

What Does Science Tell Us about Which Foods Will Help Protect Our Brains







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Our Goal: Create Healthy, Robust, More Resilient Brain Tissue

- Healthy Brain tissue better withstands ravages of age, genetic vulnerabilities, environmental stresses, accidents, toxins (including certain anesthetics), and disease, *including invasion of microbes.*
- Nutrition, Exercise, Cognitive Training and Healthy Lifestyles help us enhance and strengthen brain neurons, synapses & dendrites and other body & brain cells relevant to brain health.
- Boost our immune system defenses.

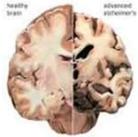


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Alzheimer's Statistics

- 6th leading cause of death
- 5.4 Million are living with Alzheimer's today
- **Prevalence of Alzheimer's disease doubles every 5 years after age 65**
- 13% over age 65 have Alzheimer's
- **Approximately 40% over age 85 have Alzheimer's or another dementia**
- It is a health & economic issue; costs \$200 billion+
- Only major chronic illness with no cure
- 2015 only \$600 million on research, \$300-400 mil added each year! FY2021 passed budget is \$3.1 bil.



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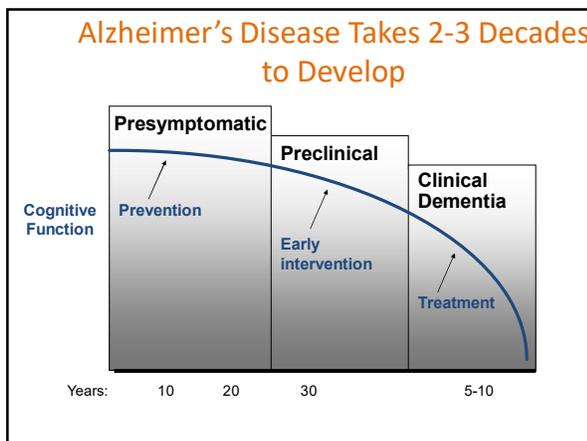
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Brain, Body & Nutrition Connection

- Brain health is dramatically affected by health of the rest of the body
- Alzheimer's Disease, Parkinson's and most other degenerative neurologic diseases are chronic
- Alzheimer's Disease is complex, with many environmental and genetic risk factors
- AD a whole-body disease: gut, liver, bile acids involved.
- Indications of auto-immune disease
 - Possible effect of long harbored viruses, and/or
 - bacteria in brain
- **Multiple pathways to same pathology?**



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Chronic Conditions Influence Risk for Dementia

- Cardiovascular Disease – aggressive management of BP to 120-130 reduces risk of MCI by nearly 20%
- Pre-Diabetes/Insulin Resistance and Diabetes
- Destructive Processes
 - ✓ Inflammation
 - ✓ Oxidative Stress




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Possible Role for Microbes in Alzheimer's Risk and Progression

- Beta Amyloid or A-beta, is part of ancient immune system to protect the brain from microbial invaders (MGH)
- Production of beta-amyloid increases when foreign microbes are present and surround individual bacteria, viruses and perhaps other microbes, in order to neutralize their effects.
- This activity can lead to neuro-inflammation which may in turn get out of control, and lead to chronic problems, including excess A-beta, that help cause harm to the brain.
- Raises question of whether AD is an auto-immune disease. Multiple pathways to AD?

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Maintaining Healthy Brain Tissue

- **People with AD** have many remaining healthy brain cells and are creating new ones all the time.
- Proper nutrition, exercise and other healthy lifestyles, can help build new neurons, neurites & dendrites, keep brain cells healthy, to slow progression.
- Helps Caregivers and Family too!
- Improves mood and helps preserve cognition.

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Healthy Lifestyles- Many Facets = Talk #2

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Lifestyle Enhances Brain Health

- **EXERCISE***
- **SLEEP**
- **SOCIAL ENGAGEMENT***
- **COGNITIVE STIMULATION***
- CREATIVE-ART, MUSIC
- SPIRITUAL, PURPOSE
- CHI
- MANAGE STRESS & DEPRESSION
- LAUGHTER/HUMOR

NUTRITION* and Hydration (* all in FINGER trial in FINLAND & world wide FINGER)

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FINGER Trial

- 1260 cognitively healthy 60-77 year old adults, at increased risk for cognitive decline
- 2-year study of Lifestyle Intervention vs. Usual Care (6 mo. Intensive group, coached interventions + 18 mo. f-up)
- Benefit in lifestyle intervention on cognition
 - overall measure of cognition
 - memory
 - executive functioning
 - processing speed

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World wide FINGERS research on Lifestyle to Slow Cognitive Decline

- <https://www.alz.org/wwfingers/overview.asp>
- Dementia declared a public health priority by the World Health Organization (WHO), which has prioritized research into dementia prevention. (Px, lifestyle, more affordable and global in impact)
- The FINGER trial is first large, long-term RCT indicating a multi-domain intervention with exercise, diet (Nordic), cognitive and social stimulation and management of vascular/metabolic risk factors may benefit cognition in subjects at risk of dementia.
- World Wide FINGERS facilitates use of data from several countries, including the Alzheimer's Association **U.S. POINTER study**. <http://alz.org/us-pointer/overview.asp>
- Opportunity for rapid knowledge dissemination and implementation.

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World Wide FINGERS (WW-FINGERS) 2018-2020 Now 11+ funded studies, 13 more planned

Legend:
 ■ Countries with studies in progress
 ■ Countries with studies completed

Slide courtesy of Alzheimer's Association. Note: Canada may join ww FINGERS but will add a ketogenic supplement. Others have added SLEEP or GUT/Microbiome or other Lifestyle factors

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Lifestyle Clinical Trials during CoVid-19

- WW.FINGER Meetings have been held virtually via Zoom since Pandemic
- New focus on how to maintain studies during pandemic and keep all safe
- Virtual interventions and assessments; resumed in-person when safe
- Most studies have kept going despite pauses, and adding CoVid-19 sub-studies
- **Australia was already conducting on-line interventions and has had more success with participation than expected.**
- Maria Carillo, PhD VP Science at Alz Assn and her deputy, Heather Snyder Ph.D. and PI FINGER, Miia Kivipelto, MD, PhD are leaders
 - Maria.carillo@alz.org; hsnyder@alz.org
 - miia.kivipelto@ki.se

Attendees AAIC July 2019 Los Angeles

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US POINTER Clinical Trial Underway

- 5 study sites team up with existing healthcare systems, centered in Universities
 - Sacramento, California (UC Davis)
 - Winston-Salem, North Carolina (Wake Forest Univ.) PI
 - Houston, Texas (Baylor College of Medicine)
 - Providence, Rhode Island (Butler Hospital)
 - Chicago, Illinois -2 sites (Rush University Medical Center and Advocate Health Care)
- 4-5 part intervention similar to FINGER using MIND diet
- Participant criteria: - 60 to 79;
 - Not a regular exerciser (generally less than 3 x per

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Protecting Brain Health through Lifestyle Intervention to Reduce

- **\$30 million+** investment see: <https://alz.org/us-pointer/overview.asp>
- 2-year intervention study to evaluate lifestyle "recipe"

Physical Exercise	Nutritional Counseling & Modification	Cognitive & Social Stimulation	Improved Self-Management of Health Status
supervised aerobic exercise	dietary counseling on adherence to the MIND diet (Mediterranean-DASH Intervention for Neurodegenerative Delay)	computer-based cognitive training and group counseling to facilitate increased cognitive/social engagement	increased medical monitoring and self-management of cardiovascular / metabolic conditions

alzheimer's association **Does this prevent or delay cognitive decline?**

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Organization & Commercial Efforts

- Alzheimer's organizations in many countries have redoubled their efforts in the lifestyle risk reduction arena. https://www.alz.org/help-support/brain_health
- ADI, Alz. Dis International, has long been interested and sponsored yet another symposium on Risk Reduction including Australia's on-line lifestyle intervention. <https://www.maintainyourbrain.org/>
- ADI invited AARP' Global Dementia Council to present a symposium. Responding to member's, AARP created programs on brain health emphasizing lifestyle. AARP sells a program called "Stay Sharp."
- AARP partnered with various companies and countries on a free program called "Be Brain Powerful"

• One Website is <http://bebrainpowerful.se>

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Why Brain Foods?

- **Delay onset** of Alzheimer's by 5 years by itself....
 - Cut prevalence in half
- **Slow progression** of cognitive impairment
 - For MCI, AD
 - Stroke
 - And perhaps other dementias
- **Improve overall health, quality of life and longevity for everyone**
- **Same foods great for the body**

African Heritage Diet Pyramid

Illustration by George Mwanuzi

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Development of Memory Preservation Nutrition®

Scientific evidenced-based research demonstrating a correlation between nutrition and cognitive health.

Memory Preservation Nutrition® (2005+)

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To Learn More about MPN

- This presentation shares key scientific studies which underlie MPN and other brain healthy nutrition
- To Learn MORE DETAILS about the Memory Presentation Nutrition Program, please go to
- my website, <http://brainwellness.com> and download pdf on Memory Preservation Nutrition
- To learn more about OTHER brain healthy diets and how compare to each other and the MPN, download pdf “Comparing Brain Healthy Nutrition Programs”

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Research Support for Memory Preservation Nutrition (MPN™) 100's of Studies

- Individual foods & nutrients may help/hinder brain function
- Pinpointed by hundreds of lab studies in mice+
- Over a 100 longitudinal/cohort studies in humans
- Clinical trials
- Need combinations of foods to have enough potency.
- Foods help each other help us be healthier. Called “Synergy.”

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Combination Of Foods More Potent Than Single Foods

- Eating foods typical of “Mediterranean Diet” Reduces Risk of AD by 40%; Also lowers risk of conversion of MCI to AD
- Nutrients, in combination, lower risk:
 - High intake of variety of foods typical of Mediterranean diet (veggies, fruit, fish, olive oil, nuts and seeds, beans, whole grains, red wine (1-2 gl/day but not more)
 - Low intakes of high-fat animal foods, i.e. dairy, red meat, organ meat and butter, and of saturated fats & Omega 6's

- DASH Anti-Hypertensive Diet lowers risk of dementia

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Mediterranean Diet May Extend Life Of Persons With Alzheimer’s Disease – ?Result of Slowing Pathology?!

- **Moderate adherence extends life by 1 1/3 years;**
- **Closer adherence extends life by almost 4 years.**
- (Columbia Univ. Scarmeas, Luchsinger, Mayeux & Stern 2007)

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Clinical Trials Confirm Power of Nutrition for Brain Health in Older Adults

- Human clinical trials - just past decade
 - B vitamins, fish oil – mixed results w/ single nutrients
 - Pilot clinical trials with herbs/spices very promising for persons with early AD
 - High glycemic index foods bad for brain & memory
 - First whole foods dietary trials reporting in 2013-15
 - 2014: Finnish Multi-domain Randomized Clinical Trials: positive results; included Finnish national diet “Nordic Diet”

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Pilot Clinical Trials with Spices/Herbs

- traditional spices: Improved acetylcholine levels & cognition in pilot randomized clinical trials in early AD patients – 2003-2010 (Akhondzadeh S et.al)
- Sage (N=40)
- Melissa (lemon balm) (N=40)
- Saffron: 30 mg saffron tied 10 mg Aricept with no side effects (N=40); Also 30 mg Saffron tied with 20 memantine in 1 year RCT, N=68 (2014); Tsolaki M (Greece) N=35 1 year Saffron slows cog dec in MCI vs. wait list (2016).
- Aloe Vera improved cognition in AD & lowered inflammation. 1 year open label (U. Miami, Lewis et al. 2013)
- All small pilot RCTs – need to be repeated, with biomarkers to see if slowing AB/Tau pathology
- Additional (mice) studies show multiple brain benefits of clove, cinnamon and nutmeg. Contain powerful antioxidants, anti-inflammatory + compounds which elevate mood, calm anxiety, help with sleep, help memory, or ease pain.
- Turmeric's curcumin, with fat-added to molecule, improves spatial memory in **apes**, but not recognition memory, and improves brain matter.

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Spice Up Your Life To Power Up Your Brain: Mechanisms

- All herbs and spices
 - Potent anti-oxidants
 - Mildly to strongly anti-inflammatory
 - Positive impact on blood sugar, cholesterol
 - All fight microbes!!! (Ginger is anti-viral)
- Potent anti-inflammatory agents
 - Hot peppers, turmeric, ginger, oregano, rosemary, aloe vera and many others
- Those with high ORAC values likely reduce excessive levels of beta-amyloid
- Cinnamon
 - Blocks A-beta excess and oligomerization (mice)
 - Lowers cholesterol and blood sugar (RCT humans)
 - Improves neuroplasticity & structural integrity of hippocampus cells (Marie Pasinski MD)

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Hot Peppers Spice Up Your Life!

- The hotter the pepper, the more anti-inflammatory!
 - (cool the flames within) (but does aggravate GERD)
- Hot Chili Peppers also may extend life (see study previewed Nov. 2020 – Cleveland Clinic in Ohio)
- Hot Chili Peppers reduced all cause mortality by 25% and reduced death by cancer (23%) and heart (26%)
 - This was a medical record review of over ½ million people in US, Italy, China & Iran. (thus is “association” study- does not prove “cause.”)
- Anti-inflammatory action thought to be the key along with high anti-oxidant content. *capsaicin* is the “heat” and additional flavonols in hot peppers help too.

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Glycemic Index and Saturated Fat

- Low glycemic index and low saturated fat diet improves cognitive health in normal older adults and people with amnesic mild cognitive impairment (S.Craft 2012)
- Those on high glycemic index and high saturated fat diet fared much worse than those on low glycemic index, low saturated fat diet
- Good diet groups- improved levels of A-beta in CSF fluids, improved visual memory

Craft's current research direction: Healthy Fats OK even a little saturated fat. It's sugar & transfats we avoid.

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Mediterranean Type Foods Help Thinking and Memory

- First gold standard randomized clinical trial to prove that healthier diet improves thinking and memory
- 500+ adults at high risk of Cardio-Vascular Disease- part of 7500 larger RCT which also reported a 30% reduction 1st time heart attacks and strokes).
- Mediterranean Diets (especially adding more fish and legumes to diet) enhanced with either EVOO or nuts results in better cognition compared with a low-fat diet
- (PREDIMED Study, 2013-2015, in SPAIN)

EVOO - executive function;
Nuts - memory

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What We Eat Can Slow Alzheimer's Pathology- Australian Study Proves

- No drug on the market can do this, yet.
- Australian study with brain imaging (Rainey-Smith 2015) annually for 3 years.
- PiB Pet Scans can show amount of AD problem protein Beta Amyloid building up in the brain
- People who followed most closely Mediterranean style diet had lowest levels of brain Beta Amyloid.
- Build-up over 3 years also was less than in others
- Same was true for people who ate lower amounts of red meat. RED MEAT IS Problem for Brain Health-not just saturated fats. May lead to more bad bacteria in gut -& more beta amyloid in brain.

Stephanie R Rainey-Smith

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MIND Diet (by Martha C Morris, ScD)

- Rated 1 of 10 best diets in US Today and World Report since 2015
- MIIND is an acronym for Mediterranean-DASH Intervention for Neurodegenerative Delay
- Emphasizes brain-healthy foods, including leafy green vegetables, and berries (1/2 cup/day) as stars
- Nuts and beans, whole grains, olive oil
- Chicken and fish for non-vegan protein sources
- Red wine in moderation.
- Limits consumption of red meat, butter, margarine, and processed foods, especially desserts.

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1st US Clinical Trial Funded 2016 :MIND

- Martha Clare Morris, ScD, Rush University
- NIA \$14.5 Grant + Private funding
- Can a particular diet, the MIND diet, prevent Alzheimer's disease?
- Phase 3 trial, 5 years
- 600 ppl, 65+ years old
 - Sub par diet & Overweight
 - At risk for Alzheimer's
- Sites: U of Chicago, Harvard Univ. Public Health- Boston – Started 2017; Results in 2021



In Memoriam

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Nordic Diet Shows Potential Better than MIND or Mediterranean for Swedes

- Nordic Prudent Dietary Pattern appears better than the MIND, Mediterranean or DASH diets in lowering risk of cognitive decline in 2,200 elderly Swedes; all better than unhealthy diet with processed foods, excess bad fats & sweets.
- Healthy Nordic Diet includes: **Eating more:** non-root vegetables, certain fruits - pears, apples, peaches, fish and poultry, canola oil, tea, water, and wine. **Eating less:** root vegetables, refined grains/cereals, butter/margarine, sugar/sweets/pastries, & fruit juice.
- Conclusion: **there are many brain healthy diets;** most of them rely on traditional whole foods and minimize processed and sugary foods, emphasize nutrient rich foods.

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Richard Isaacson, MD Neurologist

- Director, Alzheimer's Prevention Clinic at Weill Cornell Memory Disorders; School of Medicine, New York Presbyterian Hospital. Director, Residency Training Program
- "If you want to take a fast train to Alzheimer's disease, just eat lots of sugar."**
- Interview with Maria Shriver
- <https://www.medscape.com/viewarticle/868797>
- Recommends Fasting* instead of Coconut Oil to obtain ketosis
- *(14+ hrs/day several times a week – eat dinner early!)



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Brain Healthy Diets Improve Emotional Health in Just 3 Months!

- Two randomized clinical trials conducted with adults varying ages in Australia reporting in 2017
- Both reported clinically and statistically significant positive results especially with depression, even for those already taking meds or therapy
- 3-6 months interventions with Mediterranean style diets
- 1 study gave out free food with cooking lessons!
- In other study, people who improved their diet also saved \$104/month when stopped buying "junk" food.

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HELFIMED Study Shows Positive Results For Depression And Stress

- Randomized 156 adults 18-65 and 85 completed 6 month study.
- Intervention: 3 months free healthy Med Diet style food*, 3 months of biweekly Med Diet cooking classes and 6 months free fish oil (900 mg of DHA and 200 mg of EPA)
- Control: 3 months biweekly social support sessions
- Results: 45% reduction depressive symptoms in Med Diet group; 1.68 times better than reductions in control
- Improved diet proven by blood tests & food ?aires: treatment group ate more brain foods & fewer processed foods, unhealthy snacks, sweets, and red meat, and these changes continued in mo.4-6
- *olive oil, nuts, beans, canned fish, fresh vegetables and fruits

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SMILES Study: Med Diet Helps Depression

SMILES study: 67 adults with moderate to severe depression and poor diets at baseline:

- Poor diet: too few vegetables, fruits, lean meats and inadequate fiber and too many sweets, processed meats, and salty snacks
- 82% already receiving meds or therapy or both as tx for depr
- RCT: 12 weeks each group received same number and length of sessions.
 - Dietary intervention group: 7 nutritional training on ModiMedDiet by clinical nutritionist
 - Social therapy group: social support sessions
- Results: 33% of dietary intervention group experienced remission of their depressive symptoms compared to 8% of social therapy group.

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Future Brain Foods Research

Mediterranean Diet, MIND Diet, Alz Prevention Diet, MPN, Nordic - More Trials.

- Other Heritage e.g. African Heritage better?
- Closer look at spices, herbs, hot peppers
- Boost anti-oxidant & anti-inflammatory foods
- How to offset toxicity of sugar
- Probiotics, prebiotics & healthy gut
- If auto-immune disease, which foods help?
- What about fasting, if afflicted?
- Liver & bile acid dysfunction -
 - how to prevent, treat



Illustration by George Mironov © 2011 Chicago Preservation Trust www.ahdiet.org
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Memory Preservation Nutrition Program



MPN™
Research-based Brain Healthy Nutrition: with Practical Application
Menus, Recipes, Pantry Advice

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What is Memory Preservation Nutrition?

- An **evidence-based** nutrition program
- **Cutting Edge** – continually updated
- A **lifestyle program**, not a “diet”
- Based on 7 strategies and **easy to follow** principals
- **Flexible** for any type of cuisine or culture
- **Customizable** to meet individual taste and preference, medical needs and restrictions



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MPN™ - 7 Strategies

1. Increase Amt. & Variety of Anti-oxidants
2. Reduce Insulin Resistance
3. Reduce LDL cholesterol & avoid trans fats, reduce sugar intake.
4. Increase Omega-3s & Healthy Fats
5. Reduce Inflammation
6. Assure adequate B, C, D & E vitamins
7. *Eat probiotics and prebiotics (Added in 2017)*



*Disclaimer-Check with your Physician before making dietary changes
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MPN™ Principles

Whole foods-not processed

- More plant foods, fewer animal foods
- Fish or seafood minimum 3x/week
- Reduce all forms of sugar & refined carbs.; Desserts
- Avoid trans fats & HFCS. Read food labels
- Spices, Leafy greens, Nuts/Seeds, Omega-3's, Whole Grains Every Day; Beans, Legumes or Lentils several times a week
- Greater **variety** of foods, in moderation
- How to maintain healthy gut? Pickles? Probiotics? Prebiotics?

- Consume 3 meals with 1-2 snacks
- “Drink Up!” Hydrate with water, tea, herbal teas or 100% fruit juice Supplement if needed-Omega 3s, Vitamins B, C, D3 & E (all 8 forms Vitamin E); Herb/Spice or Veggie/Fruit based supplements.

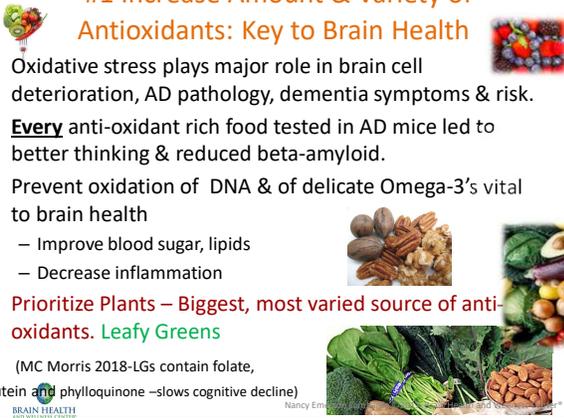


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#1 Increase Amount & Variety of Antioxidants: Key to Brain Health

- Oxidative stress plays major role in brain cell deterioration, AD pathology, dementia symptoms & risk.
- Every** anti-oxidant rich food tested in AD mice led to better thinking & reduced beta-amyloid.
- Prevent oxidation of DNA & of delicate Omega-3's vital to brain health
 - Improve blood sugar, lipids
 - Decrease inflammation
- Prioritize Plants – Biggest, most varied source of anti-oxidants. Leafy Greens**
 (MC Morris 2018-LGs contain folate, lutein and phyloquinone –slows cognitive decline)



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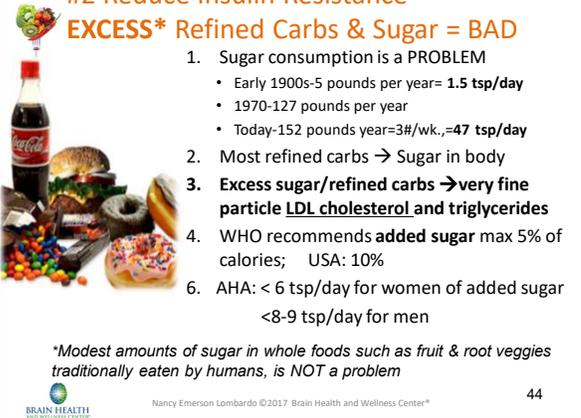
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#2 Reduce Insulin Resistance

EXCESS* Refined Carbs & Sugar = BAD

- Sugar consumption is a PROBLEM
 - Early 1900s-5 pounds per year= **1.5 tsp/day**
 - 1970-127 pounds per year
 - Today-152 pounds year=3#/wk.,=**47 tsp/day**
- Most refined carbs → Sugar in body
- Excess sugar/refined carbs → very fine particle LDL cholesterol and triglycerides**
- WHO recommends **added sugar** max 5% of calories; USA: 10%
- AHA: < 6 tsp/day for women of added sugar <8-9 tsp/day for men

**Modest amounts of sugar in whole foods such as fruit & root veggies traditionally eaten by humans, is NOT a problem*



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#2 Excess Sugar is Toxic to the Brain

- Increases insulin resistance in our brains
- Challenges blood sugar metabolism – brain & Body
- Highly **pro-inflammatory & thus speeds cognitive decline & rate of Alzheimer's**
- Shrinks Hippocampus - seat of our short-term memory & empathy – even in teenagers** (Convit, A, NYU, 2000-2010)

Excess Sugar induces in both AD mice & humans:

- Memory deficits and**
- Increased A-Beta problems (and abnormal LDL cholesterol)** (Coa, Lu, Lewis & Li, 2007, J. Biological Chemistry) & Suzanne Craft 2012.)



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#2 Reduce Insulin Resistance

- Eat Less:** Reduce refined carbs, sugars, processed foods
- Avoid nitrates** (processed meats)
- Eat More:** Foods that regulate blood sugar: Cinnamon (1 tsp/day) & Spices, Green Tea, Beans & Lentils, Nuts & Seeds, Fish/Seafood, Green Vegetables, Whole Grains AND....
- Eat:** 70% Dark Chocolate-up to 1.6 oz./day



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70% Dark Chocolate

1-1.6 oz./day has many benefits

- Lowers Inflammation
- Lowers blood pressure
- Lowers LDL
- Controls blood sugar
- Fights cell damage
- Improves thinking



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#3 Reduce LDL Cholesterol: Here's How

- Latest research: It's NOT eating cholesterol. (e.g. Omega 3 Eggs OK!)
- Unclear as yet how much saturated fat is OK for heart or brain and whether it might increase cholesterol. In any case we need to continue limiting saturated fat to 10% of calories for brain health.
- MAIN problem: **eating too much SUGAR & Carbs** (which body converts to sugar)
- Liver converts all excess sugar** to very fine particle (VF) LDL cholesterol & fat (triglycerides)—it's a survival mechanism from ancient times to save we humans from starvation.
- Thus, eating **Excess** sugar causes our liver to make too much of the very fine particle LDL that when oxidized (and only when oxidized), creates sticky plaque that sticks to inside of blood vessels in brain as well as body.

EAT MORE: cholesterol reducing foods –all delicious!

See next slide!



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MPN™ DEVILED EGGS=BRAIN FOOD – Omega 3 Eggs Help Lower Cholesterol



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#4 Choose Healthy Fats-Summary

- Healthy Fats: Critical to Brain and Overall Body Health
- Reduce Omega 6's (found in animal foods, many oils)
 - O-6's are pro-inflammatory and can be more unhealthy than excess saturated fats.
- Increase Omega 3's, especially from the sea (also Canola Oil)
- Increase mono-unsaturated fats (olive oil, avocados, nuts)
- Avoid all **trans fats**-partially hydrogenated oil-June 2018 banned by end of June 2018!!!!
 - found in processed, prepared, & fried foods, bakery
- Reduce saturated fats, especially meat, dairy, poultry and other animals – aim for about 10% of fats

Decrease O-6 to achieve 1:4 ratio O3/O6 (USA: 1:30) pro-inflammatory

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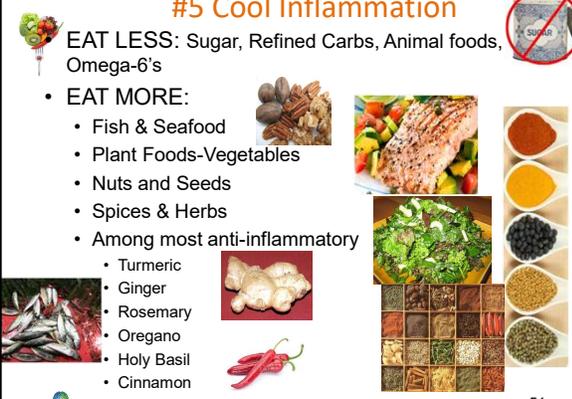
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#5 Cool Inflammation

EAT LESS: Sugar, Refined Carbs, Animal foods, Omega-6's

EAT MORE:

- Fish & Seafood
- Plant Foods-Vegetables
- Nuts and Seeds
- Spices & Herbs
- Among most anti-inflammatory
 - Turmeric
 - Ginger
 - Rosemary
 - Oregano
 - Holy Basil
 - Cinnamon
 - Hot Peppers – the hotter, the more it cools us



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#6 Get Your Vitamins B,C,D & E

Vitamin B

- Slows brain atrophy and cognitive and emotional decline
- Best choice-B 50 complexes to avoid imbalances & excess B-6
- B12 and Niacin Important
- Synthetic Bs found in enriched grains work well as we age

Vitamin D

- Helps prevent cognitive and emotional decline
- Vitamin D enriched foods are insufficient
- 20 minutes of sun a day
- Take a vitamin D supplement &/or Cod Liver Oil

Vitamin E (8 complex forms-4 tocopherols and 4 tocotrienols)

- Part of neuronal membrane; Protects delicate Omega 3s
- Foods: Nuts, seeds, palm oil, leafy greens

Vitamin C helps vitamin E do its job

**Disclaimer-Check with your Physician before making changes*

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#7. Gut Health is Key – Eat Pro-biotics

- Probiotics (healthy bacteria) include:
 - Most Pickled or Fermented vegetables such as sauerkraut, dill and other cucumber pickles, Kim chi, assorted pickled vegetables
 - Vinegars especially if still “alive” e.g. Bragg’s Apple Cider Vinegar. All vinegars from various fruits including cider vinegar, balsamic vinegar
 - (Limit use of rice vinegar because of high sugar content)
 - Kombucha and other fermented non dairy drinks
 - Fermented dairy (choose low fat) e.g. yogurt, buttermilk, cottage cheese, ricotta and limited amounts of full fat cheeses (avoid however processed cheeses/cheese foods)
 - Tempeh, miso and other fermented soy products
 - Wines, beers, especially red wine (moderation)

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#7. Gut Health is Key – Eat Pre-biotics

- Pre-biotics are FOOD for the good, healthy bacteria
- Generally soluble, & some insoluble “indigestible” fiber that pro-biotic bacteria use for food. These fibers are often sweet tasting ones that pro-biotic bacteria ferments and turns into its own edible food. Examples are certain polysaccharides e.g. inulin, pectin and certain fructo-oligosaccharides and oligosaccharides.
- Also certain “resistant starches” which pass to large intestine undigested, such as found in sorghum
- Certain prebiotics enhance good bacteria’s ability to produce an anti-inflammatory substance called butyrate that reduces inflammation in the gut.

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#7. Gut Health is Key – Eat Pre-biotics+

- Beans and Lentils & Other legumes such as peas, chickpeas, edamame (plus some beans can be fermented)
- Leafy Greens- Especially dandelions! (lots of inulin) & cabbage can also be pickled so both pro and pre
- Onions, garlic, leeks and others in onion family (inulin plus)
- Asparagus (inulin plus other prebiotics)
- Root vegetables (rich in pectins and other prebiotics)
- Whole grains, and the bran of grains, and other seeds
- Fruits rich in pectin such as apples, citrus, pears, guava, plums
- Raw bananas; other fruits such as nectarines, watermelon, grapefruit, pomegranate & persimmon; smaller amounts in cherries, grapes, berries
- Nuts

Note: High amounts in uncommon foods: Jerusalem artichokes and chicory root

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MPN™ Goals for Brain Healthy Eating

- **HEALTHY FATS** – Daily
- **SPICES/HERBS** – Daily
- **PROBIOTICS & PREBIOTICS** - Daily
- **VEGETABLES** – 5-7+x/Day-vary & root veg.
- **LEAFY GREENS** – 1-3x/Day
- **FRUIT** (esp. Berries) – 3-5x/Day (Juice <4-6 oz/day)
- **WHOLE GRAINS** – 70% of All Grains
- **FISH/SEAFOOD** – 3-5x/Week
- **POULTRY** – 2-4x/Week
- **EGGS** – 5+/Week
- **RED MEAT** – 1x or Less/Wk.-Month
- **BEANS/LENTILS** – 5+x/Week
- **NUTS/SEEDS** – 5+x/Week
- **ADDED SUGAR** – W <5-6tsp; M <8-9tsp*

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Where to Start?

- Start with desserts, use fruit instead, smaller portions, less often
- Snacks: more savory, nuts and seeds, carrots, veggies, avocado
- Water instead of soda
- Salad dressings- EV olive oil and vinegar, mixed spices
- Eat more veggies (balsamic vinegar or mustard helps flavor!)
- Eat berries
- Nuts and seeds
- Whole grains

Toxic foods: use less, less often

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Additional Steps

Menu changes – some easy for individuals:

- Increase use of spices and herbs
- Reduce amount and frequency of red meat
- Make your own salad dressings
- Try one new whole grain a week;
- Cook large batch beans/lentils weekly and use some for multiple meals. Or add beans to soups.
- Select nuts as a snack; Sprinkle hemp or flax seeds
- Make your own fruit yogurt cups
- Switch to coconut sugar, stevia & inulin products
- Use more avocado

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MPN™ Successfully Implemented

Senior Living Residences of Massachusetts in 6+ assisted living communities – partial & ongoing over a decade!



Amazing Place Day Program in Houston, Texas -95-100%



Sisters of Charity - Houston, Texas

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People with early AD Want to Eat Healthy: Survey Results from 50 ADH Participants Texas (November, 2013)

Item	Number Responding	% Yes	% So-so / Maybe	% No	% Other
Say Eating Healthy is Important/Very Impt	49	93%	--	4%	2%
Enjoying Helping Decide New Foods	48	68%	21%	10%	
Fewer Red Meats/More Seafood?	47	52%	33%	15%	
More Vegetables Than Meat?	48	42%	17%	37%	4%
Beans/Lentils Good for You?	47	81%	13%	6%	
Eat Too Many Sweets Here?	48	12.5%	--	87.5%	
Love or Like Fruit as a Dessert?	48	85%	8%	6%	

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Brain Foods & Brain Busters

- There are 100s of delicious foods that can help protect the brain and enhance brain power
- Combinations of foods such as Mediterranean, DASH, MIND, Nordic or MPN diets are more potent than single brain foods
- There are fewer but very prevalent foods that actively harm the brain, especially when eaten in excess: sugar, trans fats, nitrates, refined carbs
- Thus important to increase use of brain foods as well as decreasing use of brain toxins



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Summing Up

“Eat real food, mostly plants, not too much”
Michael Pollen



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More Details for MPN – selected slides also go to see website

- Click on links to previous presentations on the MPN e.g. for patients and families at MGH...home page
- Download ppt pdf for ppt with details of foods and strategies for the MPN
- Download a different ppt regarding implementing brain healthy nutrition in congregate settings...adult day health or assisted living, or convent.
- Recipes using the MPN
- Other handouts or articles about MPN or other brain healthy lifestyles



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