What Science Tells Us about Nutrition and Healthy Brains?

24th Annual Geriatric Nursing Conference: UPDATE FOR CLINICAL Geriatric Practice
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• Owner, Founder, CEO Health Care Insights, LLC, dba Brain Health and Wellness Center
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• Board Member – Emeritus, Alzheimer’s Association (national)
• Medical Scientific Advisory Committee Member, Alzheimer’s Association (MA/NH)
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• Consultant for both for-profit and non-profit healthcare communities
• Paid Speaker, past and current, for profit and non profit groups too numerous to list, including Councils on Aging, Alzheimer’s Association, Assisted Living, CCRC’s, RN, SW, MD CEU Conferences, pre-school children's day cares
• President’s Lecture, FNCE, American Academy of Dietetics and Nutrition

Learning Outcomes
• Identify which types of foods are most helpful to “saving our brains.”
• Identify key foods that are harmful to brain, whether only in excess or in any amounts, – Be able to explain why Excess Sugar is toxic to the brain
• Identify related research evidence
• Identify evidence-based Goals for brain healthy nutrition and Where to Start

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 4 years – FY2018 passed budget is $1.9 bil

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?

Chronic Conditions Influence Risk
• 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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Alzheimer’s Disease Takes 2-3 Decades to Develop

Why Increased Interest in Public Health Lifestyle Approach for Brain Health?

- No drug on market other than blood pressure meds yet can slow risk, progression or prevent Alzheimer’s disease nor other major dementias. (Some drugs look promising)
- Evidence is building that lifestyle can do all this, though maybe not as dramatically as a potential “blockbuster” drug.
- Many countries cannot afford expensive new drugs should they be found. Brain+ Lifestyles help Body too.
- With 20-30 years to “develop” AD pathology…..will drugs ever be the only answer? Combination likely.

Lifestyle Enhances Brain Health

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

NUTRITION* (* all in FINGER trial in FINLAND) see brainwellness.com for details

Why Brain Foods?

- Delay onset of Alzheimer’s by 5 years
  - 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

Progress in Brain Health Lifestyle Research

- Brain healthy lifestyles worldwide - 10-20 years
- Publication- Memory Preservation Diet (MPN) - 2005
- In USA, research reaches public-importance of lifestyle in both prevention and treatment of AD -since 2007
- USA announces National Plan to Combat AD; includes lifestyle research - May 15, 2012
- Europe has 3 major prevention trials; collaborations
- First broad diet randomized clinical trial improves cognition - summer 2013
- Alzheimer’s Disease International releases Nutrition and Dementia report February 2014
- FINNISH LIFESTYLE TRIAL announces positive results for cognition: July 2014 at AAIC in Copenhagen
- AAIC 2015: Nutrition & Exercise Slows AD Pathology

The History

FINGER Trial

- 1260 cognitively healthy 60-77 year old adults, at increased risk for cognitive decline
- 2-year study of Intensive Lifestyle Intervention vs. Usual Care
- Found Benefit from lifestyle intervention on cognition
FINGER Trial – Risk Factors (Finland)

Risk Factors
- Alcohol
- Hypertension
- Diabetes
- Dyslipidemia
- Vascular insults
- Unhealthy diet
- Smoking
- Obesity
- Other genes
- ApoE
- Dementia

Protective Factors
- Physical activity
- Social activity
- Education
- Brain reserve

World Wide Fingers (WW-Fingers)

U.S. POINTER
U.K. FINGER
China FINGER
Australia FINGER

PrOtecting Brain Health through Lifestyle
INTEivation to Reduce Risk (U.S. POINTER)

- Alzheimer’s Association leading study with $20M investment
- 2 year intervention study to evaluate a lifestyle recipe (exercise, diet, cognitive stimulation, social engagement) to prevent cognitive decline
- Part of global collaboration: WW Fingers
- More info POINTERinfo@alz.org

Development of Memory Preservation Nutrition®

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

Memory Preservation Nutrition® (2005+)

Research Support for 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/cohorts studies in humans
- Clinical trials
- Need combinations of foods to have enough potency
- Foods help each other help us be healthier. Called “Synergy.”
Poor Diet Increases AD Risk & Decline Rate

- Japanese persons with AD and Vascular Dementia compared to well age-mates: (Otsuka 2002)
  - Ate too many calories
  - Too much sugar
  - Too many Omega-6’s from animal foods
  - Deficient in Omega-3’s, antioxidants, vegetables, fruits, vitamins C, E and the B vitamins — i.e. not eating traditional Japanese foods
- Japan changed from traditional Japanese diet to Western diet & AD rates 1% in 1985, to 7% in 2008. (W Grant, Sept 2016)
- French study found that, in persons with AD, poor nutritional status was a risk factor for rapid cognitive decline (B Wilan/Laurique, Pl Douset - Toulouse, France)

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)

Pilot Clinical Trials with Spices/Herbs

traditional spices: improved acetylcholine levels & cognition in pilot randomized clinical trials in early AD patients – 2003-2010

- 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 mg 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.

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
  - 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

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

- Human clinical trials - just beginning
  - B vitamins, fish oil — mixed results single nutrients
  - Pilot RCTs 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 RCT: positive results; included Finnish national diet

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)
Glycemic Index and Saturated Fat

- Low glycemic index and low saturated fat diet improves cognitive health in normal older adults and people with amnestic 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 CNF fluids, improved visual memory

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

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)

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 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.

MIND Diet May Be Better than Mediterranean or DASH for cognition

- Martha Clare Morris, ScD – epidemiologist Chicago
- Combines elements of Med Diet and DASH Diet with other elements gleaned from her own research
- Developed “Point” System and Applied to Existing Data Bases. Limitations are low frequency of brain foods.
- This was a cohort or “circumstantial evidence” study similar to Columbia’s Med Diet studies.
- Smaller base of evidence than the MPN, several similarities (leafy greens) and some differences
- Positive results confirmed by independent studies using different data bases...6,000 and 7,000 people

1st US Clinical Trial Fall 2016 :MIND

- Martha Clare Morris, ScD Rush University
- NIA $14.5 Grant + Private funding
- Can a particular diet, MIND diet, prevent Alzheimer’s disease?
- Phase 3 trial, 5 year
- 600 ppl, 65+ years old
  - Sub par diet & Overweight
  - At risk for Alzheimer’s
- Sites: U of Chicago, Harvard Univ. Public Health-Boston – Study underway nearly 2 years

MIND will be nutrition part of US POINTER

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.
Richard Isaacson, MD  Neurologist

- Director, Alzheimer’s Prevention Clinic at Weill Cornell Memory Disorders Program
- “If you want to take a fast train to Alzheimer’s disease, just eat lots of sugar.”
- Interview with Maria Shriver
- Recommends Fasting instead of Coconut Oil to obtain ketosis
- Author: Alzheimer’s Prevention and Treatment Diet

Brain Healthy Diets Improve Emotional Health in Just 3 Months!

- Two randomized clinical trials conducted with adults varying ages in Australia reporting in 2017
- 2017 reported clinically and statistically significant positive results especially with depression
- 3-6 months interventions with Mediterranean style diets
- In first study, people who improved their diet also saved $104/month when stopped buying “junk” food.

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

Future Brain Foods Research

- 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
- Liver & bile acid dysfunction - how to px,tx
- Probiotics, prebiotics & healthy gut
- If auto-immune disease, which foods help
- Fewer refined grains & processed foods
- More healthy fats, fewer carbs, fasting, if afflicted?

Memory Preservation Nutrition Program

- 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
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  (NEW 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, herbal teas % 100% fruit juice
- Supplement if needed-Omega 3s, Vitamins B, D3 & E (all 8 forms vitamin E);
  - Spices 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

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#1 Eat Plant-Based Anti-oxidants: Variety!
- SPICES AND HERBS—the stars: Potent Antioxidants in small volumes, anti-inflammatory
- All Vegetables (eat more than fruit):
  - Leafy Greens daily—can slow cognitive decline
- Whole grains, antioxidant rich. Sorgham
- Berries - all berries most potent among fruits. Nutrient dense, anti-inflammatory, promote brain cell signalling. Apples increase memory neurotransmitter, acetylcholine.
- Tea, Coffee, Chocolate
- Dried beans and Lentils-prebiotics, healthy gut
- Nuts & Seeds - 1 oz/day

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#1 Star Anti-Oxidants: Herbs, Spices, Plus
- SPICES AND HERBS—the stars
  - Potent Antioxidants in small volumes
  - Anti-inflammatory:
    - Hot peppers, turmeric, ginger, oregano, rosemary, aloe vera and many others
  - Positive impact on blood sugar, cholesterol (turmeric, cinnamon, nutmeg and many other spices)
  - Foods high in antioxidants likely prevent excessive beta amyloid build up and help reduce accumulated beta amyloid.
  - Cinnamon: 1 tsp/day
    - Blocks beta amyloid excess (mice studies)
    - Lowers cholesterol and blood sugar (human)

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#2 Reduce Insulin Resistance
EXCESS* Refined Carbs & Sugar = BAD
1. Sugar consumption is a PROBLEM
   • Early 1900s-5 pounds per year
   • 1970-127 pounds per year
   • Today-152 pounds/year=38/wk=47 tsp/day
2. Most refined carbs ➔ Sugar in body
3. Excess sugar/refined carbs ➔ very fine particle LDL cholesterol and triglycerides
4. WHO recommends added sugar max 5% of calories; USA: 10%
5. 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) (Cao, Lu, Lewis & Li, 2007, J. Biological Chemistry) & Suzanne Craft 2012.)

#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

#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 us 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!

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

Human Brain – NIH Drawing

#3 Eat More Foods that Help Lower LDL Cholesterol

General food classes:
- Lentils and beans
- Vegetables, all kinds
- Nuts and Seeds
- Spices and herbs
- Healthy oils
- Fish and sea food
- Whole grains

Some Food Stars:
- Avocado
- Grapefruit
- Salmon
- Cinnamon & Turmeric
- Carrots & parsnips, other root vegetables
- Hemp seeds
MPN™ DEVILED EGGS=BRAIN FOOD – Omega 3 Eggs Help Lower Cholesterol

#4 HEALTHY FATS for BRAIN & BODY

BRAIN BASICS-We All are “Fatheads”

• 60% of our brain is comprised of fats &
• Which fats and proportions of various fats, matters
• Fat is critical and essential to brain and overall body health
• Fats make up part of every cell membrane in our body, especially in our brain.

#4 OH, My ...Omegas!

• Increase Omega 3 Fatty Acids & Healthy Fats:
  – Essential part of all brain cells & connections, nerves
  – Cools Inflammation
  – May reduce risk of depression and mood disorders
  – Deficient in American diet
• Foods rich in Omega-3
  – Fish, shellfish, Seaweed, Kelp, Dulse, Kombu
  – Eggs-Free Range and Omega 3s Enriched are best
  – Green leafy vegetables and purslane
  – Canola Oil
  – Certain Nuts and seeds (walnuts, chia, flax, hemp)
  – Modest amounts in raspberries and cauliflower

#4 Mono-Unsaturated Fats-Healthy

Foods- mostly plant based
Olive Oil & Olives
Canola Oil
Almonds & other nuts
Peanuts
100% Natural Peanut Butter
Avocados
Most Seeds

#4 Choose Healthy Fats-Summary

• Healthy Fats: Critical to Brain and Overall Body Health
• Reduce Omega 6’s (found in animal foods, many oils)
  – 0-6’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 0-6 to achieve 1:4 ratio 03/06 (USA: 1:30) pro-inflammatory

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

**Vitamin B**
- Slows brain atrophy and cognitive and emotional decline
- Best choice - 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 - tocopherals 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.*

#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 ferment 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.

**MPN™ Goals for Brain Healthy Eating**
- **HEALTHY FATS** — Daily
- **SPICES/HERBS** — Daily
- **PROBIOTICS & PREBIOTICS** — Daily
- **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+/Week
- **NUTS/SEEDS** — 5+/x/Week
- **VEGETABLES** — 5-7+/Day- vary & root veg.
- **LEAFY GREENS** — 1-3x/Day
- **FRUIT (esp. Berries)** — 3-5x/Day (Juice <4-6 oz/day)
- **ADDED SUGAR** — W<6-8 tsp; M<8-9 tsp*

**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
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 and stevia products
• Use more avocado

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

Summing Up

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

MPN™
Q & A

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More Information about Brain Healthy Nutrition and How to Achieve It
• See handouts provided by Dr. Emerson Lombardo as well as the following slides not shown at the Conference.
• Published articles and other materials are available on Dr. Emerson Lombardo’s website: http://brainwellness.com Look for the downloads section for the articles and much more.