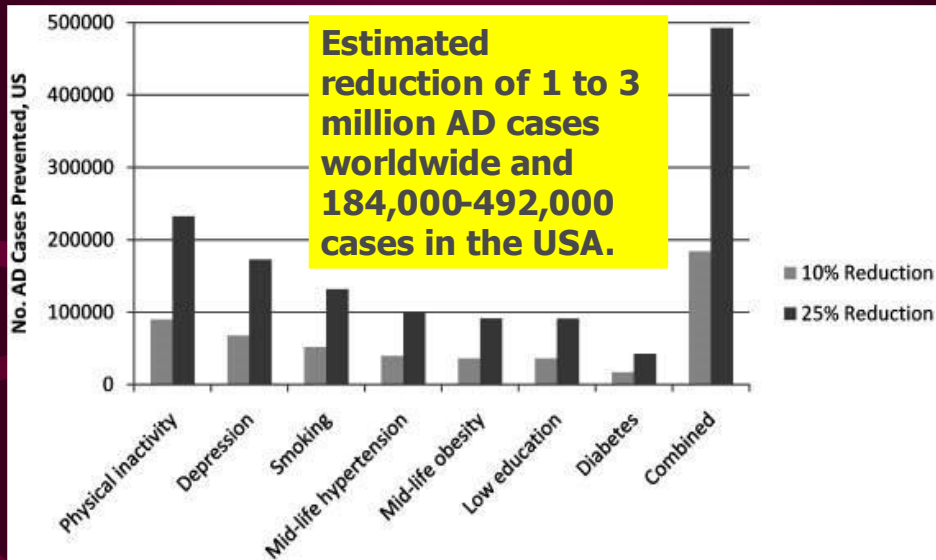
Pfizer, one of the world's largest drug companies believes that research on the two diseases doesn't make sense financially.

<https://gizmodo.com/pfizer-halts-drug-research-for-alzheimers-and-parkinson-1821874256>. Jan 8, 2018



Over a period of 8 years drug companies spent **\$84.4 billion in 8 clinical studies**. Conclusion: The non-treatment group did better than the treatment group. *Awaking from Alzheimer's*, 2016

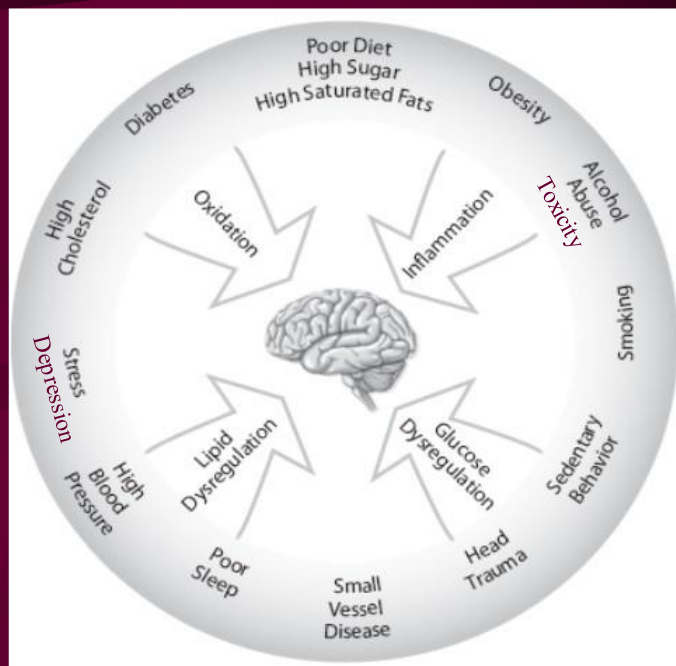
Modifiable Risk Factor for Alzheimer's Disease



Up to **50% of AD cases** may be **attributable to modifiable risk factors**. *Lancet Neurol. 2011 Sep; 10(9): 819 - 828*

Risk Factors For Alzheimer's Disease

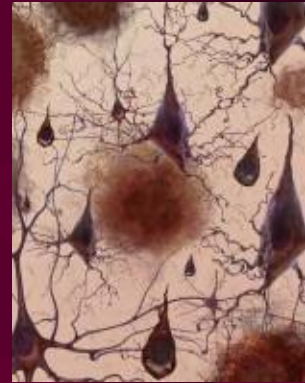
In order to get **effective improvements** in Alzheimer's Disease we have to **address underlying risk factors** and targeting **multiple pathways** at the **same time**.



The Alzheimer's Solution, Dean & Ayesha Sherzai MD 2017

Anatomical Indicators of Alzheimer's

Amyloid plaques (from protein fragments 40-42 amino acids long) are one of two key indicators of Alzheimer's Disease.

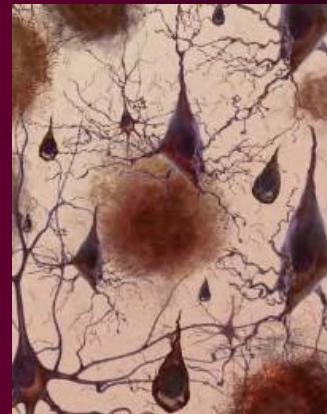


They look like puff balls that get stuck in the brain **between the nerve cells**.

They harbor **cholesterol crystals** and a compound called **advanced glycation end products (AGEs)**. These AGEs continuously generate free radicals and low-level inflammation which eventually **destroy brain nerve cells**.

Amyloid Plaques

A few amyloid plaques won't bother you because our brains have a **hundred billion nerve cells** and a **hundred trillion connections!**



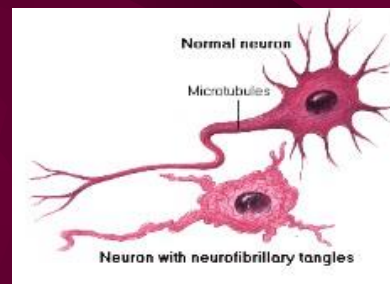
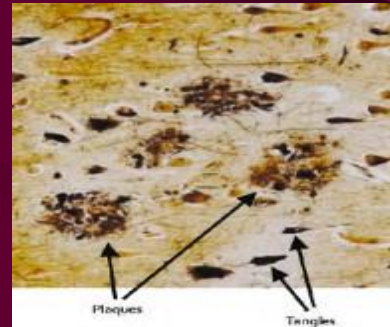
If the amyloid plaques **multiply** however, they start **interrupting the nerve transmission** which leads to Alzheimer's Disease.

Tau Tangles

Tau Tangles or neurofibrillary **tangles inside the nerve cells**, is the second key indicator of Alzheimer's disease.

They were first described by the **Dr. Alois Alzheimer** along with amyloid plaques and arteriosclerosis in the brain in one of his patients suffering from the disorder.

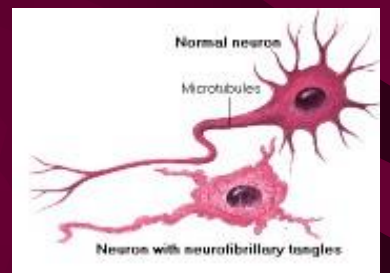
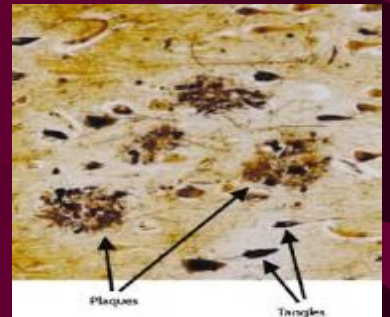
Atherosclerosis in the brain is significantly more frequent and severe in those with Alzheimer's disease.



Tau Tangles

Tau protein is needed to maintain the structure of brain nerve cells. The tau protein gets phosphorylated or "**fried**" by **free-radicals** creating the tau tangles.

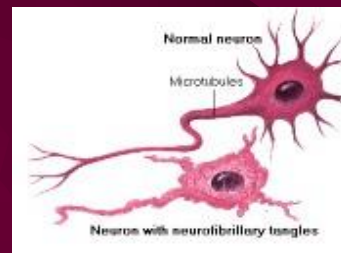
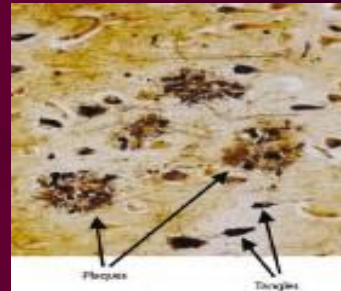
In a **normal brain** these tau proteins can be **broken down by digestive enzymes and removed from the brain**.



Tau Tangles

In an **Alzheimer's situation** you get a **buildup** of these tau proteins. They are **not being broken down or removed** by digestive enzymes.

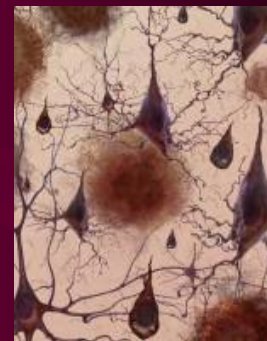
Our goal is to stop the **amyloid plaques** and the **tau tangles from forming** in our brains.



Diabetes and Amyloid Plaques

Type II diabetes is characterized by higher than normal levels of insulin in the brain. Normally, the **insulin-degrading enzyme:**

- 1) breaks up insulin
- 2) breaks up amyloid-beta peptides



When **insulin levels are high**, as in type II diabetes, the **insulin-degrading enzyme gets used up** and none is left over to degrade the amyloid -beta peptides.

Insulin Enzyme and Amyloid Plaques

Insulin-degrading enzyme can degrade amyloid-beta peptides just after it is cleaved, but it **cannot degrade amyloid-beta** after it is assembled into plaques.

Normal, low levels of insulin **promote amyloid-beta clearance** by degradation of amyloid peptides.

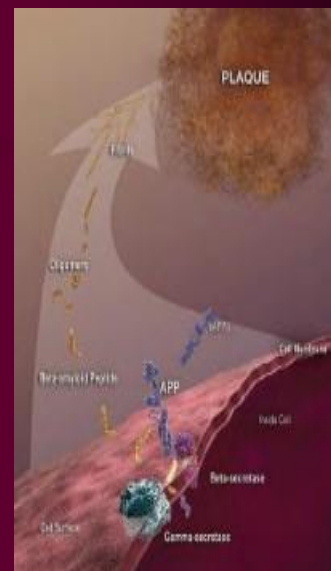
Extra insulin **increases** the levels of **amyloid-beta peptide** by promoting the release of intracellular amyloid-beta proteins.



Secretase Enzymes and Amyloid Plaques

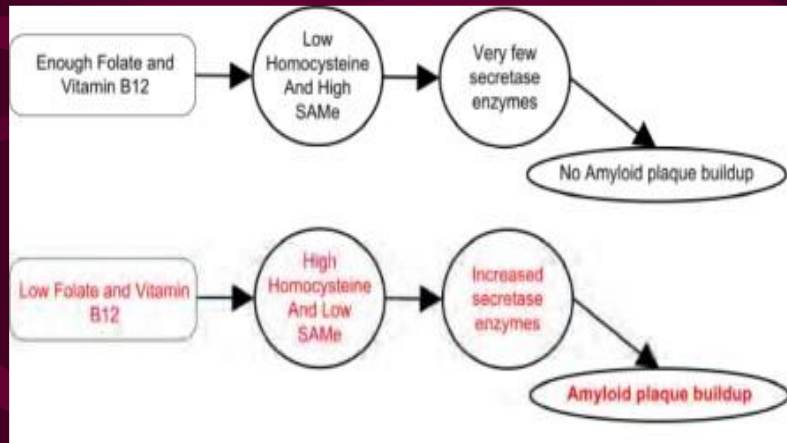
Increased production of two enzymes inside brain cells (**beta-secretase** and gamma-secretase) **snip off these Amyloid Precursor protein** that are stuck in the cell membranes which then **form these fuzz-ball amyloid plaque**.

The **fewer secretase enzymes** the cell has, the **fewer amyloid fuzz balls plaques** are created.



Folate, Vitamin B12 and Plaque Formation

High levels of the two B-vitamins, folate and vitamin B12 promote lowers homocysteine levels, fewer secretase enzymes and no buildup Amyloid Plaque.



B-Vitamins Lower Homocysteine Levels

High homocysteine levels play a role in **brain damage, cognitive and memory decline**, and the creation of **Tau Tangles**.

Keep your homocysteine levels down. To do this, consume lots of **green leafy vegetables (spinach, broccoli) nuts and seeds (sunflower), and beans (pinto)**. These foods are all high in folate. For vitamin B12 (100-1000 mcg), you can use a sublingual (under the tongue) form or a capsule that you swallow.



B-Vitamins Slow the Rate of Brain Atrophy

People with Alzheimer's disease are **4 times as likely** to have elevated homocysteine levels and **3 times as likely** to have low folate levels.

A RDCT study found that **homocysteine-lowering by B vitamins** can **slow the rate of accelerated brain atrophy** in people with mild cognitive impairment.



B-Vitamins Slow the Rate of Brain Atrophy

As we age, our brain slowly atrophies, but the shrinking is accelerated in patients suffering from Alzheimer's disease. An **intermittent rate of shrinkage** is found in people with mild cognitive impairment.

Researcher **gave people B-vitamins for two years** and they found it markedly slowed the rate of brain shrinkage. The **rate of atrophy in those with high homocysteine levels** was cut in half.



B-Vitamins Reduce Atrophy Seven Fold

High-dose B-vitamin treatment (**folic acid 0.8 mg, vitamin B6 20 mg, vitamin B12 0.5 mg**) slowed shrinkage of the whole brain volume over 2 years.

A follow-up study demonstrates that **B-vitamin treatment reduces** by **as much as seven fold**, the cerebral atrophy in those gray matter regions specifically vulnerable to the Alzheimer's Disease process, including the medial temporal lobe of the brain.



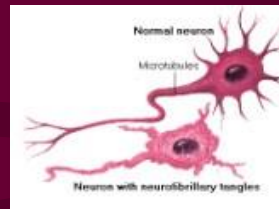
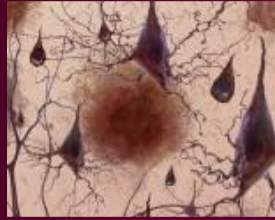
AGEs and Alzheimer's Disease



AGEs, (protein bound to sugar), increase inflammation and oxidative stress which cause **wrinkles on the outside** and **"rusting" on the inside** – they **"fry the brain."** They negatively impact on the function of the heart, liver, intestines, kidneys, fat cells, immune system, the brain...etc.

An Alzheimer's Disease patient has **3 times more AGEs** in his body than people without Alzheimer's Disease!

AGEs and Alzheimer's Disease



AGEs are **found in plaques and tau tangles** and are a probable **cause of the tangles**.

Once the plaques form they become a **place for the AGEs to lodge**.

AGEs can also be **formed in the blood and brain** when there is elevated levels of glucose in the blood (diabetes).

Foods Low in AGEs

AGEs do not occur in fresh plant foods like fruit, beans and vegetables. AGEs in food is formed during heating and storage.

If the food contains an **abundance of water**, cooking will not form AGEs because the water content **blocks their formation**.

Steaming, boiling, poaching, stewing, stir-frying, or using a slow cooker prevent the creation of AGEs.



Foods High in AGEs

Frying or grilling meat creates AGEs.

Snacks and biscuits can contain large amounts of AGEs. **Corn flakes** has large amounts of AGEs.

The AGEs **form during storage**

Chicken, bacon, hot dog, beef, turkey, fish and cheese have some of the highest amounts of AGEs of any food.



Alcohol and Alzheimer's Disease

Research

Moderate alcohol consumption as risk factor for adverse brain outcomes and cognitive decline: longitudinal cohort study

BMJ

Clin

“Higher consumption of alcohol over the 30 year follow-up was associated with increased odds of hippocampal atrophy in a dose dependent fashion.”

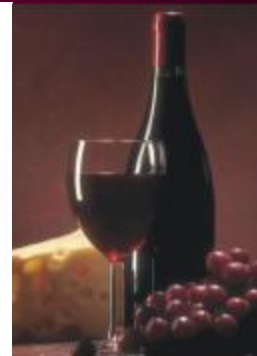
British Medical Journal
June 2017

SOUNDCLOUD

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Alcohol and Alzheimer's Disease

Research

Moderate alcohol consumption as risk factor for adverse brain outcomes and cognitive decline: longitudinal cohort study

BMJ 2017 ; 357 doi: <https://doi.org/10.1136/bmj.j2353> (Published 06 June 2017)
Cite this as: BMJ 2017;357:j2353



>1-2 drinks/d – 5.8 fold incr risk
1-2 drinks/d – 3.4 fold incr risk
No protective benefit of 1-3 drinks per week.

Article Related content Metrics Responses Peer review

Anya Topiwala, clinical lecturer in old age psychiatry¹, Charlotte L. Allan, academic clinical lecturer in old age psychiatry¹, Vyara Valkanova, specialist registrar in old age psychiatry¹, Enikő Zsoldos, postdoctoral scientist¹,



Drugs That May Cause Dementia

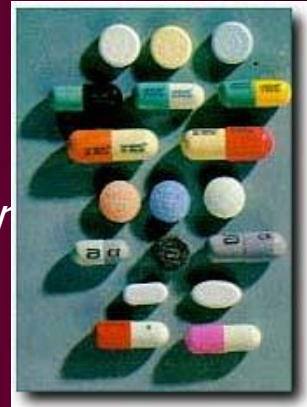
"Quite frequently, we discover that what looks like dementia in a senior citizen is actually 'pseudodementia' which is confusion or forgetfulness caused not by aging, but by some other agent, such as a drug interaction."

John P.D. Shemo, M.D.

Common Culprits:

Sedatives, hypnotics, blood pressure medicines, and arthritis medications

Anticholinergics: Hyoscyamine (Levsin) or tolterodine (Detrol)



Drugs That May Cause Dementia

Benzodiazepines: Alprazolam (Xanax) and diazepam (Valium)



Cough Suppressants:
Dextromethorphan; digitalis (Lanoxin)

Monoamine Oxidase Inhibitors:
Phenelzine (Nardil)



Tricyclic Antidepressants (TCAs):
Amitriptyline (Elavil), doxepin (Sinequan), and imipramine (Tofranil)

Barbiturates: Secobarbital (Seconal)

Saturated Fat, Cholesterol & Alzheimer's

Two studies (1,000 autopsies each) found that **atherosclerosis in the brain** is significantly **more frequent and severe** in those with **Alzheimer's disease**.



400 folks with **mild cognitive impairment to Alzheimer's disease** were followed for 4 years. A CT angiography was used to evaluate brain artery blockage. Those with **more cholesterol buildup got worse**, and those with the **most blockage rapidly declined**.



Saturated Fat, Cholesterol & Alzheimer's

Cholesterol over 250 could potentially **triple the odds** of getting Alzheimer's.

There is a **direct correlation** between the amount of **"bad" cholesterol** in our blood and the amount of **amyloid build up** in our brains.



Hypertension and Alzheimer's

Elevated levels of blood pressure in "mid-life", (meaning ages 40 through 60) is consistently associated with **elevated risk of cognitive impairment** and **Alzheimer's dementia** later in life.



Hypertension and Alzheimer's

This pulse pressure can **damage small vessels in our brains** which can **cause "microbleeds" in our brain**—one of the important factors that **cause cognitive impairments**.



Hypertension is also a factor in **mini-strokes** that **double the risk of dementia**; and **brain shrinkage**, specifically in the **hippocampus, the memory center of the brain**.

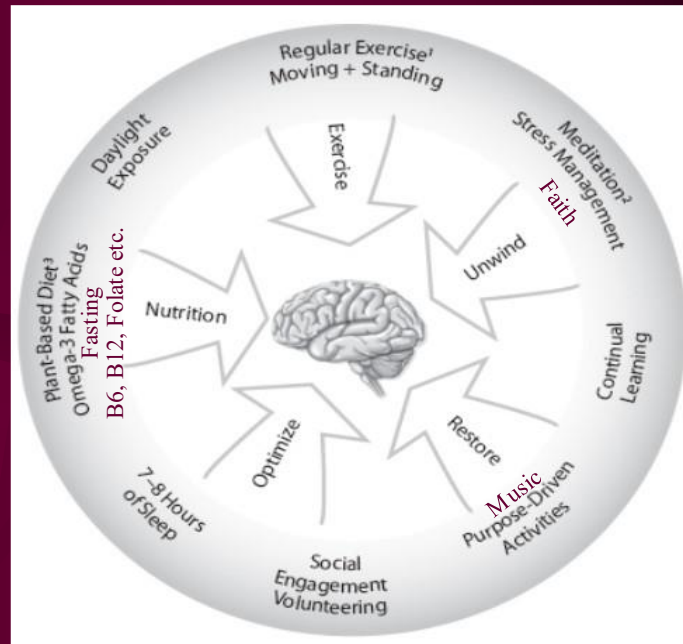
Lowering Blood Pressure and Cholesterol in Alzheimer's

300 patients with **Alzheimer's and vascular disease risk factors** like high blood pressure and high cholesterol levels who were **treated for those risk factors**, showed **significantly less decline and slower progression** of their disease than those who went untreated.



Diet and Lifestyle Factors That Prevent, Arrest and Reverse Alzheimer's Disease

See the **multiple intervention points** for assisting people with Alzheimer's Disease and other forms of dementia.



The Alzheimer's Solution, Dean & Ayesha Sherzai, MD 2017

Dementia Rates by Country

The **lowest rates** are in **Africa and India, South Asia**. In one study the rates were **3.24** per 1000 in India vs **19.32** per 1000 in the U.S.



The **highest rates** are in **Western Europe and North America**.

The incidence rates of dementia and Alzheimer's in **Nigerian Africans** is up to **five times lower than African Americans living in Indianapolis**



When people of one **ethnic group** move from their **homeland** to the United States, the **Alzheimer's rates dramatically increase**"

Dementia Rates Mirror Dietary Changes

The **prevalence** of dementia in Japan **has shot up over the last few decades**. Reasons include increases in dietary cholesterol, saturated fat, and iron from increases in animal products.



From **1961 to 2008, meat and animal fat increased** considerably, whereas [the] **rice supply [dropped]** .”

Alzheimer's rates for Japanese-Americans living in the U.S. are closer to that of Americans than to Japanese living in Japan.

Vegetarian Have Lower Dementia Rates

Data shows that **vegetarians** are 2 to 3 times less likely to become demented, and the **longer one eats meat-free**, the **lower the associated risk** of dementia.



Globally, the **lowest validated rates of Alzheimer's in the world** are in rural India, where they eat low-meat, high-grain, high-bean, high-carb diets.



Turmeric and Alzheimer's

19 people in every 1000 over age 65 develop Alzheimer's every year in rural Pennsylvania. **In rural India only 3 in every 1000** adults develop Alzheimer's. Turmeric consumption is considered one factor linked to these low rates.



A 1000 people who consumed curry occasionally did better on simple cognitive tests than non-consumers. **Often consumer** had half the risk of showing cognitive impairment.

Turmeric and Alzheimer's

3 Alzheimer's patients treated with turmeric.

Case #1: 83 year old woman, started losing her memory, getting disoriented, problems taking care of herself, wandering aimlessly, incontinent.



After the turmeric: Her agitation, apathy, anxiety, and irritability were relieved and she had less accidents. She began to laugh again, and sing again, and knit again.

Turmeric and Alzheimer's

After taking turmeric for more than a year she came to recognize her family and now lives a peaceful life without a significant behavioral or psychological symptom of dementia.



Case #2 was similar, but with hallucination, delusions and depression.

After the turmeric: She began to recognize her family again and now lives in a peacefully serene manner.

Turmeric and Alzheimer's

Case #3 was similar to case #1 and #2. Their improvements included **areas of cognition.**



This is the first demonstration that **turmeric may be effective and safe** for the treatment of symptom of **dementia in Alzheimer's disease patients.**

Dosage: 1 teaspoon/day

Mediterranean diet (MD) and Alzheimer's

MD are associated with **lower Alzheimer's risk**, and **slower cognitive decline**, but which parts of this diet are responsible?



The traditional Mediterranean diet is **high in vegetables, beans, fruit**, and **nuts**, and **low in meat and dairy products**.

Mediterranean diet (MD) and Alzheimer's

When they tried to tease out the **protective components**, **fish consumption showed no benefit, neither did moderate alcohol consumption**. The **two critical pieces** appeared to be **vegetable consumption**, and the **ratio of plant fats to animal fats**.



The more plant fats consumed, the more protected from Alzheimer's disease.

The MIND Diet (MD & DASH)

Those who adhered to the MIND diet had a slower rate of cognitive decline which was equivalent to **7 ½ years of younger age**. Almost 1000 people participated.



The MIND diet is based on 10 foods Green leafy vegetables and other vegetables, nuts and berries, beans and whole grains were **eaten freely**. *Fish, poultry, olive oil, and wine were allowed in small amounts.*



Food avoided on the MIND diet:

Red meats, butter, stick margarine, cheese, pastries, sweets, fried food and fast food.

Morris, Martha Clare, et al. Alzheimer's & Dementia 11.9 (2015): 1000-14.

Rush Memory and Aging Project

Among vegetables **green leafy vegetables** have been identified as having the **strongest protective effects against cognitive decline**



In the Rush Memory and Aging Project, the rate of decline among those who consumed **1 – 2 servings per day of greens** was equivalent to being **11 years younger in age**. This was compared with those who rarely or never consumed green vegetables.

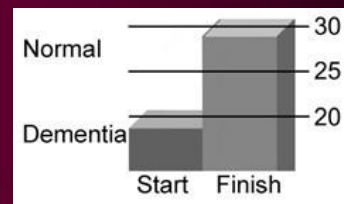


Morris, Martha Clare, Annals of the New York Academy of Sciences 1367.1 (2016): 3137.

The Hawaii Dementia Prevention Trial

This trial was designed to divide 75 participants into three groups: Supplement group, food group, and a control group. Participants were randomized into these groups.

The results were best in the **supplement group**, where **borderline dementia** participants **became normal** in nine months.



The MMSE Scores

Normal 25 -30
MCI 20 -25
Dementia < 20

The Hawaii Dementia Prevention Trial

The supplement group took **12 different nutrients**.

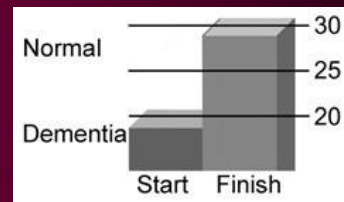
Participants averaged **19 at the beginning** of the study and were tested at **29 months later**.

Supplements

Folate, B12, SAMe

Vitamins E & C, CoQ10, Copper, Zinc, Selenium

Manganese, Ginkgo Biloba & Gotu Kola



The MMSE Scores

Normal 25 -30
MCI 20 -25
Dementia < 20

The Hawaii Dementia Prevention Trial

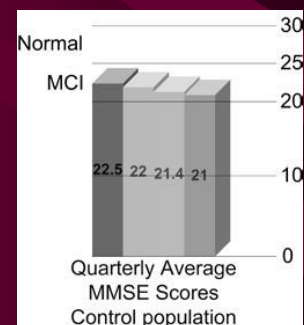
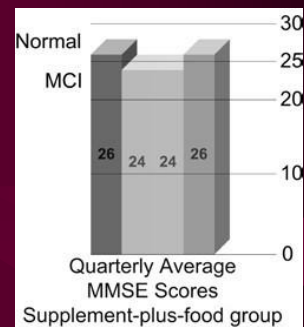
The **food group did not improve**, but they did not show the expected decline over time as did the control group.

Foods to add:

One cup of blueberries, strawberries or red grapes daily and 1 ounce each of ground walnuts and sunflowerseeds.

Foods to avoid:

No hard cheese, broiling, barbequing or deep frying. Avoid excessive sugar intake.



Ginkgo Biloba and Alzheimer's

A meta-analysis study that looked at 9 studies found that Ginkgo Biloba was helpful in **delaying the onset of Alzheimer's Disease**, as well as **treating this condition**.



Substantial evidence suggests that Ginkgo Biloba **protects the nerves in the memory areas of the brain** from the free radicals associated with the formation of amyloid plaques.

Lemon Balm and Alzheimer's

A **Lemon Balm** infused lotion was applied to the face and arms twice daily for 1 month in patients with **severe dementia**. **There was a significant reduction in shouting, screaming and physical aggression**. They were **less socially withdrawn** and **more engaged in constructive activities**.



More than **50% of patients with Alzheimer's** experience these symptoms.

J Clin Psychiatry 63:7, July 2002

Essential Oils and Alzheimer's

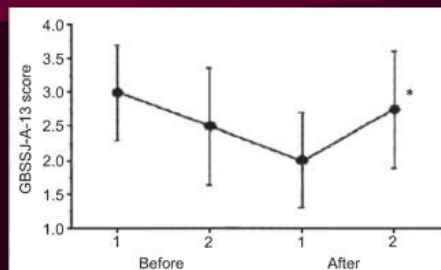


Figure 1 Changes in scores for item A-13 (abstract function) of the Japanese version of the Gottfries, Brane, Steen scale

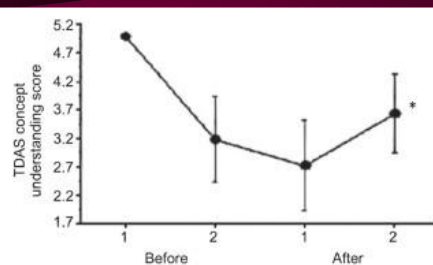


Figure 3 Change in Touch Panel-type Dementia Assessment Scale

suggesting that caregivers had no effect on the improved patient scores seen in the other tests.

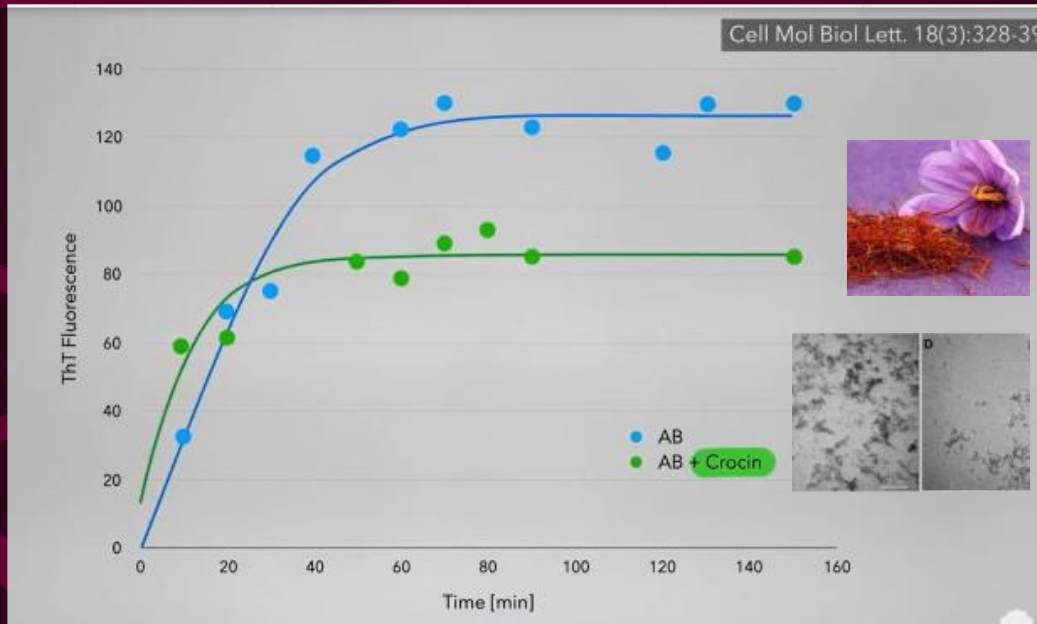
Conclusions: In conclusion, we found aromatherapy an efficacious non-pharmacological therapy for dementia. Aromatherapy may have some potential for improving cognitive function, especially in AD patients.



Rosemary and Lemon in the **morning**, and Lavender and Orange essential oils in the **evening** for **one month**. Areas of improvement included abstract reasoning and cognitive functioning.

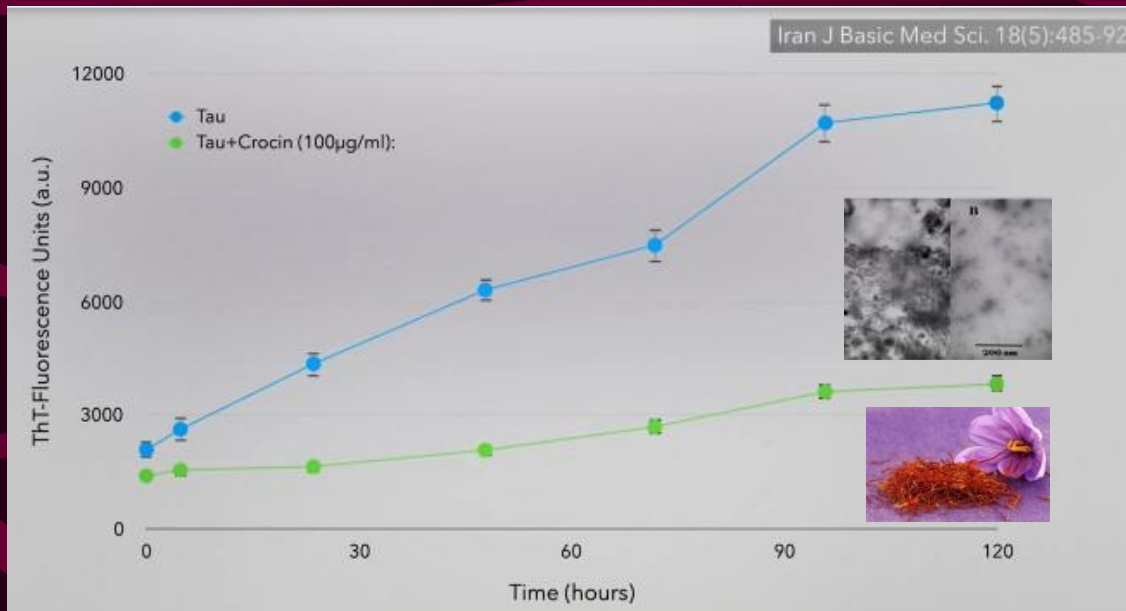
PSYCHOGERIATRICS 2009; 9: 173-179

Saffron and Alzheimer's



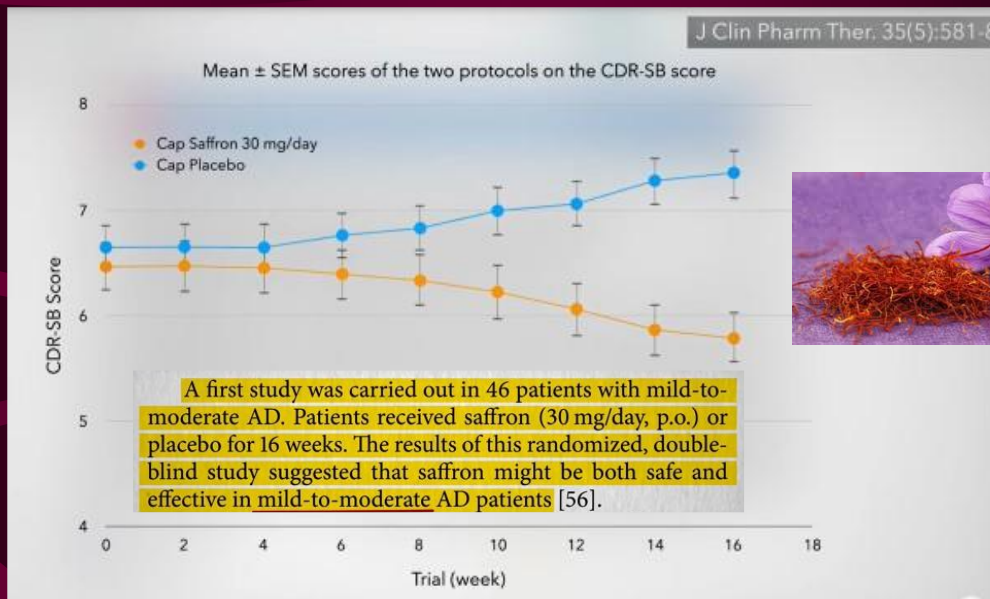
They saw a decreased formation of **Amyloid plaques** in a Petri dish.

Saffron and Alzheimer's



They saw a decreased formation of **Tau Tangles** in a Petri dish.

Saffron and Alzheimer's



Alzheimer's symptoms got better over a 16 week period after taking 30 mg/day of Saffron.

Saffron vs Donepezil and Alzheimer's

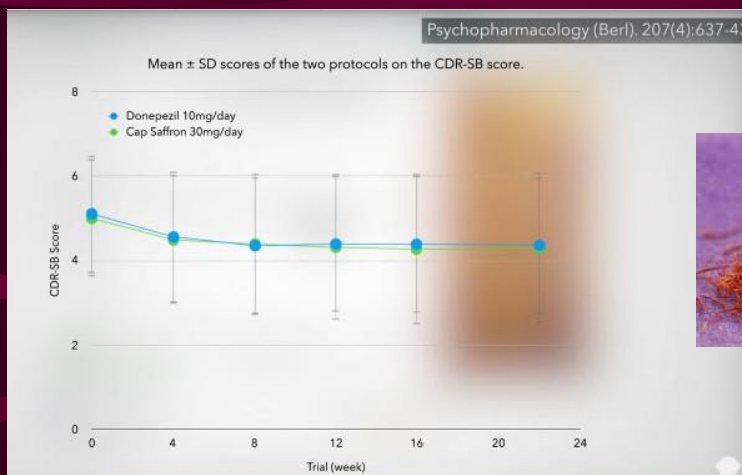
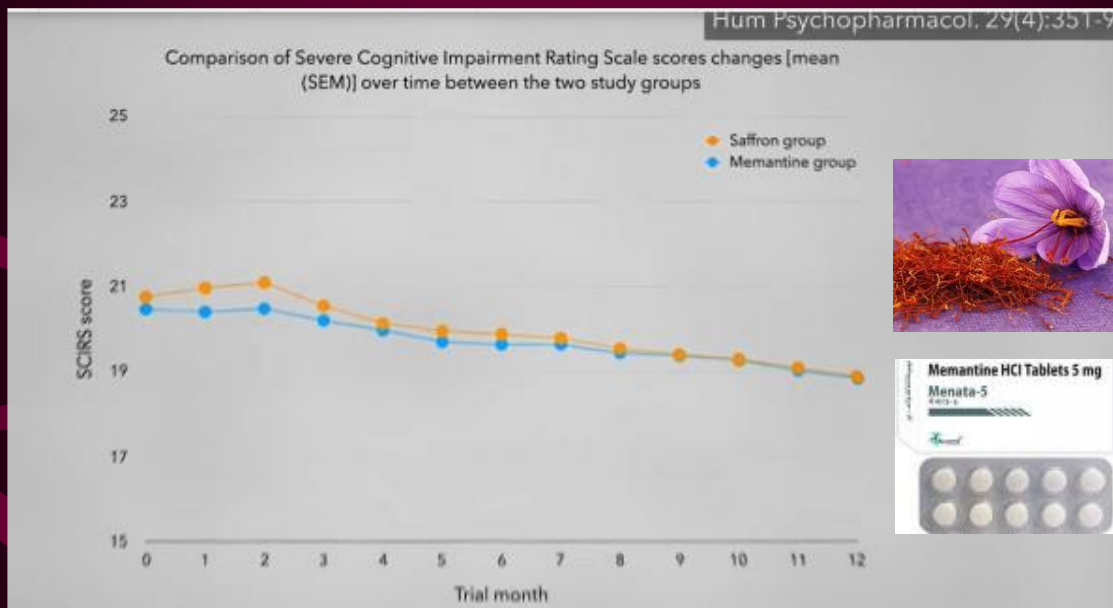


Table 2 Number of patients with adverse events

| Adverse events | Saffron, n (%) | Donepezil, n (%) | P |
|----------------|----------------|------------------|------|
| Vomiting | 1 (3.70) | 7 (25.92) | 0.05 |
| Dizziness | 2 (7.40) | 5 (18.51) | 0.42 |
| Dry mouth | 5 (18.51) | 3 (11.11) | 0.70 |
| Fatigue | 1 (3.70) | 4 (14.81) | 0.35 |
| Hypomania | 1 (3.70) | 0 | 1.00 |
| Nausea | 2 (7.40) | 6 (22.22) | 0.25 |



Saffron and Severe Alzheimer's



Conclusion: Memantine is beneficial for AD patients with regards to cognition and clinician's global impression but increases the risk for somnolence, weight gain, confusion, hypertension, nervous system disorders, and falling.

Berries and Alzheimer's

There are over **4,000 phytochemical** in plants. **Berries** have powerful antioxidant and anti-inflammatory properties.

Anthocyanidins, the natural blue-purple pigment, are **localized in the brain region involved in learning and memory - the hippocampus**

Blueberry supplementation has been shown to **improves memory in older adults**.

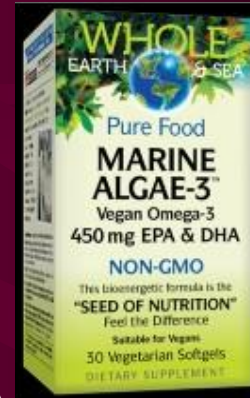
Concord grape juice has been shown to **improve verbal learning**.



Omega-3 Fats & Brain Health

From the Framingham study, **lower DHA levels** were associated with smaller brain volumes.

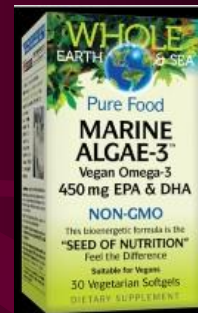
A double-blind randomized interventional study demonstrated that **omega-3 fats** in healthy older adults **significantly improves executive function** after six and a half months of supplementation. There was also, **significantly less brain shrinkage** compared to placebo group.



Omega-3 Fats & Brain Health

An **omega-3 index of 4.4**, for EPA and DHA levels is optimal. **Algae-derived EPA and DHA, (250mg a day)** for 4 months raised levels from **3.4 to 4.8 in vegans**.

Higher current fish consumption predicted worse cognitive performance. **Higher past fish consumption in childhood** predicted slowed perceptual speed and reaction time. This **may be due to neurotoxic contaminants such as mercury in fish**. RCT show no benefit in fish oil supplements (6 to 40 months).



Vitamin D and Alzheimer's

- Journal Neurology August 2014
- Mild Vitamin D deficiency resulted in 51% increased risk for dementia.
- 125% increase if Vitamin D blood levels were very low.

A 30% caloric restriction improved memory in elderly humans by 20%



Reversal of cognitive decline: A novel therapeutic program

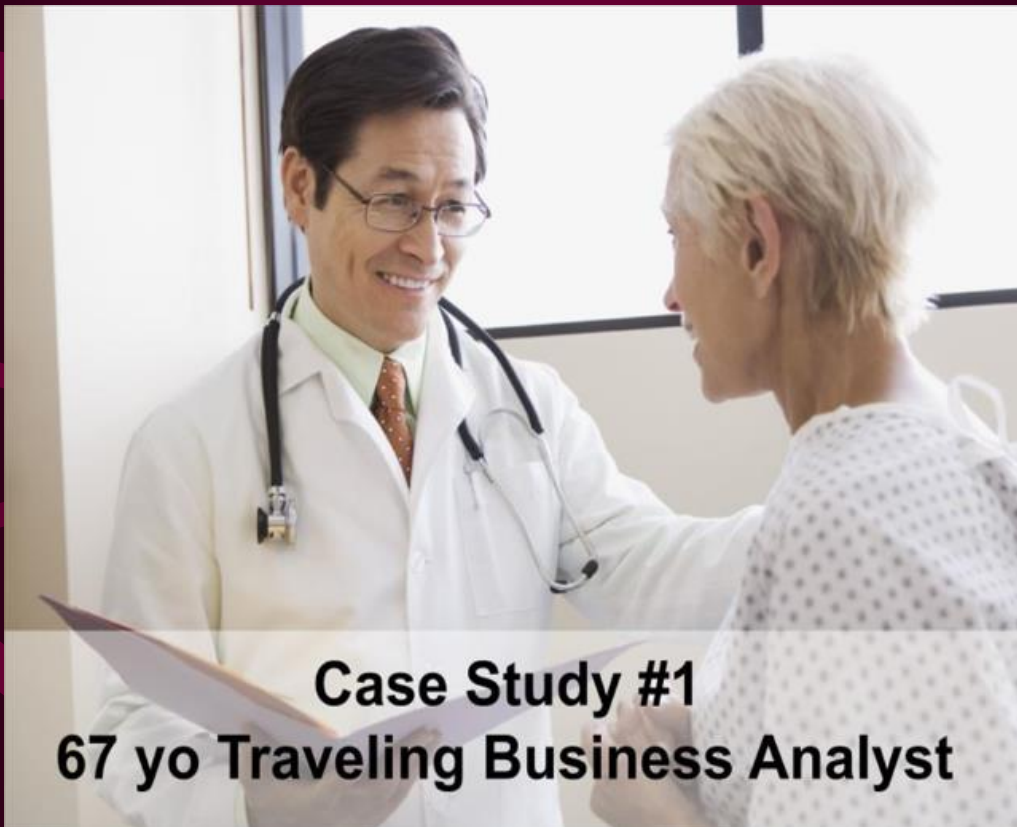
Dale E. Bredesen^{1,2}

¹ Mary S. Easton Center for Alzheimer's Disease Research, Department of Neurology, University of California, Los Angeles

Dr. Dale Bredesen
UCLA Department of Neurology
Center for Alzheimer's Research
"Reversal of Cognitive Decline:
A Novel Therapeutic Program"
Aging, September 2014

Dementogenic Foods

“Trying to be strict with food. Dementia returns when eating processed foods like fried tacos recently for a grandson’s party. The next day my husband’s memory took a dive and he could not focus. Can’t let down guard for one snack or meal! On second day may be 50% recuperated, on 3rd may be up to 60-70% recuperated and may take up to a week to fully re-coop lost ground.”



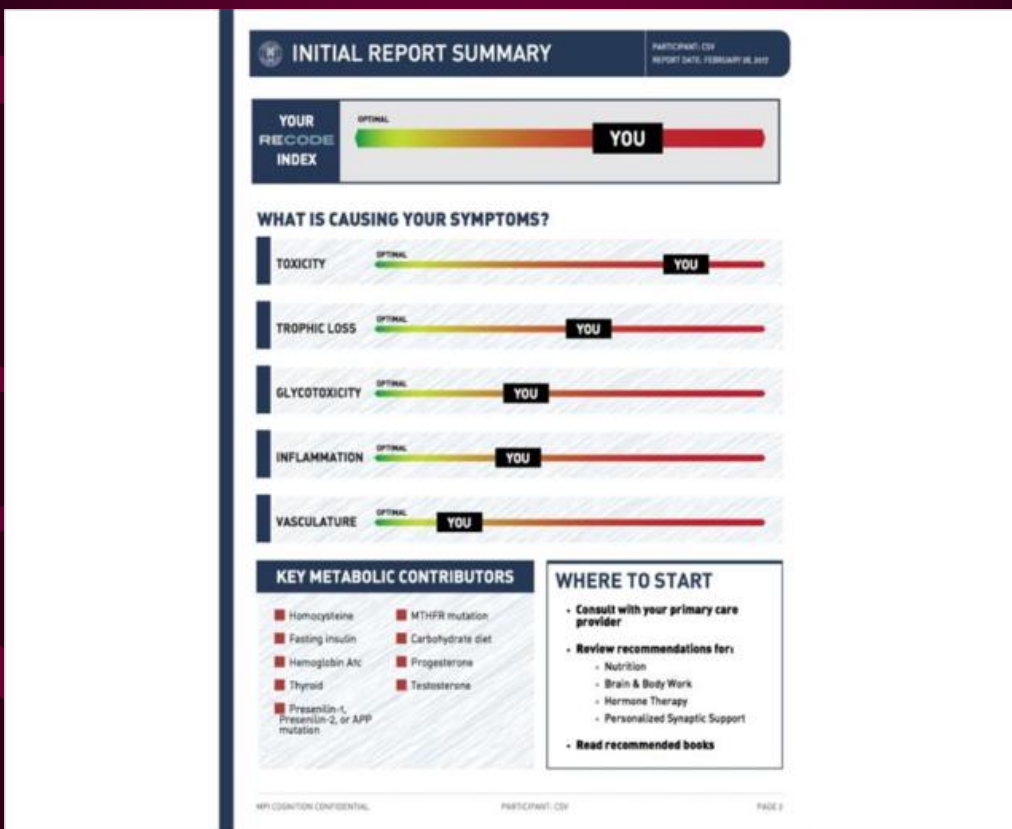
Case Study #1
67 yo Traveling Business Analyst

Case Study #1

She had experienced two years of progressive memory loss. The patient was no longer able to analyze data and prepare reports; 4 digit numbers, reading, navigating, pets and lights.

Her mother had developed dementia in her early 60s and lasting for 20 years. She felt suicide was the best option and called a friend to commiserate.

Her friend got her an appointment with Dr. Dale Bredesen who did comprehensive testing and set up a full treatment plan.



Case Study #1

In time all her symptoms had abated. She was able to prepare reports and navigate without problems, read and retain information and remember phone numbers. Overall she became asymptomatic. She noted that her memory was now better than it had been in many years.

Her Therapeutic Program:

- 1. Eliminated all simple carbs**
- 2. Eliminated all processed foods.**
- 3. Eliminated Gluten.**
- 4. Increased vegetables and fruit**
- 5. Started stress reduction program**
- 6. Increased sleep from 4-5 hours to 7-8 hours per night.**
- 7. Melatonin 0.5 mg bedtime**
- 8. Methylcobalamin B12 1,000mcg**
- 9. Vitamin D3 2,000iu daily**

Her Therapeutic Program (cont):

- 10. DHA & EPA 1,000mg daily**
- 11. CoQ10 200mg daily**
- 12. Oral hygiene – electric flosser, electric toothbrush.**
- 13. Reinstated appropriate HRT**
- 14. 12 hour intermittent fast b/w dinner and breakfast.**
- 15. Minimum of 3 hours between dinner and bedtime.**
- 16. Exercised 30+ minutes 4-6X/wk**

Men stumble over the truth from time to time, but most pick themselves up and hurry off as if nothing happened"

Sir Winston Churchill



Thinking and Memory Quiz

1. Dementia affects the ability to think and remember to the point at which it affects a person's daily functioning. T F
2. Stage 2 dementia includes forgetfulness noticed by others, difficulty at work and anxiety. T F
3. The peanut butter smell test for detecting early Alzheimer's is a highly accurate test for detecting Alzheimer's at the preclinical phase. T F
4. Several drugs approved to treat Alzheimer's, including donepezil (Aricept) and memantine (Namenda), don't delay the onset of Alzheimer's or improve or maintain mental function. T F
5. According to some researchers, up to 50% of Alzheimer's Disease cases may be attributable to modifiable risk factors. T F
6. According to Dean & Ayesha Sherzai MD, lipid and glucose dysregulation along with inflammation, coagulation and oxidation are important factors in promoting Alzheimer's Disease. T F
7. The anatomical indicators of Alzheimer's include Tau Tangles, Amyloid Plaques and Cholesterol Plaques. T F
8. Diabetes and low levels of folate and vitamin B12 are associated with the formation of the Amyloid Plaques in Alzheimer's Disease. T F
9. Researchers gave people B-vitamins for two years and found that these vitamins markedly slowed the rate of brain shrinkage. T F
10. Steaming, boiling, poaching, stewing, stir-frying, or using a slow cooker promote the creation of AGEs which are linked to Alzheimer's Disease. T F
11. Chicken, bacon, hot dog, beef, turkey, fish and cheese have some of the highest amounts of AGEs of any food. T F
12. The reasons given for the increased rates of dementia in Japan over the past few decades include increases in cholesterol, saturated fat, and iron from animal products in the diet. T F
13. Those who adhered to the MIND diet, composed largely of whole plant foods, had a slower rate of cognitive decline, equivalent to being 7 ½ years younger (cognitively). T F
14. Among vegetables, green leafy vegetables have been identified as having the strongest protective effects against cognitive decline. T F
15. Ginkgo biloba, turmeric, lemon balm, blueberries, tumeric and rosemary are not helpful in delaying the onset of Alzheimer's disease or reversing any of the symptoms associated with this disease. T F
16. Once someone is beginning to experience the first signs of early dementia, there is nothing we can do to slow down or reverse the journey towards late-stage Alzheimer's Disease. T F
17. A lemon balm infused lotion applied twice daily was able to significantly reduce shouting, screaming and physical aggression in patients with severe Alzheimer's' Disease. T F
18. None food related solutions for Alzheimer's Disease according to Dean and Ayesha Sherzai MD, include the following: Regular exercise, daylight

exposure, continual learning, purpose driven activities, social engagement, 7-8 hours of sleep and stress management. T F

19. Saffron is an example of one plant that has been proven scientifically to be both safer and just as effective as two common drugs used to treat Alzheimer's Disease. T F

20. The lowest validated rates of Alzheimer's in the world are in rural India where they eat low-meat, high-grain, high-bean, high-carb diets, in addition to the spice tumeric. T F