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These Brain Foods Can Improve Your Thinking and Mood

Concerned about your brain? Good news - this is the column for you.

by [Nancy B. Emerson Lombardo, Ph.D.](#)



Research proves that proper nutrition is essential to promote brain and overall body health, and to defend against diseases such as Alzheimer's disease. Following a brain foods nutrition program such as the Memory Preservation Nutrition® (MPN™), or the Mediterranean, MIND or Nordic diets helps you attain optimal brain and overall body health. More and more people are realizing that what we eat affects brain power, how we feel, our mood and even pain levels. This article, together with the series to follow, will teach you about the many delicious foods that help your brain, and which foods hurt your brain, as well as the scientific basis for this knowledge. What we eat matters.

Since 2014 a series of research studies reported in leading scientific journals and at AAIC research conferences sponsored by the national Alzheimer's Association have offered dramatic proof that brain healthy nutrition and other lifestyles in older adults not only reduce risk of AD and cognitive decline but can slow progression in early AD and MCI (Mild Cognitive Impairment)

Research Studies Show How Good Brain Healthy Nutrition:

- Slows or reverses the build-up of beta amyloid pathology associated with Alzheimer's disease.
- Impacts chronic diseases that compromise brain health, particularly diabetes, heart disease and stroke.
- Helps improve sugar metabolism, promote healthy insulin and cardiovascular function.
- Can delay onset of cognitive decline.
- Slows the progression of cognitive decline.
- Improves emotional health, both by decreasing depression and alleviating stress.

COGNITIVE HEALTH – EMOTIONAL HEALTH – SAME OR DIFFERENT BRAIN FOODS?

For a couple of decades scientists in the cognitive research world and scientists in the mental or emotional health worlds have been working separately (with a few exceptions e.g. see [Psaltopoulou et. al.](#)), on parallel tracks, exploring whether lifestyle, including nutrition, can have a positive effect on the brain. Logically, given it is the same human brain that produces both thoughts and moods, we've proposed similar foods would have positive impact in both areas. Early research results suggest this logical idea has legs.

EARLY STUDIES BEGIN IDENTIFYING POTENTIAL BRAIN FOODS

For 15 years, the primary human nutrition and cognition studies were cohort or epidemiological studies. First scientists looked at individual foods or types of foods to see if eating them earlier in life appeared to be correlated with risk of Alzheimer's and cognitive decline. (see [references](#) for [Morris](#), [Okereke as examples](#)). Hundreds of clinical and lab studies have helped scientists test the impact of various foods on cognitive function and brain structure and biochemistry. It was often hard to consistently identify a robust effect when clinical trials were attempted for example with a single vitamin such as Vit. E or B vitamins, or a single food, such as fish oils. Then Nikos Scarmeas, M.D. created a way to look at a dietary pattern or group of foods by applying points to positive brain foods (or for avoiding negative foods). He and his colleagues at Columbia were able to suggest that eating foods typical of a Mediterranean style diet, among older adults of mostly non-Mediterranean ethnicity, was correlated with significantly lower risk of [getting Alzheimer's disease](#) and or mild cognitive impairment. Then Martha Clare Morris, our foremost epidemiologist in nutrition and cognition in the U.S. who had done dozens of studies looking at various individual nutrients, put together her own MIND diet based on her findings, and adopted Scarmeas' MeDi point system idea to test her program compared to the MediDiet and DASH diets. The MIND diet is an important brain foods diet which showed promise in a series of [cohort/epidemiological studies](#).

For example, in 2015 two cohort studies from Dr. Martha Claire Morris's group confirmed findings from other studies that fish is brain food; sugar, simple carbs, high glycemic index or load, and trans fats are all harmful to the brain. One study added to growing evidence that higher fish consumption is related to lower risk of AD and cognitive decline. A more important study, using almost 500 people in a middle-aged cohort from the Wisconsin Registry for Alzheimer's Prevention study, average age 60, reported that people eating refined carbs, sugar and/or a high glycemic index diet tended to have a faster rate of cognitive decline. In a 188-person subset, she also showed that people who consumed more foods with a high glycemic load had a lower brain volume at baseline and those with high glycemic index diet had a higher rate of atrophy over a two-year period, (using MRI imaging) than people who ate healthier diets.

Hundreds of animal and lab studies have helped scientists test the impact of various foods on cognitive function and brain structure, biochemistry, and neuronal function.

The MIND diet is now in midst of a US government NIH funded randomized clinical trial and will be featured in a multi-domain lifestyle clinical trial funded by the US Alzheimer's Association.

Meanwhile, clinical trials in Finland, Spain, Australia, and the U.S. add proof that eating healthy foods such as those recommended by the MPN program improve thinking and memory, slow cognitive decline in older adults, and help relieve depression and anxiety in adults of all ages. Other European studies about brain foods show similar positive results in children.

The results of the Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER study) a two-year randomized clinical trial, showed that proper nutrition, physical activity, cognitive training and social engagement improved cognitive performance in older adults aged [60 to 77 \(Kivipelto\)](#) . The Predimed Diet clinical trial proved that good diet alone can improve cognitive functioning in older adults. ([Martinez-Lapiscina et. al](#))

PREDIMED STUDY: FIRST RCT TO SHOW DIET AFFECTS COGNITION

A Spanish randomized clinical trial for adults at high risk for heart attack and/or stroke reported in 2014 found that closer adherence to a Mediterranean style diet with significant increased consumption of fish and legumes (beans, lentils, peas) together with daily consumption of either ¼ cup of extra virgin olive oil (EVOO) OR 40 grams (about 1 oz) of nuts, improved cognition (as well as lowering risk of first time heart attack or [stroke by a dramatic 30%](#)). Further analysis showed that the increased EVOO consumption improved executive function and the increased (to daily) consumption of nuts [improved memory](#). Thus ideally one would eat both of these brain foods daily, along with the other key elements of a Mediterranean diet: fish, legumes, lots of vegetables, fruits, whole grains and decreased amounts of animal foods, especially red meat, and decreased amounts of processed foods, especially processed meats, and sweets/sugar/refined grains.

A significant methodological finding of the Predi-med study was that giving participants free food was very effective in bringing about dietary changes; ½ the intervention group were given free olive oil and ½ were given free nuts (50% walnuts, 25% almonds and 25% hazel nuts), and in each case, the respective recipients consumed the free foods at least 6 days out of 7, and this change was much more consistent than increases in any of the other recommended foods. This finding has already been utilized in subsequent diet studies where budgets allow, and also points to possible policy changes if a government decided to include brain/heart healthy food costs as part of insured health care expenses.

Keep in mind that a different diet, referred to as the Finnish or Nordic diet, was the one successfully used as part of the multiple domain clinical trial conducted in Finland trial mentioned above.

BRAIN IMAGING LINKS MEDITERRANEAN DIET WITH LOWER AMOUNTS OF AD PATHOLOGY

In 2015 an Australian longitudinal cohort study using brain scans found that healthy older adults who ate foods typical of a Mediterranean style diet had dramatically lower levels of beta amyloid (one of two problem proteins implicated in Alzheimer's disease) accumulating in their brains over a three-year period than did those who did not eat such foods.

Dr. SR Rainey-Smith reported results of an Australian longitudinal cohort study using PiB PET scans¹ reported at the July 2015 Alzheimer's Association International Conference that older adults people who ate foods typical of a Mediterranean style diet (as determined using Nikos Scarmeas's MeDI point method) had dramatically lower levels of beta amyloid accumulating in their brains over a three-year period than did those who did not eat such foods. In addition, people who ate less meat and more grains (meat/grain ratio), also had less accumulation of beta-amyloid in the brain scans. Fish, vegetables and certain other foods typical of the Mediterranean diet also were associated with less accumulation of beta-amyloid. For more about the Australian Imaging, Biomarker and Lifestyle (AIBL) study which supports Dr. Rainey-Smith's [work see](#) AIBL Ellis Clinical.

These and other studies prove that nutrition (and certain other lifestyles) can slow the build-up of Alzheimer's pathology. NO DRUG CAN DO THIS.

2017 AUSTRALIAN STUDIES SHOW BRAIN HEALTHY DIETS IMPROVE EMOTIONAL HEALTH

Two randomized clinical trials conducted with adults in Australia reported in 2017 rather dramatic clinically and statistically significant results of improved emotional health in just 3 months from interventions resulting in people changing to a Mediterranean style diet.

The first RCT study in the world to show diet improves emotional health was aptly called the [SMILES \(Supporting Modification of Lifestyle in Lower Emotional States\) study](#). The [SMILE study randomly](#) assigned 67 adults of various ages, who had diagnoses of moderate or severe depression and at baseline were eating a poor diet (too few vegetables, fruits, lean meats and inadequate fiber and too many sweets, processed meats, and salty snacks), to a dietary intervention group and a supportive group therapy group; the interventions lasted just 12 weeks. Both the treatment and control groups received the same number and length of group sessions. The dietary intervention group received 7 nutritional training sessions in selection and preparation of brain healthy foods recommended by the ModiMedDiet, a diet similar to the Mediterranean diet, led by a clinical dietician. The control group received social support. Depression symptomatology was the primary endpoint, assessed using the Montgomery-Åsberg Depression Rating Scale (MADRS) at 12 weeks. Secondary outcomes included remission and change of symptoms, mood and anxiety. At the end of the 12 week study, the 33% of dietary intervention group experienced remission of their depressive symptoms compared to 8 % of the control group, and the intervention group had significantly lower MADRS scores compared to the control group. Of the original 67 adults in the study, 56 people remained in the study for the final assessments. Also, 55 of the 67 participants were already receiving psychotherapy, pharmacology or both treatments. Such strong significant results in a fairly small study is impressive. A perhaps unexpected result was that the intervention group saved \$104/month by switching to a Mediterranean style diet since junk, processed, and sugary foods are expensive!

A key feature of the second, larger HELFIMED study (85 adults aged 18-65 completed all 6 months of the study; 152 started at baseline), was giving research participants free the recommended foods together with 3 months of group cooking lessons every other week, and 6 months of free [fish oil supplements](#). The free foods, fish oil and cooking lessons resulted in actual dietary changes confirmed by analysis of blood samples as well as dietary questionnaires. The treatment group ate more brain foods and fewer foods harmful to the brain such as processed foods, unhealthy snacks, sweets, and red meat, and these changes continued even after free food and cooking classes ended at end of month 3. The reward? Depression scores decreased by

¹ PiB PET Scan is a type of imaging, using Pittsburg Compound B in positron emission tomography, that is able to see build-up of Amyloid Beta (or A-beta), one of the two problem proteins implicated in development of Alzheimer's disease.

45%. The control group received social supportive group therapy every 2 weeks for 3 months; supportive group therapy alone also improved mood of participants, but not as much as the dietary intervention. The Med Diet group improved 1.68 times more than the supportive therapy group. Every two weeks the experimental treatment group received a food hamper containing Mediterranean style brain foods such as olive oil, nuts, beans, canned fish, fresh vegetables and fruits, and a Mediterranean style diet cooking class; daily each participant took 2 fish oil pills that contained a total of 900 mg of DHA and 200 mg of EPA. Research interviews and scales were used to assess mood (depression and anxiety) and quality of life.

Of further interest is the finding that the food changes most significantly associated with lower depression scores were, the overall MediDiet score and eating more nuts and greater diversity in vegetables consumed (but not amount of vegetables!...which is a component of the MediDiet score). Greater diversity of vegetables consumed was also correlated with overall improvement in quality of life scores. For emotional quality of life, both consumption of legumes and diversity of vegetables were relevant along with overall MediDiet score. Increases in Omega 3's and decreases in Omega 6's as measured in blood tests were also somewhat correlated with mental health scores. For instance, increased EPA levels was correlated with reduced stress and anxiety and increased DHA levels with reduced negative emotions. Also note that one can keep food costs reasonable by using quality canned fishes including wild salmon, sardines, trout and herring.

Check out Dr. Drew Ramsey's blogs on these two Australian [studies and related information](#). I agree with his suggestion: "The FDA approves medications for a mental health condition like depression after it is demonstrated to beat placebo in two separate trials (last I checked). Wouldn't it be awesome if I could prescribe a food box and cooking classes for interested patients with depression and insurance covered it? "

BRAIN FOODS ON WHICH RESEARCHERS AGREE

The most researched brain healthy nutrition programs, [along with my own MPN](#) (see brainwellness.com), all agree on the following recommendations:

- The importance of eating more plant foods and fewer animal foods.
- Reducing intake of added sugar and refined carbohydrates.
- Avoiding packaged and processed foods (especially processed meats such as sausages, salamis and bacon), trans-fats, and artificial sweeteners.
- Celebrating the delicious, healthful qualities of a wide range of vegetables (especially leafy greens), fruits (especially berries),
- Recommending whole foods, including fish and seafood, nuts and seeds, beans and lentils, and whole grains.
- Minimal amounts of red meats.

VARIATIONS IN RECOMMENDATIONS FROM DIFFERENT RESEARCHERS-IDENTIFYING BRAIN FOODS IS STILL A WORK IN PROGRESS

Different programs emphasize different subcategories of some of these foods. For instance the MIND diet mentions only berries (1/2 cup/day) among fruits for daily consumption while the Nordic diet recommends orchard fruits such as pears, apples and peaches. The MIND diet emphasizes green leafy vegetables while

the Nordic diet primarily recommends more broadly all vegetables except root vegetables. Programs also vary in the amount and types of grains recommended.

The MPN is unique in also recommending the taste-enhancing, potent anti-inflammatory, and anti-oxidant powers of [herbs and spices](#) as well as the importance of daily consumption of foods rich in probiotic and prebiotics to increase the amount and variety of healthy bacteria in our guts or microbiomes, together with daily consumption of certain vitamins essential for brain function along with 2 grams of fish oil and supplements containing variety of powdered dehydrated or extracted vegetables, berries, other fruits, and herbs and spices. ([For delicious MPN recipes](#)) A later article in our series will feature a variety of brain healthy nutrition programs and compare them.

WORLDWIDE COOPERATION AMONG SCIENTISTS GIVES US EXTRA HOPE THAT SOLUTIONS WILL BE FOUND.

It is heartening to see how leaders in the brain healthy nutrition and other lifestyle fields are teaming together to help each other succeed in making significant advances in the science. Three of the leaders (Martha Morris ScD of Rush, Nikolaos Scarmeas MD of Columbia, and Gene Bowman, ND, MPH of Nestle in Switzerland) formed a professional interest group on nutrition within AAIC which has become increasingly active in sponsoring and encouraging new research and reporting results.

COMBINING NUTRITION WITH OTHER BRAIN HEALTHY LIFESTYLES

It is most beneficial for optimal cognition to combine brain healthy nutrition with other healthy lifestyles: frequent physical exercise, adequate sleep, mental stimulation and social activity. Adequate sleep, physical exercise and social engagement also work with brain healthy nutrition to improve emotional health.

Worldwide FINGER – collaborations among leading lifestyle researchers across the world for major national studies all including the 4 lifestyles pioneered in the FINGER study: nutrition, exercise, cognitive stimulation and social engagement, with each country free to choose the exact intervention for each domain and to add optional medical management domains such as heart, diabetes and/or depression. World wide [FINGERS](#) was launched in 2017 and includes the original Finnish study, Australia (funded in 2015), and more recently, Britain, China, Singapore and most recently the USA ([POINTER study](#)). All the other clinical trials are financially supported by these countries' respective governments; in the USA the government was not taking quick action so the US based Alzheimer's Association has instead funded the US study, launched in 2017 with the leader of the FINGER study one of 3 Co-PIs of the US study.

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