NUTRITIONAL STRAGETIES FOR THE AGING MIND

The Mind vs. the Brain

We are all familiar with what the brain is right? We have seen images of this three-pound gray and white mass with convolutions through it. We know it is housed inside our skulls and we know that is serves to control and coordinate our physical movements and our mental actions.

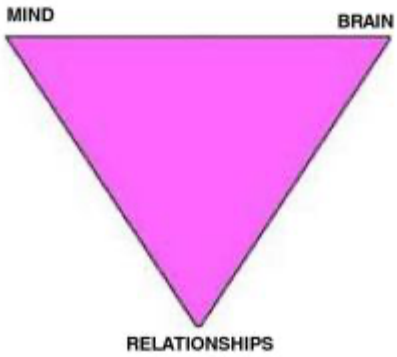
Now, let's define the "mind."

> A simple definition of the mind according to Webster's Dictionary is the part of the person that thinks, reasons, feels, and remembers. Other definitions include "a person's intellect," "a person's attention," and the element of a person that enables them to be aware of the world and their experiences, to think, and to feel; the faculty of consciousness and thought.

Dr. Daniel Siegel, a professor of psychiatry at UCLA school of Medicine, co-director of the UCLA Mindfulness Awareness Research Center, executive director of the Mindsight Institute and author of several books, teaches the concept of the Triangle of Well-Being to depict optimal mental health.
He coined the term "mindsight" to describe the human capacity to perceive the mind of the self and others. On his website, Siegel writes:

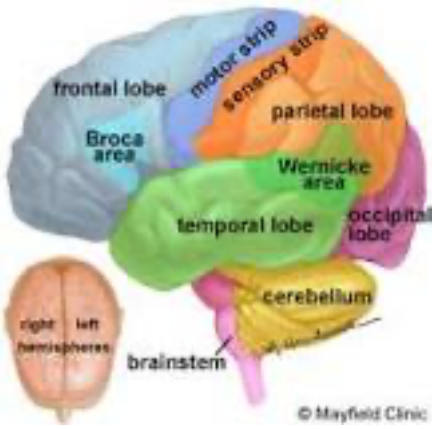
It is a powerful lens through which we can understand our inner lives with more clarity, integrate the brain, and enhance our relationships with others. Mindsight is a kind of focused attention that allows us to see the internal workings of our own minds. It helps us get ourselves off of the autopilot of ingrained behaviors and habitual responses. It lets us "name and tame" the emotions we are experiencing, rather than being overwhelmed by them.

It is a common belief that the mind is the activity of the brain. He proposes that this is only one part of it. On the Triangle of Well-Being, each point of the triangle is an essential component to mental health. One point is the physical brain and nervous system, which are the mechanisms by which energy and information flow throughout our beings. Our senses take in information from the environment. These become electrical signals which travel through the nervous system to the brain which, then, gives them meaning and responds by releasing neurochemicals and dispatching electrical signals which, in turn, regulate the body, control movement and influence emotions.



"Our minds are created within relationships – including the one that we have with ourselves… Each of us has a unique mind: unique thoughts, feelings, perceptions, memories, beliefs, and attitudes, and a unique set of regulatory patterns. These patterns shape the flow of energy and information inside us, and we share them with other minds. " Dr. Daniel Siegel

Anatomy of the Brain



The **brain** is composed of three parts: the brainstem, cerebellum, and cerebrum. The cerebrum is divided into four lobes: frontal, parietal, temporal, and occipital. The cerebrum is the largest part of the **brain** and is composed of right and left hemispheres.

Video
http://www.dailymotion.com/video/x12efx2_human-anatomy-brain_news

The mind observes and monitors the flow of energy and information across time while modifying it by giving it characteristics and patterns.
Because of neuroplasticity, which is the capacity of the brain to create new neural connections and grow new neurons in response to thoughts and experience, each point on the triangle influences the others, and the flow of energy and information along this triangle goes in all directions. The mind can change the structure of the brain and relationships. The brain can change the structure of the mind and relationships. Relationships can change the mind and the brain.

The ultimate outcome of integration is harmony. The absence of integration leads to chaos and rigidity—a finding that enables us to re-envision our understanding of mental disorders and how we can work together in the fields of mental health, education, and other disciplines, to create a healthier, more integrated world.

Brain Disorders

So what happens when the brain becomes disordered?

Remember that the brain is part of the nervous system, which also includes the spinal cord, and a large network of nerves and neurons that essentially control our body.

When the brain is damaged, the memory, our sensations, and even personality can be affected. "Brain disorders include any conditions or disabilities that affect the brain. This includes those conditions that are caused by illness, genetics, or traumatic injury."
What Are the Different Types of Brain Disorders?

Brain Injuries
Brain injuries are often caused by blunt trauma. Trauma can damage brain tissue,

neurons, and nerves. This damage affects the brain's ability to communicate with the rest of the body. Examples of brain injuries include:

- hematomas
- blood clots
- contusions, or bruising of brain tissue
- cerebral edema, or swelling inside the skull
- concussions
- strokes

Examples of the symptoms of a brain injury include:

- vomiting
- nausea
- speech difficulty
- bleeding from the ear
- numbness
- paralysis
- memory loss
- problems with concentration

Later, you may develop:

- high blood pressure
- a low heart rate
- pupil dilation
- irregular breathing

Depending on the type of injury, treatment might include medication, rehabilitation, or brain surgery. About half of people with severe brain injuries need surgery to remove or repair damaged tissue or to relieve pressure. People with minor brain injuries may not need any treatment beyond pain medication.

Many people with brain injuries need rehabilitation. This can include physical therapy, speech and language therapy, and psychiatry.

Brain Tumors

Sometimes, tumors form in the brain and can be very dangerous. These are called primary brain tumors. In other cases, cancer somewhere else in the body spreads to the brain. These are called secondary or metastatic brain tumors.

Brain tumors can be either malignant (cancerous) or benign (noncancerous). Doctors classify brain tumors as grades 1, 2, 3, or 4. Higher numbers indicate more aggressive tumors. The cause of brain tumors is largely unknown. They can occur in people of any age.

Symptoms of brain tumors depend on the size and location of the tumor. The most common symptoms of brain tumors are:

- headaches
- seizures
- numbness or tingling in your arms or legs
- nausea

- vomiting
- changes in personality
- difficulty with movement or balance
- changes in your hearing, speech, or vision

The type of treatment depends on many different factors, such as the size of the tumor, age, and overall health. The main types of Western treatment for brain tumors are surgery, chemotherapy (medication), and radiation therapy.

Neurodegenerative Diseases

Neurodegenerative diseases cause the brain and nerves to deteriorate over time. They can change personality and cause confusion. They can also destroy the brain's tissue and nerves.

Some brain diseases, such as Alzheimer's disease, may develop with age. They can slowly impair your memory and thought processes. Other diseases, such as Tay-Sachs disease, are genetic and begin at an early age. Other common neurodegenerative diseases include:

- Huntington's disease
- amyotrophic lateral sclerosis
- Parkinson's disease
- all forms of dementia

Some of the more common symptoms of neurodegenerative diseases include:

- memory loss
- forgetfulness
- apathy
- anxiety
- agitation
- a loss of inhibition
- mood changes

Neurodegenerative diseases cause permanent damage, so symptoms tend to get worse as the disease progresses. New symptoms are also likely to develop over time.

There's no cure for neurodegenerative diseases, but treatment can still help. Treatment for these diseases tries to reduce symptoms and maintain quality of life. Treatment often involves the use of medications to control symptoms.

Mental Disorders

Mental disorders, or mental illnesses, are a large and diverse group of conditions that affect your behavior patterns. Some of the most frequently diagnosed mental disorders are:

depression
anxiety
bipolar disorder
post-traumatic stress disorder
schizophrenia

The symptoms of mental disorders vary based on the condition. Different people can experience the same mental disorders very differently. A person should talk to their doctor if you notice a change in your behavior, thought patterns, or moods.
The two major types of treatment for mental disorders are medication and psychotherapy. Different methods work better for different conditions. Many people find that a combination of the two is the most effective.

Risk Factors

What Are the Risk Factors for Brain Disorders?

Brain disorders can affect anyone, but risk factors are different for different types of brain disorders.
Traumatic brain injury is most common in children, young adults who are under 25 years old, and adults who are 65 and older.
Brain tumors can affect people at any age. Personal risk depends on genetics and your exposure to environmental risk factors like radiation.
Older age and family history are the most significant risk factors for neurodegenerative diseases.
Mental disorders are very common. About 1 in 5 American adult has a diagnosable mental health condition. Risk may be higher if:

- have a family history of mental illness
- have or have had traumatic or stressful life experiences
- have a history of alcohol or drug abuse
- have or have had a traumatic brain injury

Diagnosis

How Are Brain Disorders Diagnosed?

A primary care physician or a neurological specialist can diagnose a brain disorder.
A doctor will likely perform a neurological exam to check vision, hearing, and balance.
Doctors might also get images of the brain to make a diagnosis. The most common diagnostic imaging tools are CT, MRI, and PET scans.
Doctor might also need to study fluid from the brain and spinal cord. This helps them find bleeding in the brain, infection, and other abnormalities.
Mental health disorders are usually diagnosed based on an evaluation of symptoms and history.

Outlook
What Is the Long-Term Outlook?

The outlook depends on the type and severity of your brain disorder. Some conditions are easily treated with medication and therapy. For example, millions of people with

mental disorders live perfectly normal lives.
Other disorders, like neurodegenerative diseases and some traumatic brain injuries, have no cure. People with these conditions often face permanent changes in their behavior, mental abilities, or coordination. In these cases, treatment will try to help a person learn to live with the illness and retain as much independence as possible.

Traditional Chinese Medicine and the Mind/Brain

In Chinese Medicine, the Western Medical Disease Alzheimer's, falls into the disease category *lao nian xing chi dai*, which means senile feeble-mindedness which is commonly translated as senile dementia, *wen chi*, civil madness, and *wu chi*, martial mania. *One needs to appreciate the fact that Chinese Medicine is based one a system that is thousands of years old and during the time when things like MRI, and CT-SCAN's did not exist, the way in which these diseases were named, diagnosed, or categorized by simply by observation giving them a literal and sometime artistic or nature-based name.

When I say artistic and or "natural," let's look at the disease cause for Alzheimer's in TCM:

1. Former heaven natural endowment insufficiency
2. Aging
3. Internal Damage by the Seven Affects
4. Unregulated Eating and Drinking

The above mentioned causes, according to Bob Flaws and Philippe Sionneau in The Treatment of Modern Western Medical Disease with Chinese Medicine, "there may be insufficient yin blood to transform essence and fill the sea of marrow or yang qi debility with loss of spiritual brightness (53-54)." *Inset video to reflect loss of brightness*

https://www.youtube.com/watch?v=BfR9vcM1i6U

https://www.youtube.com/watch?v=xKBcE4KhFPc

Moreover, *impaired memory and spirit abstraction may also be to simple heart blood vacuity. If yin fails to control yang, liver yang may become hyperactive and exuberant. These mechanism typically give rise to irritability, vexation and agitation, restlessness, and even hostility and aggression* (54).

Less pronounced irritability and taciturnity might be due to liver depression, with or without depressive heart.

Faulty diet as well as heat stewing the juices may result in the engenderment of phlegm dampness that may mist the portals, causing mental confusion and aphasia.

If yin and blood and blood vacuity, fire heat, or phlegm gives rise to internal stirring of liver wind, there may be convulsions and tremors.

If there is liver depression qi stagnation, as there surly must be due to frustration of this condition, this may give rise to blood stasis.

Blood stasis may also be due to heart vacuity, liver blood vacuity, and phlegm obstruction as well as prolonged sitting and inactivity.

Typically several of these disease mechanisms combine in any given patient.

In Chinese Medicine, the brain is an outgrowth of and is nourished by the kidney (Dharamananda). It is thought that taking kidney tonics can aid in preventing brain deterioration;

Rich agents to nourish the kidney and aid in brain function:
Placenta (Zi He Che), rehmannia (Shu di Huang), cistanche (Rou Cong Rong); kidney essence astringents, such as rose fruit (Hong Jing Tian) and schizandra (: and qi and blood tonics that ultimately help nourish the essence, such as astragalus, polygonatum, and tang-kuei.

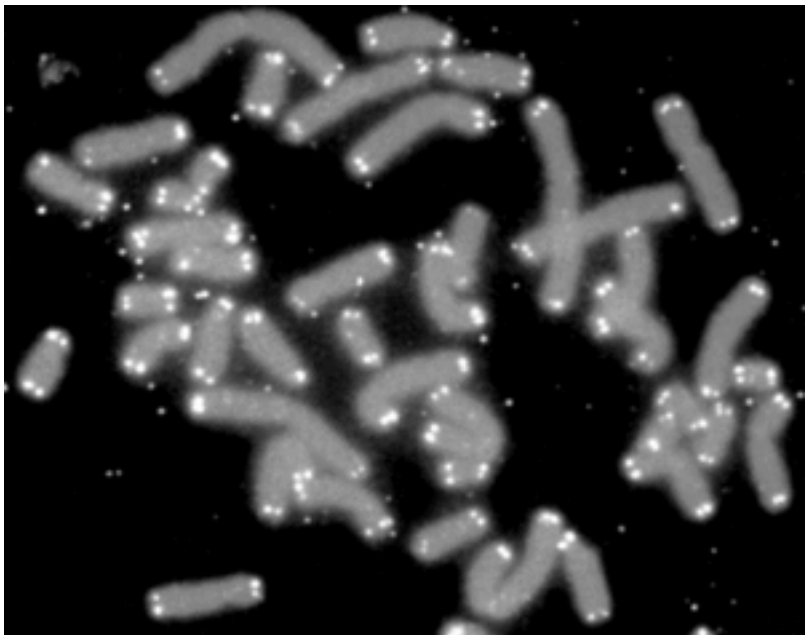
Cognitive functions of the brain are regulated by the heart-the kidney provides the substance, the heart the regulations of activity.

If the heart is agitated, memory, cognition, and wisdom can become disordered or if phlegm blocks the orifices that connect the heart with the brain, the same can occur.

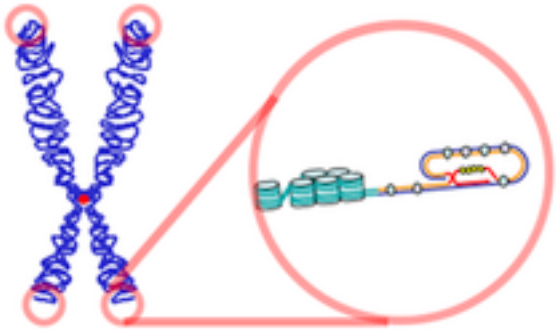
The Aging Brain and Telomeres

As early as the mid-twenties, a variety of age-related changes can begin to occur in the brain. Some of these changes include impaired neurotransmitter signaling, accumulation of neurofibrillary tangles, and a reduction in brain volume. These changes may be present with or without cognitive symptoms.

Insert telomere length and telomerase activity levels in extreme high and low stress groups explaining what a telomere is



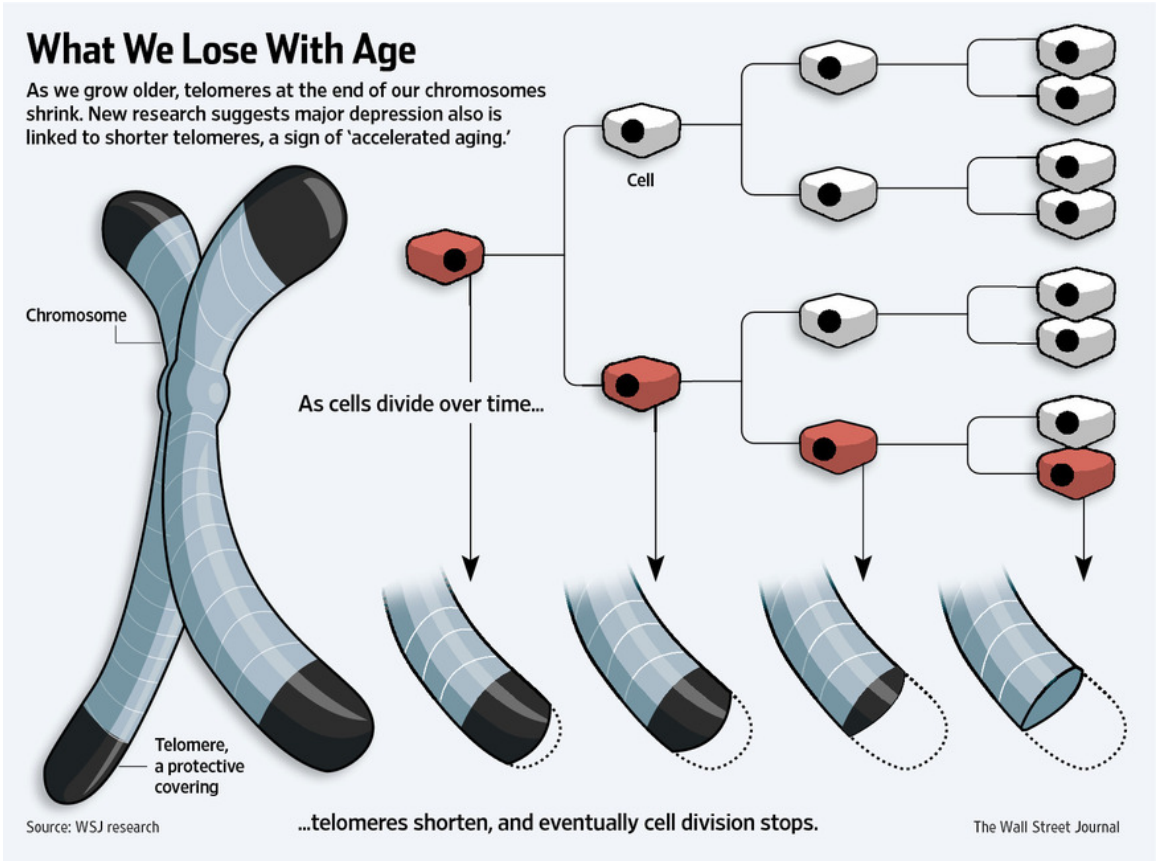
Human chromosomes (grey) capped by telomeres (white)

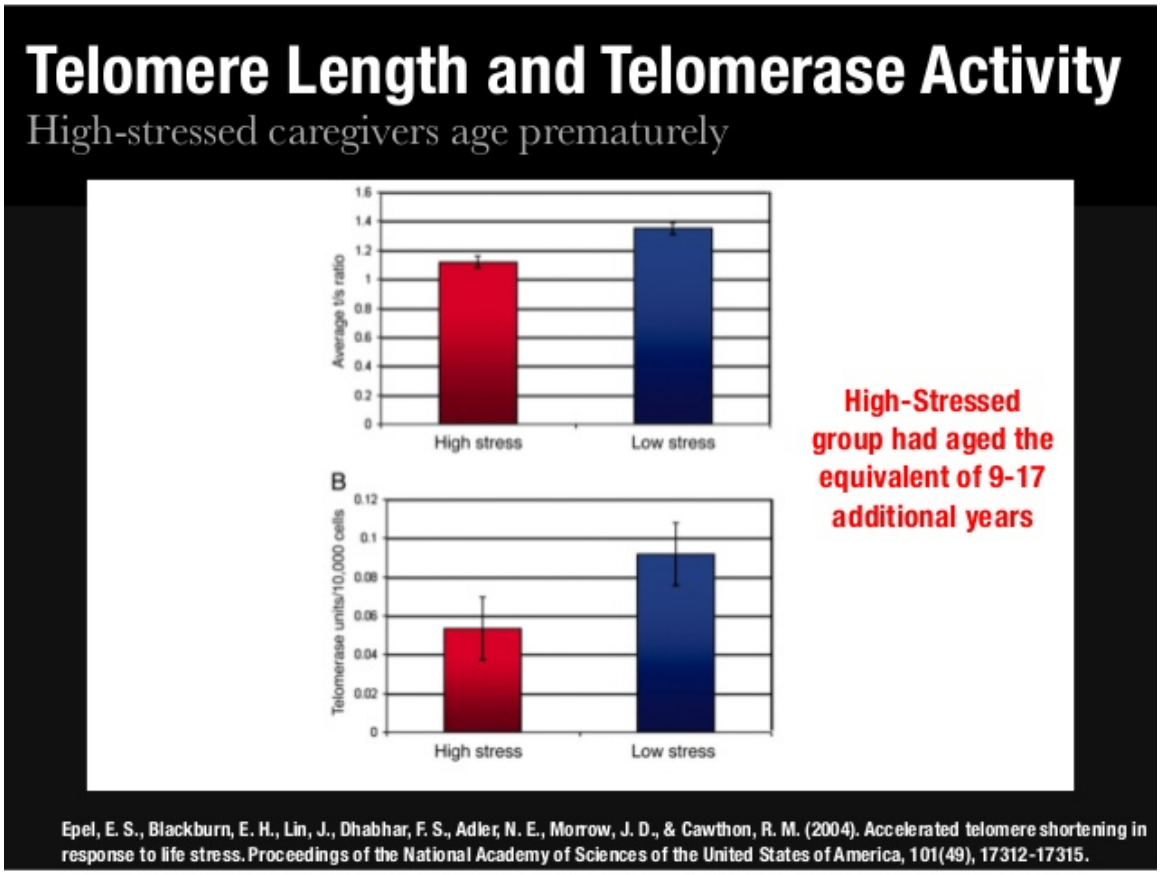


Telomere

A **telomere** is a region of repetitive nucleotide sequences at each end of a chromosome, which protects the end of the chromosome from deterioration or from fusion with neighboring chromosomes. Its name is derived from the Greek nouns telos (*τέλος*) 'end' and meros (*μέρος*, root: *μερ-*) 'part.' For vertebrates, the sequence of nucleotides in telomeres is TTAGGG. This sequence of TTAGGG is repeated approximately 2,500 times in humans.

-Easy definition = end of chromosome or the length of the DNA.


What We Lose With Age
As we grow older, telomeres at the end of our chromosomes shrink. New research suggests major depression also is linked to shorter telomeres, a sign of 'accelerated aging.'
Cell
Chromosome
As cells divide over time...
Telomere, a protective covering
Source: WSJ research
...telomeres shorten, and eventually cell division stops.
The Wall Street Journal



https://www.youtube.com/watch?v=yJXTXN4xrI8

Researchers at Stanford and UCSF have found a link between hippocampal volume in humans and the length of leukocyte telomeres, the protective caps at the ends of white blood cells. (quote paper Natalie Rasgon).

Many studies have shown that short telomere length in white blood cells predicts cognitive decline. In the future, it is thought that we might be able to modulate telomere length which would reduce vulnerability to dementia, but for now, blood telomere length can be seen as a reliable predictor of diseases of aging.

Physical and Chemical changes in the Aging Mind/Brain

The effects of ageing on the brain and cognition are widespread and have multiple etiologies. Ageing has its effects on the molecules, cells, vasculature, gross morphology, and cognition. As we age our brains shrink in volume, particularly in the frontal cortex. As our vasculature ages and our blood pressure rises the possibility of stroke and

ischemia increases and our white matter develops lesions. Memory decline also occurs with ageing and brain activation becomes more bilateral for memory tasks. This may be an attempt to compensate and recruit additional networks or because specific areas are no longer easily accessed. Genetics, neurotransmitters, hormones, and experience all have a part to play in brain ageing. But, it is not all negative, higher levels of education or occupational attainment may act as a protective factor. Also protective are a healthy diet, low to moderate alcohol intake, and regular exercise. Biological ageing is not tied absolutely to chronological ageing and it may be possible to slow biological ageing and even reduce the possibility of suffering from age related diseases such as dementia.

Physical changes

It has been widely found that the volume of the brain and/or its weight declines with age at a rate of around 5% per decade after age 40 with the actual rate of decline possibly increasing with age particularly over age 70. The manner in which this occurs is less clear. The shrinking of the grey matter is frequently reported to stem from neuronal cell death, but whether this is solely responsible or even the primary finding is not entirely clear. It has been suggested that a decline in neuronal volume rather than number contributes to the changes in an ageing brain and that it may be related to sex with different areas most affected in men and women. Additionally, there may be changes in dendritic arbour, spines, and synapses. Dendritic sprouting may occur thus maintaining a similar number of synapses and compensating for any cell death. Conversely a decrease in dendritic synapses or loss of synaptic plasticity has also been described. Functional organisational change may occur and compensate in a similar way to that found in patients after recovery from moderate traumatic brain injury. However research in the latter area suffers from small numbers of cases.

Cognitive change

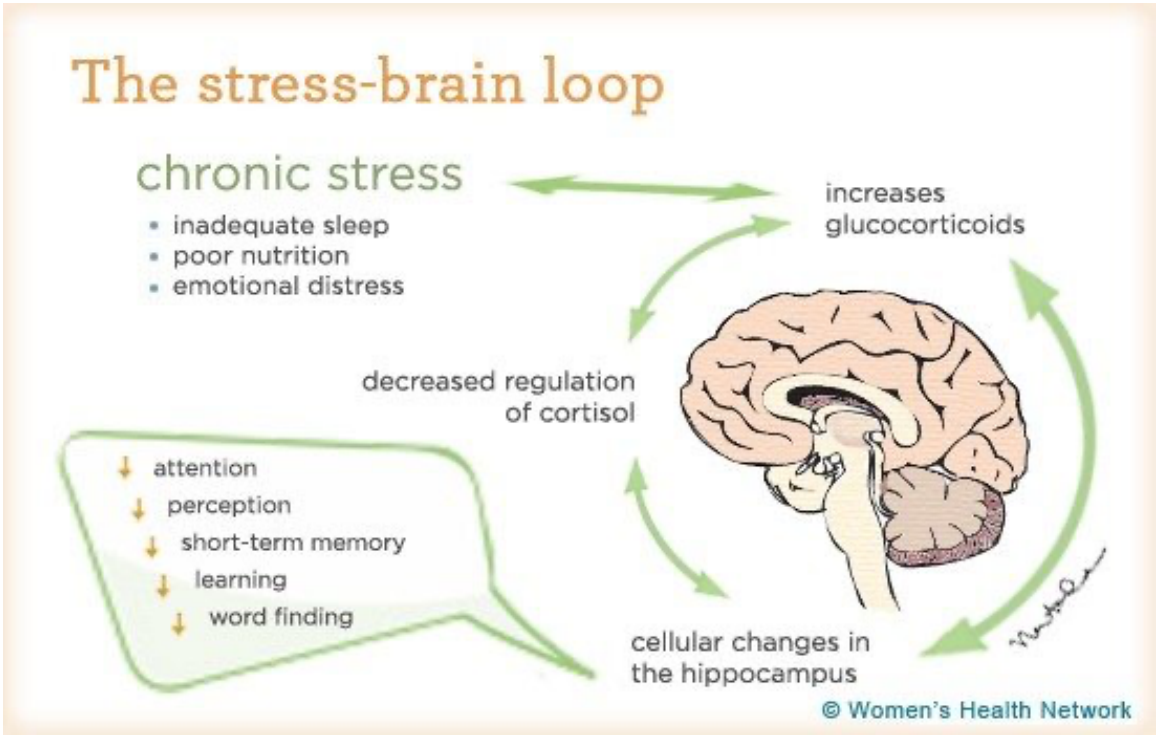
The most widely seen cognitive change associated with ageing is that of memory. Memory function can be broadly divided into four sections, episodic memory, semantic memory, procedural memory, and working memory. The first two of these are most important with regard to ageing. Episodic memory is defined as “a form of memory in which information is stored with ‘mental tags', about where, when and how the information was picked up”. An example of an episodic memory would be a memory of your first day at school, the important meeting you attended last week, or the lesson where you learnt that Paris is the capital of France. Episodic memory performance is thought to decline from middle age onwards. This is particularly true for recall in normal ageing and less so for recognition. It is also a characteristic of the memory loss seen in Alzheimer's disease (AD).

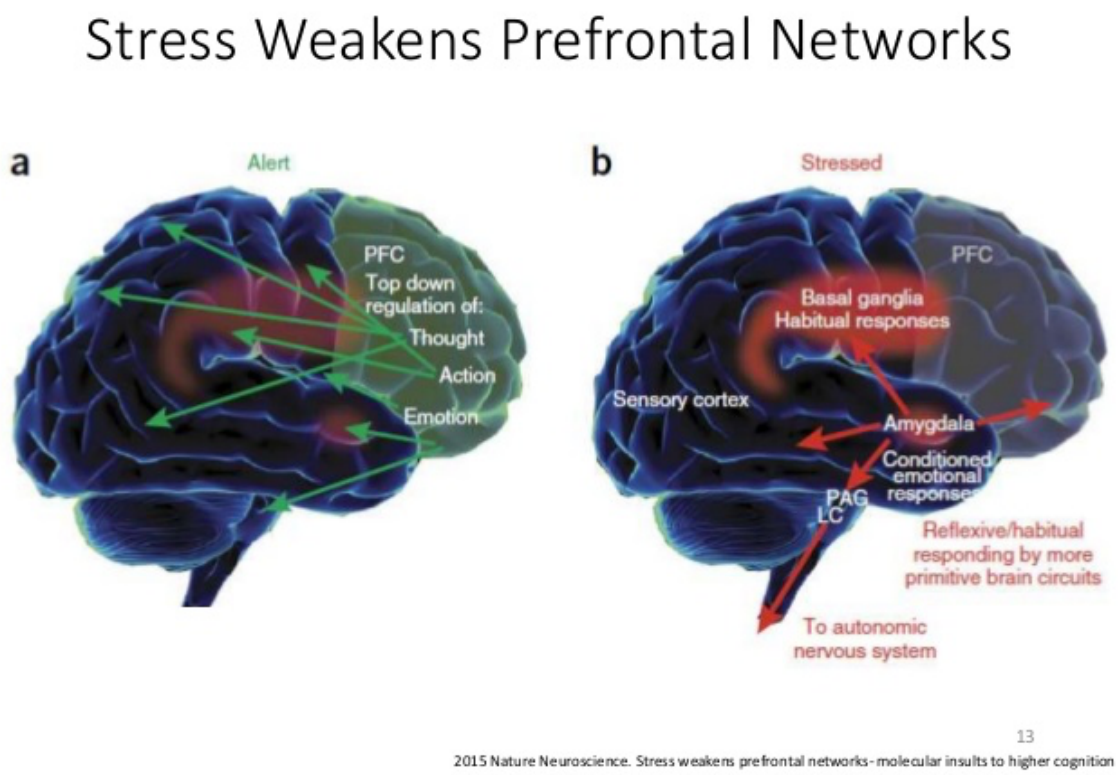
Peters, R., Ageing and the brain, Postgrad Med J. 2006 Feb; 82(964): 84–88.
doi: 10.1136/pgmj.2005.036665

Chronic Stress

1. Chronic stress accumulated over the years proliferates aging in a number of ways including overproduction of cortisol and shortening of telomeres.

Long-term or chronic stress, can results in changes in neuronal function=
Up regulation of biomarkers of inflammation, increased production of free radicals, increase circulation levels of circulating cortisol, and increase in synaptic glutamate collectively can lead to an increase in aging the brain through metabolic, oxidative, and immunologic stresses.





Memory Loss

1. Mild forgetfulness (taking longer to comprehend something new, or misplacing objects) can be part of normal aging if the ability to uphold Activities of Daily Living (ADL's) is not effected.
2. More severe memory lapse, but less severe that Alzheimer's is classified as Mild Cognitive Impairment (amnestic or non-amnestic).
3. The loss of memory, thinking, and reasoning skills is dementia and Alzheimer's is a form of dementia.

Studies say losing mental capacity is the biggest fear people have about aging-more so than any health condition. ("Healthy Aging/Boomer General Population Survey," Natural Marketing Institute, 2008).

Immune System and Aging/Sleep

Overview of the Immune System:

Video: https://www.youtube.com/watch?v=zQGOcOUBi6s

The Immune System and Aging

Prior to the somewhat recent discover by researchers out of the University of Virginia (UVA), it was thought that the brain was not influenced by the immune system.
This discovery dismissed the notion that lymphatic vessels were not present in the brain. Remember it is our lymphatic system that carries disease. The lymphatic vessels were detected in the meninges, the protective membranes that cover the brain, and found to closely follow blood vessels.
It is now know that lymphatic vessels are present in the brain and conditions such as multiple sclerosis, Alzheimer's and autism, may be linked to changes in the immune system function.

Moreover, many medical professionals have linked the immune system(via the gut), to the brain. Microbial life in the gut, may also communicates with your brain, via what's known as the "gut-brain axis."
In fact, in addition to the brain in your head, embedded in the wall of your gut is your enteric nervous system (ENS), which works both independently of and in conjunction with the brain in your head.
This communication between your "two brains" runs both ways and is the pathway for how foods affect your mood or why anxiety can make you sick to your stomach, for instance. However, this gut-brain connection is about far more than just comfort food or butterflies in your stomach. According to *Scientific American*:6
"The gut-brain axis seems to be bidirectional—the brain acts on gastrointestinal and immune functions that help to shape the gut's microbial makeup, and gut microbes make neuroactive compounds, including neurotransmitters and metabolites that also act on the brain."

Nutrition to Improve your immune system

Astragalus
STR-12 contains twelve medicinal mushrooms. Each of those mushrooms stimulate immune cells in the body in a slightly different way so that the combined efforts of the herbs create a broad spectrum immune support.
Reishi
Cordyceps
Three Brothers- Cordyceps is a Super Tonic herb that nourishes Kidney Yang and strengthens Lung function. It has been a favorite of martial artists and athletes in the East for hundreds of years. Astragalus is one of the premiere Qi tonics as it increases Lung function.

Codonopsis also is a premiere Qi tonic that supports Lung and digestive function. Codonopsis also builds Lung Yin, keeping lungs moist and protected.

Probiotics
Fermented Foods
Lemon
Ginger
Organic foods
Avoid any food allergies
Caution too many or too few calories
Caution processed and refined foods
Caution sugar
Caution the top allergens: “Big 8” Top Food Allergens: Long-term consumption of food allergens will weaken the immune system.

Eight foods, or “The Big 8”, account for 90 percent of all food-allergic reactions in the U.S.: peanuts, tree nuts (e.g., walnuts, almonds, cashews, pistachios, pecans), milk, egg, wheat, soy, fish, and shellfish. Here is further information on these allergens:

Peanut Allergy

Unexpected Sources of Peanuts:

Sauces such as chili sauce, hot sauce, pesto, gravy, mole sauce, and salad dressing
Cookies, and hot cocoa
Egg rolls
Potato pancakes
Pet foods
Gourmet pizzas
Asian and Mexican dishes
Vegetarian meat substitute products
Glazes and marinades

Tree Nut Allergy

Unexpected Sources of Tree Nuts:

- Salads and salad dressing
- Barbecue sauce
- Breading for chicken
- Pancakes
- Veggie burgers
- Pasta
- Honey
- Fish dishes
- Pie crust
- Mandelonas: peanuts soaked in almond flavoring
- Mortadella: may contain pistachios

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Milk Allergy

Deli meat slicers are frequently used for both meat and cheese products.
Some brands of canned tuna fish contain casein, a milk protein.
Many non-dairy products contain casein (a milk derivative), listed on the ingredient labels.
Some meat may contain casein as a binder. Check all labels carefully.
Many restaurants put butter on steaks after they have been grilled to add extra flavor. The butter is not visible after it melts.
Baby formulas

Egg Allergy

Unexpected Sources of Egg:
Eggs have been used to create the foam or milk topping on specialty coffee drinks and are used in some bar drinks.
Some commercial brands of egg substitutes contain egg whites.
Most commercially processed cooked pastas (including those used in prepared foods such as soup) contain egg or are processed on equipment shared with egg-containing pastas. Boxed, dry pastas are usually egg-free, but may be processed on equipment that is also used for egg-containing products. Fresh pasta is sometimes egg-free, too. Read the label or ask about ingredients before eating pasta.
Egg wash is sometimes used on pretzels before they are dipped in salt.

Wheat Allergy

Unexpected Sources of Wheat:
Read food labels carefully, even if you would not expect the product to contain wheat. Wheat has been found in some brands of ice cream, marinara sauce, play dough, potato chips, rice cakes, and turkey patties, and at least one brand of hot dogs.

Soy Allergy

Unexpected Sources of Soy:
Soybeans and soy products are found in baked goods, canned tuna, cereals, crackers, infant formulas, sauces, and soups.
peanut butter (!)

Fish Allergy

Unexpected Sources of Fish:
Salad dressings
Worcestershire sauce
Bouillabaisse / Soup stocks
Imitation fish or shellfish

Steaks / Burgers / Meatloaf
Barbecue sauce
Asian Foods

Herbs to Boost the Immune System

Astragalus Root (Radix Astragali, Huang Qi)
Astragalus Root is one of the best herbs to bolster the ability of your immune system to function. It works by increasing the number of active immune cells, as well as their activity. However, it primarily acts to fortify the already existing immune system and not to attack the pathogenic agents. Therefore it should only be taken while healthy and not during a cold or flu. Some of the other amazing health benefits of astragalus are its powerful anti-inflammatory effects, the ability to increase heart function and prevent heart disease, increase digestive function, improve lung function, aids the adrenals, and opens blood vessels to increase circulation. This herb would be best used for patients who have slightly weaker bodies and get sick easily, or have digestive/breathing complaints.
Asian Ginseng (Chinese/Korean Ginseng, Panax Araliaceae, Ren Shen)
There are actually over 30 different species of Ginseng, and the Asian Ginseng is the most widely known. However, do not confuse the other species (American, Siberian, Pseudo ginseng) as they will yield different effects. Asian Ginseng is another great immune booster, which works by increasing the effect of all the cells in the immune system, both innate and adapted. Many athletes also use Ginseng due to its effect of boosting endurance and strength, as well as the ability to boost mental capacity and alertness. Asian Ginseng also has many anti-oxidants to increase heart health and diabetes. Also, it's powerful anti-inflammatory effect helps with many inflammatory conditions. Asian Ginseng is not to be used in healthy individuals for an extended length of time, as it can cause the blood vessels to weaken spontaneous bleeding to happen. Patients who should be taking Asian Ginseng have more cold-type bodies, possibly with cold hands and feet easily, have a weaker heart, and suffer from fatigue.
American Ginseng (Panax quinquefolius, Xi Yang Shen)

1. Echinacea - Echinacea is a popular herb that has been identified to boost immunity. Combined with goldenseal, another herb, or enjoyed alone as tea, this member of the daisy family has been found to prevent and treat upper respiratory tract infections as well as the common cold.

2. **Ginseng** - This herb has many varieties. The most commonly studied variety is Panax ginseng, also known as Korean ginseng. Its main active component, ginsenosides, has been proven to have anti-inflammatory and anti-cancer properties. Clinical research studies have demonstrated that it may improve immune and psychological functions as well as conditions related to diabetes.

3. **Garlic** - This spice has had a long history of medicinal value. In a recent study conducted by Dr. Ellen Tattelman, an assistant professor at the *Albert Einstein College of Medicine of Yeshiva University*, New York, it was reconfirmed that garlic indeed has cardiovascular, anti-microbial and antineoplastic properties. It's also a perfect spice to use when doing sautéed dishes.

4. **Bell peppers**- This pepper variety does not contain capsaicin, unlike its other feisty cousins. On the contrary, it is sweet and crunchy and contains the carotenoid lycopene, which lowers the risk of cancer; beta-carotene, which is converted to vitamin A; and Zeaxanthin, known to prevent macular degeneration and cataracts.

5. **Ginger** - This herb has been shown to reduce inflammation, cardiovascular conditions, blood clots and cholesterol. In a study, researchers found that animal subjects given ginger extracts had a significant reduction in cholesterol and blood clotting qualities. Moreover, it has been observed to inhibit the behavior of genes connected with inflammation.

6. **Turmeric**- This spice contains curcumin, which has notable antioxidant properties. It also has antibacterial, anti-inflammatory and stomach soothing benefits. It reduces inflammation by stimulating the adrenal glands to increase the hormone that lessens inflammation. Animal studies on this herb have revealed that turmeric protects the liver from the adverse effects of alcohol and certain toxins. Turmeric also helps in digestive problems by stimulating bile flow.

7. **Gingko Biloba**- Gingko biloba's leaves contain antioxidant compounds called bilobalides and ginkgolides that protect the body from damage caused by free radicals. Moreover, it has also been found to protect against radiation. In a study using animal subjects, ginkgo was demonstrated to have protected the test subjects against radiation poisoning. The latest research also suggests that extracts of this herb can neutralize oxidizing agents and free radicals caused in the cells due to radiation, thus preventing cell death. In fact, Natural News recently reported that ginkgo extracts reduce brain damage by up to 50 percent.

8. **Reishi or Ganoderma**- This is a bitter mushroom also known as reishi. It has long been a popular herb in Chinese medicine attributed to assisting in longevity and health. Further studies on this oriental herb reveal that it strengthens immunity and combats cancer. Moreover, it has antioxidant properties and provides relief from urinary tract infections.

9. **Astragalus** - Also from China, this herb stimulates the immune system and aids in digestion and adrenal gland functions. It is also a diuretic. The effectiveness of this herb is due to polysaccharides, saponins and flavonoids. It has also been taken to combat the common cold and flu. Its digestive health benefits demonstrate the lowering of stomach

acidity, resulting to an increase in the body's metabolic rates and the promotion of waste elimination.

10. **Cat's claw** - This herb from Peru is commonly used for stomach problems. Recently, however, it is becoming known as an exceptional immune response stimulator that helps the body to fight off infections and degenerative diseases. It contains oxindole alkaloids enhancing the immune system's capacity to engulf and destroy pathogens.

11. Other things to consider are: **probiotics and probiotic foods** like sauerkraut, kim chi, kombucha, kefir and yogurt (none dairy)

Sleep and Aging

Sleep disorders are a pervasive problem throughout all patient populations but represent an especially important health problem for the elderly. Alterations in sleep architecture that occurs as a part of normal aging will contribute to sleep problems as we grow older. Other contributing factors—including comorbid medical conditions, changes in lifestyle and schedule, altered circadian rhythm, among a host of others—can have detrimental effects on the health of the elderly. Coupled with a number of sleep disorders that either emerge or exacerbate with age, the effects of poor sleep often result in an overall worsening of quality of life.

Gleason, K. & McCall, W.V. Curr Psychiatry Rep (2015) 17: 45. doi:10.1007/s11920-015-0583-z

As we age, as sleep patterns change in such a way that overall sleep time and quality is affected. This may increase pro inflammatory biomarkers in the body. (5).

Nutritional strategies for improving sleep

Chinese Nutritional Therapy includes basic advice on healthy eating as well specific food recommendations for each patient. Some points emphasized in Chinese Medicine for better sleep include not eating for at least two to three hours before bedtime, as well as the avoidance of greasy or sweet foods. Chinese Medicine also recommends staying away from cold drinks. While Americans are big on ice-cold beverages, this is a huge no-no in Chinese Medicine. Also, when a patient seeks help from a Chinese Medicine practitioner for insomnia, a very detailed review will be made regarding the quality of

their digestion. Chinese Medicine places a strong emphasis on the connection between digestion and sleep.

Chinese Herbal Medicine

There are many traditional Chinese herbal formulas to help regulate the sleep pattern. A formula is chosen for each person based on his or her symptoms, constitution, and medical history. It is best to have a licensed medical practitioner select the proper formula. Some herbs that are used in these formulas include Suan Zao Ren (Sour Date Seed), Bai Zi Ren (Arborvitae Seed), Fu Shen (Poria Paradicis), and Wu Wei Zi (Schizandra Fruit).

Huffington Post:
Calming The Shen: A Chinese Medicine Approach To A Good Night's Sleep
04/01/2010 05:12 am ET | **Updated** Nov 17, 2011

More on Disease and Inflammation

Many studies have correlated cognitive decline with biomarkers of inflammation. The presence of high levels of C-reactive protein (CRP) and IL-6 are some of the best biomarkers to test.
Other studies have linked abdominal obesity, elevated triglycerides, hypertension, hyperglycemia, and low HDL (commonly found in metabolic syndrome and obesity) likely to have cognitive decline compared to those with no metabolic syndrome.

Disease like cancer, heart disease, diabetes, obesity, depression, and dementia have all been linked to chronic, low levels of inflammation. Neurogenesis (the growth and development of nervous tissue) is inhibited by the presence of pro-inflammatory molecules. These molecules can allow direct contact with the brain as the integrity of the blood-brain barrier is disrupted.
Overall, this can lead to premature neuronal death.

Anti-Inflammatory Strategies & Nutrients

1st off, a persons overall caloric needs and macronutrient ratio profile needs to be assessed in order to decrease the change of ingesting too many or too few calories or types of calories*more on this later.

After this step has been taken, food allergies and or sensitivities would something else to investigate in order to reduce inflammation in the body.

Next, "types" of diets need to be analyzed.

The Mediterranean Diet has been shown to reduce the risk of metabolic syndrome, insulin sensitivity, lipid metabolism, and decrease mortality. Many studies have also found a reduced risk of age-related cognitive decline from the development of Alzheimer's with an adherence of the Mediterranean diet.

Mood improvement, and an increase in cognitive performance have been reported with just a short-term adherence of the Mediterranean diet.

Diet Mediterranean diet

The Mediterranean diet emphasizes eating foods like **fish**, fruits, **vegetables**, **beans**, high-fiber breads and **whole grains**, nuts, and **olive oil**. Meat, cheese, and sweets are very limited.

Ketogenic Diet

eurosci Lett. 2018 Oct 24;690:232-236. doi: 10.1016/j.neulet.2018.10.048. [Epub ahead of print]

Effects of a medium-chain triglyceride-based ketogenic formula on cognitive function in patients with mild-to-moderate Alzheimer's disease.

Ota M[1], Matsuo J[2], Ishida I[2], Takano H[3], Yokoi Y[3], Hori H[2], Yoshida S[3], Ashida K[4], Nakamura K[4], Takahashi T[4], Kunugi H[2].

Author information

Abstract

Clinical and animal studies suggested that a medium-chain triglyceride (MCT)-based ketogenic diet provides an alternative energy substrate to the brain and has neuroprotective effects, but the clinical evidence is still scarce. Here we examined the effect of an MCT-based ketogenic formula on cognitive function in patients with Alzheimer's

disease (AD). The subjects were 20 Japanese patients with mild-to-moderate AD (11 males, nine females, mean age 73.4 ± 6.0 years) who, on separate days, underwent neurocognitive tests 120 min after consuming 50 g of a ketogenic formula (Ketonformula®) containing 20 g of MCTs or an isocaloric placebo formula without MCTs. The patients then took 50 g of the ketogenic formula daily for up to 12 weeks, and underwent neurocognitive tests monthly. In the first trial, although the patients' plasma levels of ketone bodies were successfully increased 120 min after the single intake of the ketogenic formula, there was no significant difference in any cognitive test results between the administrations of the ketogenic and placebo formulae. In the subsequent chronic intake trial of the ketogenic formula, 16 of the 20 patients completed the 12-week regimen. At 8 weeks after the trial's start, the patients showed significant improvement in their immediate and delayed logical memory tests compared to their baseline scores, and at 12 weeks they showed significant improvements in the digit-symbol coding test and immediate logical memory test compared to the baseline. The chronic consumption of the ketogenic formula was therefore suggested to have positive effects on verbal memory and processing speed in patients with AD.

The Role of Nutrients and the mind/brain

Nutrients play a crucial role in the support of our brains and the balance of our minds. First and foremost, sufficient calories and macronutrients need to be considered for each individual at difference phases of life. Too much or too little or extreme ratios of certain macronutrients may lead to

Oxidative Stress and Anti-Oxidants:

What is oxidation?
By Dr. Ananya Mandal, MD
Oxidative stress is an imbalance between the production of free radicals and the ability of the body to counteract or detoxify their harmful effects through neutralization by antioxidants.

What are free radicals?

A free radicals is an oxygen-containing molecule that has one or more unpaired electrons, making it highly reactive with other molecules.
Oxygen by-products are relatively unreactive but some of these can undergo metabolism within the biological system to give rise to these highly reactive oxidants. Not all reactive oxygen species are harmful to the body. Some of them are useful in

killing invading pathogens or microbes.
However, free radicals can chemically interact with cell components such as DNA, protein or lipid and steal their electrons in order to become stabilized. This, in turn, destabilizes the cell component molecules, which then seek and steal an electron from another molecule, therefore triggering a large chain of free radical reactions.

What are antioxidants?

Every cell that utilizes enzymes and oxygen to perform functions is exposed to oxygen free radical reactions that have the potential to cause serious damage to the cell. Antioxidants are molecules present in cells that prevent these reactions by donating an electron to the free radicals without becoming destabilized themselves. An imbalance between oxidants and antioxidants is the underlying basis of oxidative stress.

Damaged caused by oxidative stress

Oxidative stress leads to many pathophysiological conditions in the body. Some of these include neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease, gene mutations and cancers, chronic fatigue syndrome, fragile X syndrome, heart and blood vessel disorders, atherosclerosis, heart failure, heart attack and inflammatory diseases.

Anti-Oxidant Foods and Supplements:

*Polyphenols are among the most potent antioxidants found in nature.

The European Journal of Clinical Nutrition has published a list of the 100 richest dietary sources of polyphenols, based on milligrams (mg) per 100 grams (g) or 100 mg of food. Below are 20 foods topping that list:

Cloves	Peppermint	Star anise	Raw cacao
Mexican oregano	Celery seed	Dark chocolate	Flaxseed meal
Black elderberry	Chestnut seeds	Dried sage	Rosemary
Spearmint	Thyme	Blueberries	Blackcurrant
Capers	Black olive	Hazel nuts	Pecans

1. Cacao:
    a. Theobromine, a bioactive compound found within cacao can improve brain function

b. Flavonoids in cacao promote neurogenesis, angiogenesis, and can change the neuron morphology in regions of the brain involved in learning and memory.
c. Dosing Guides according to the Institute for Brain Potential: dark, unsweetened cacao, at least 70% with a dose near 10grams/day.

2. Blueberries
    a. Bioactives in blueberries have been shown to improve insulin sensitivity in obese men and women, improve memory in older adults, reduce oxidative stress and inhibit the enzyme that breaks down acetylcholine.
    b. Dose: One study showing a successful outcome in brain health used the following dose of fresh pressed, wild blueberry juice: Daily consumption was maintained between 6 mL/kg and 9 mL/kg by using a dosing schedule determined by body weight. Individuals weighing 54 to 64 kg were prescribed 444 mL/day, those weighing between 65 and 76 kg consumed 532 mL/day, and those weighing between 77 and 91 kg consumed 621 mL/day. ROBERT KRIKORIAN, MARCELLE D SHIDLER, TIFFANY A NASH,WILHELMINA KALT, MELINDA R VINQVIST-TYMCHUK,BARBARA SHUKITT-HALE, and JAMES A JOSEPH: Blueberry Consumption Improves Memory in Older Adults. (April 15, 2010). *Journal of Agriculture and Food Chemistry*. 58(7). 3996-4000.
    *Other studies show that one serving or two handfuls each day is a good dose for most adults.

3. Resveratrol: this is a flavonoid antioxidant found in the grape skin.
    a. Cerebral circulation was shown to be enhanced in one study with a dose of 250-500mg.
    b. Resveratrol may benefit the brain by suppressing inflammation
    c. Red wine has been shown to improve cognition in several studies. *Other studies using moderate alcohol alone, without resveratrol have also shown to improve cognitive function.
    d. Grape juice (void of alcohol) has shown to improve cogitation in healthy older human subject after 12 weeks of consuming Concord grape juice. (26)
4. Alpha Lipoic Acid(ALA): this is a mitochondrial fatty acid used as a cofactor in the synthesis of ATP.
    a. ALA, high in anti-oxidant content and anti-inflammatory agents, has been used in treating chronically elevated blood-glucose and as part of a treatment plan for diabetic neuropathy.
    b. Hager, Marahrens, Kenklies, Riederer, and Munch found in their study titled "*Alpha-lipoic acid as a new treatment option for Alzheimer type dementia*," (Archives of Gerontology and Geriatrics. 2001; 32(3): 275-282) found that a daily dose of 600mg given over the course of a year, led to significant improvements in cognition and activates of daily living

c. Maczurek, Hager, Kenklies, et al., in their study titled "*Lipoic acid as an anti-inflammatory and neuroprotective treatment for Alzheimer's disease"* (Advanced Drug Delivery Reviews, 2008;60(13-14): 1463-1470) found that 600mg dose of ALA slowed the progression of the disease, but only in patients with mild symptoms
d. A dose of 300-900mg/day is recommend for enhancing overall vascular health from the Institute for Brain Potential. *ALA also acts synergistically with L-carnitine.

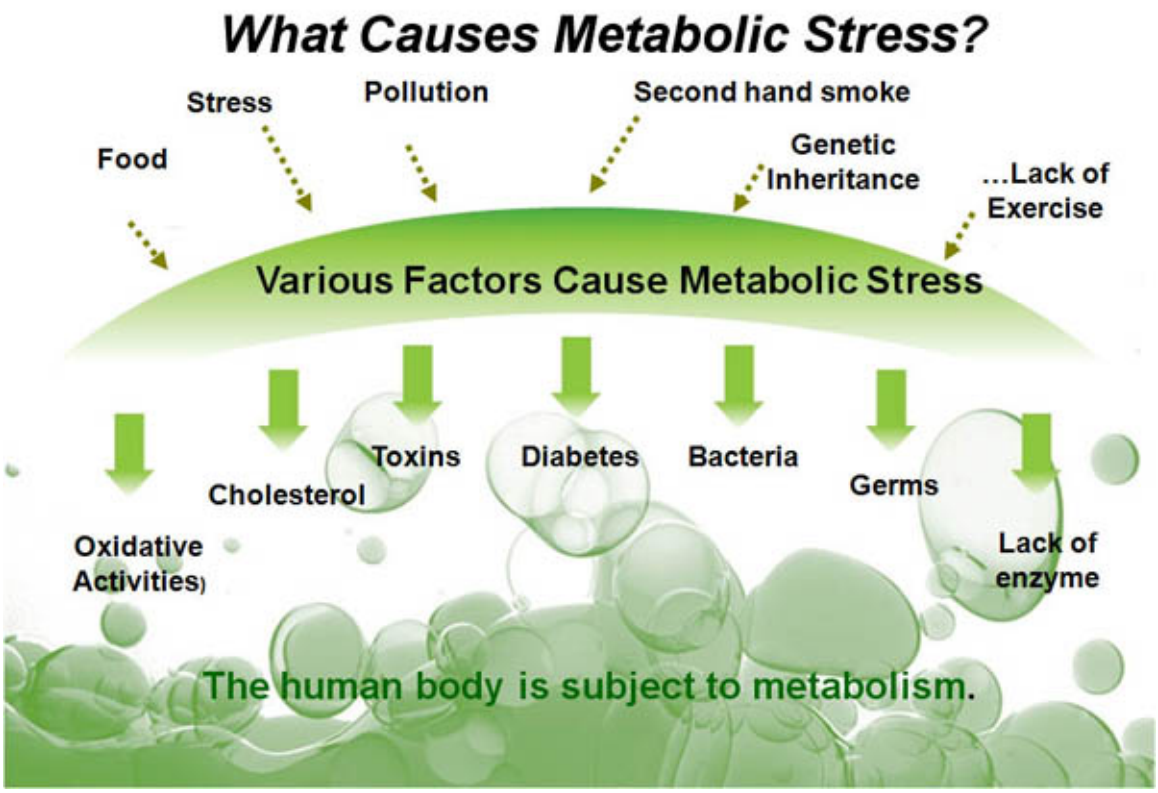
5. Coenzyme Q10: serves as an electro carrier in the mitochondria where ATP synthesis occurs
    a. Research has shown that lack of CoQ10 results in less cellular energy.
    b. Statin drugs deplete levels of CoQ10
    c. Studies have demonstrated that supplementation of CoQ10 is beneficial in Parkinson's Disease, Huntington's Disease, and Amyotrophic Lateral Sclerosis.
    d. Recommended dose from the Institute for Brain Potential is 100-300mg/day
6. Acetyl-L-Carnitine: The essential amino acids lysine and methionine form carnitine.
    a. Used as a supplement in stroke and type-2 diabetes as it can act as an endothelial protective agent and enhance blood flow.
    b. A study titled *Meta-Analysis of double blind randomized controlled clinical trials of acetyl-L-carnitine versus placebo in the treatment of mild cognitive impairment and mild Alzheimer's disease* using over 1,200 subjects showed that a dose range from 1.5-3 g/day preserved cognitive function and or slowed decline of metal capacity.

*A study done by Hui Liao, Linda Banbury, and David, Leach published in the Journal Evidence Based Complementary and Alternative Medicine in 2007 assessing the antioxidant activity of 45 Chinese herbs indicated that the highest antioxidant herbs were the following

- Ji Xue Teng (Spatholobus suberectus vine) - (1990 micromol TE/g),
- Di Yu (Sanguisorba officinalis root) - (1940 micromol TE/g)
- Xian He Cao (Agrimonia pilosa herb) - (1440 micromol TE/g)
- Liu Ji Nu (Artemisia anomala herb) (1400 micromol TE/g)
- Dan Shen (Salvia miltiorrhiza root) - (1320 micromol TE/g)
- He Ye (Nelembo nucifera leaf) - (1300 micromol TE/g)

Evid Based Complement Alternat Med. 2008 Dec; 5(4): 429–434.
Published online 2007 Jun 11. doi: 10.1093/ecam/nem054

Metabolic Stress



Defined as chronic imbalance between energy intake and expenditure that leads to cellular dysfunction and premature aging.

Stress: Any threat to a person's well being

· Pathological stresses:
  - Disease and trauma (physical insult such as bone fractures, wounds, burns, and surgery)

· Severe pathological stresses:
  - Cause hormonal and metabolic changes that alter nutrient needs. (Serious infections, major tissue damage, extensive surgery and severe burns)

    Stress Response: The body's adaptive response to severe stress, mediated by immune, inflammatory, and hormonal mechanisms.

Nutrients that help brain metabolism

1. **Cinnamon (Gui Zhi):**

a. Cinnamon is metabolized into sodium benzoate. Eating cinnamon significantly elevates the level of sodium benzoate in your brain. A recent report in the Journal of Neuroimmune Pharmacology by researchers from Rush University Medical School in Chicago found that sodium benzoate has many important positive effects upon brain function and that eating cinnamon may prevent a variety of age-related neurological disorders. How?

b. The sodium benzoate produced in the body after eating cinnamon induces significant increases in the levels of a variety of chemicals in the brain called neurotropic factors. These factors stimulate the birth of new neurons in the brain and encourage the survival of existing neurons. These two processes are critical for the maintenance of a healthy brain. During the past decade many scientific studies have discovered that these neurotropic factors can prevent, or greatly slow the progression of, a variety of degenerative diseases of the brain, including Alzheimer's and Parkinson's disease.

c. Cinnamon also has been shown to improve lipid profiles, decrease hyperglycemia, and reduce markers of inflammation overall helping to reduce the symptoms of metabolic syndrome.

d. Many studies have shown that for anti-diabetic effects, a dose of 1-6 grams/day is beneficial.

2. Berberine: plant alkaloid used in Traditional Chinese Medicine: (Huang Bai and Huang Lian) Berberine is a quaternary ammonium salt from the protoberberine group of benzylisoquinoline alkaloids. It is found in such plants as Berberis, Mahonia aquifolium, Hydrastis canadensis, Xanthorhiza simplicissima, Phellodendron amurense, Coptis chinensis, Tinospora cordifolia, Argemone mexicana, and Eschscholzia californica. Berberine is usually found in the roots, rhizomes,
    a. Similar actions to the diabetes drug metformin as it activate Protein Kinase AMPK: a nutrient and energy sensor that becomes active with fluctuations in the ratio of AMP: ATP-regulates the uptake of glucose.
    b. Dose ranges from 300-400mg 3-4x/day were found to be just as effective as oral hypoglycemic in the management of diabetes: 35

3. **Coffee & caffeine**:

a. Coffee may slow the progress of Alzheimer's disease. A Florida study found that when older people with mild cognitive impairment were tested initially and then again two to four years later, the ones with high blood caffeine–equivalent to about 3 cups of coffee–were far less likely to have developed full-blown Alzheimer's disease.

c. Coffee may help you live longer. A large-scale study involving over 400,000 older adults found that men who drank 2 cups of coffee a day lived 10% longer than their coffee-free cohorts. Among women, the

figure was even higher; the coffee drinkers lived an average of 13% longer than their uncaffeinated peers.

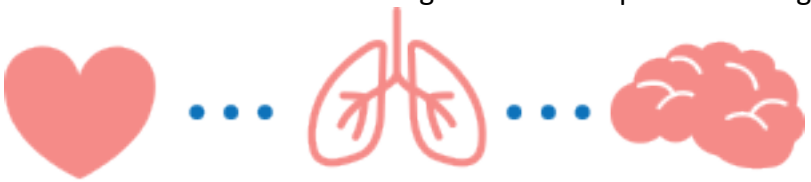
d. Coffee may help prevent Parkinson's disease – and can reduce the visible symptoms if you already have it. Studies have shown that coffee drinkers are less likely to develop Parkinson's, and for those that have the disease, coffee intake has been found to help with movement symptoms like tremors.
e. Animal experiments have found that caffeine can disrupt adenosine, a cell chemical that can start a chain reaction that leads to a disruption of neuron function, neurdegeneration, and eventual dementia.
f. Coffee is one of the best sources of neuroprotective antioxidants available. While things like blueberries and pomegranates are most often touted for their antioxidant content, it turns out our cup of morning Joe is brimming with antioxidants. Research has found that it is the number one source of antioxidants in most people's diets, by a large margin.
g. Dose: Many of these studies used 3-5 cups coffee per day in their protocol.

3. **Medium Chain Triglycerides: MCT's**: This group of fats are saturated fatty acids containing 6-12 carbon atoms and unlike longer-chain fatty triglycerides found in many other common sources of fats, MCT's penetrate the blood brain barrier.
    a. MCT's can help with weight loss by increasing energy expenditure (less reliance of carbohydrates) and increasing the feeling of fullness.
    b. Recent studies have found MCT's to help with memory impairment, mood, cognition * especially with people who have glucose abnormalities.
    c. Some studies have used coconut oil (an MCT oil) to induce ketosis in subjects, which is shown to improve cognitive function.
    d. Dose: 5-20g/day of coconut oil was used in many of the studies to induce mild ketosis.

More Strategies for Protecting the Aging Mind

1. Exercise

Exercise increases neurogenesis and helps the brain against pathogenic stress.



Exercise affects the brain on multiple fronts. It increases heart rate, which pumps more oxygen to the brain. It also aids the bodily release of a plethora of hormones, all of which participate in aiding and providing a nourishing environment for the growth of brain cells.

Exercise stimulates the brain plasticity by stimulating growth of new connections between cells in a wide array of important cortical areas of the brain. Recent research from UCLA demonstrated that exercise increased growth factors in the brain—making it easier for the brain to grow new neuronal connections.
From a behavioral perspective, the same antidepressant-like effects associated with "runner's high" found in humans is associated with a drop in stress hormones. A study from Stockholm showed that the antidepressant effect of running was also associated with more cell growth in the hippocampus, an area of the brain responsible for learning and memory.

Aerobic exercise has been shown to increase brain volume in aging humans. 30 minutes of sustained aerobic exercise at 75% of maximum heart rate 5 times per week is recommended.

Resistance training can improve short-term memory and activate pathways that are crucial for cell growth and development. 75-85% 1 rep max (10-15 total reps) once per week is recommended.

2. Intermittent Fasting and or Caloric Restriction
    a. Hypotheses linking caloric restriction to cognitive capability include anti-inflammatory mechanisms, reduction of neural oxidative stress, promotion of synaptic plasticity, and induction of various stress and neurotropic/neuroprotective factors. Caloric restriction may also prevent beta-amyloid neuropathology in Alzheimer transgenic models. Finally, both exercise and caloric restriction enhance neurogenesis via different mechanisms suggesting that their combination may decrease the risk of neurodegenerative disease.
    b. Calorie restriction (CR), or caloric restriction, or energy restriction, is a dietary regimen that reduces calorie intake without incurring malnutrition or a reduction in essential nutrients. "Low" can be

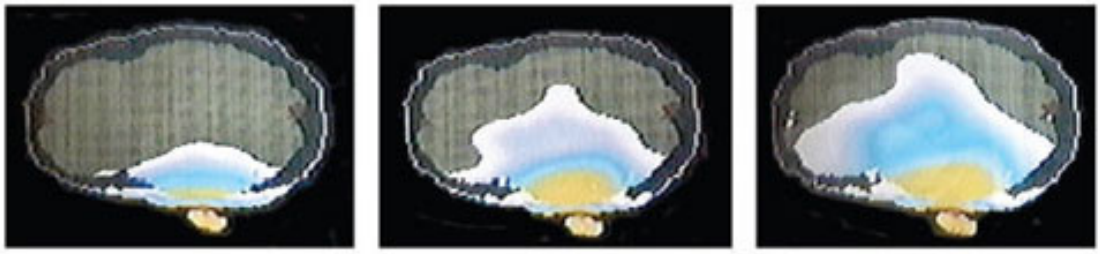
defined relative to the subject's previous intake before intentionally restricting calories, or relative to an average person of similar body type. Typically 30-60% decrease in calories without malnutrition is the standard for calorie restriction.

c. Intermittent fasting: has shown improvements in blood glucose, lipid profiles, and cognitive function by reducing inflammatory markers and enhancing insulin signals and increasing Brain Derived Neurotropic Factor.
    i. Every other day fasting or at a minimum 12 hour fasting would be recommended. Longer fasting may be required by certain individuals.

3. Brain Games
    a. ? The jury is still out! http://www.npr.org/sections/health-shots/2016/10/03/496120962/brain-game-claims-fail-a-big-scientific-test

4. Electromagnetic Frequency: EMF's

Cell Phone Radiation Penetrating Skull



ADULT Head | CHILD - 10 Years Old | CHILD - 5 Years Old

Study by Gandi et al. University of Utah, 1996.

1. Children **absorb** more **energy** than adults from the same phone.
2. Tumors in **mid brain are** more deadly than those in **temporal lobe.**
3. Children's **cells** are **reproducing** more quickly than adults.
4. Children's **immune system** is not as well developed as adults.
5. Longer potential for **life-time exposure** for children than adults.

Electromagnetic Fields Can Damage Cells and DNA Via Cellular Stress Responses

Video

Vimeo

Research by Martin Blank, Ph.D., a Special Lecturer and retired Associate Professor at Columbia University in the Department of Physiology and Cellular Biophysics and former president of the Bioelectromagnetics Society,15 explains that electromagnetic fields (EMF) damage your cells and DNA by inducing a cellular stress response.
He gave an informative speech at the November 18, 2010 Commonwealth Club of California program, "The Health Effects of Electromagnetic Fields," co-sponsored by ElectromagneticHealth.org (embedded above for your convenience).

-Children Should Never Use Cell Phones:
-Reduce Your Cell Phone Use:
-Use a Land Line at Home and at Work.
-Reduce or Eliminate Your Use of Other Wireless Devices
-Limit Your Cell Phone Use to Where Reception is Good:
-Don't Assume One Cell Phone is Safer than Another.
-Keep Your Cell Phone Away From Your Body When it is On:.
-Respect Others Who are More Sensitive: children pregnant women, elderly, brain injured, chronically ill.
-Use Safer Headset Technology.

5. Other Diet's Shown to increase life-span: Okinawa Diet:

The Okinawa diet is named after the largest island in the Ryukyu Islands in Japan. History buffs might recognize the name from the Battle of Okinawa, fought during World War II. But these days, there's another reason it's in history books: Okinawa's people live a really, really long time.
While the average life expectancy in the United States is 78.8 years, it's 84 years old in Japan – and five times as many people from Okinawa live to be 100 years as their peers in the rest of the country. (1, 2, 3) Researchers have studied the Okinawa's residents for years, and the answer lies both in the typical Okinawan

diet and the islands' attitude toward eating.

What Okinawans Eat

The Okinawa diet gets back to basics. It emphasizes a diet rich in yellow, orange and green vegetables. While rice is ubiquitous with mealtime in Japan, they skimp on the grains and focus instead on the purple sweet potato. Meat (including pork), dairy and seafood are eaten in small amounts, and there's an emphasis on soy and legumes.

The entire diet is quite low in sugar and grains – Okinawans consume about 30 percent less sugar and 15 percent fewer grains than folks in the rest of Japan. (4)

Eating mindfully and slowly in this way means that Okinawans take the time to think about what and how they're consuming their food. By checking in with themselves to decide if they have **achieved satiety** before continuing to eat, they give their bellies time to signal the brain and let them know they're full.

This strategy pays off. Okinawans typically eat about 1,200 calories a day, a lot fewer than the average 2,000 recommended in the U.S. But because the foods they consume are so nutrient-rich and Okinawans are used to caloric restriction (not **starvation mode**!), they're able to stay healthy and live longer on less. (5, 6)

6. Other Supplements: Endless supplements are on the market for brain health:

A search on Emerson's Ecologics using the search term brain resulted in over 39 results and using the search term mind, search term metal will give another 9 products and search term longevity will give over 29 results. A Google search for "supplements for brain health" will give you over 21,000,000 results.

A PubMed search using the search terms "supplements for brain health" resulted in 616 articles.

Pinella Brain-Nerve Cleanse 1 oz
Product Code: PINE8
Brand: Nutramedix Inc, (NU5)
Vendor Item Code: 06573
Category: Herbal Tincture Single

Quick View

Brain Calm 60 vcaps
Product Code: BRA34
Brand: Douglas Labs (DOU)
Vendor Item Code: 99579-60X

Category: Mood Support

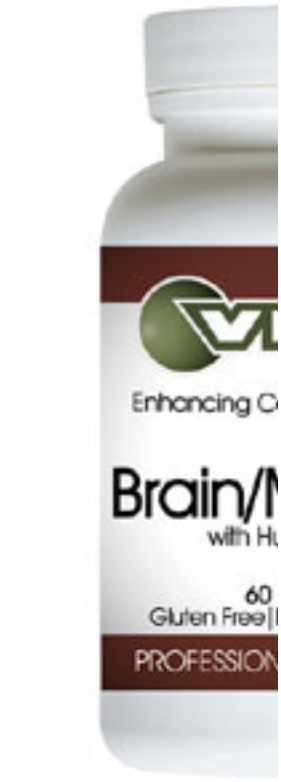
Quick View

Brain Vitale 60 caps
Product Code: BRAI8
Brand: Designs for Health (DFH)
Vendor Item Code: BVCN60
Category: Cognitive Support

Quick View

Brain Vitale 120 vegcaps
Product Code: BVC12
Brand: Designs for Health (DFH)
Vendor Item Code: BVC120
Category: Cognitive Support

Quick View



Brain Memory 60 caps
Product Code: BRA38
Brand: Vinco (VIN)
Vendor Item Code: VP-MEM
Category: Cognitive Support

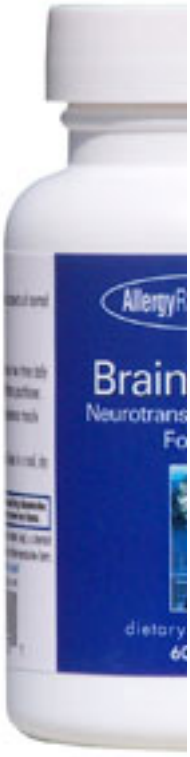
Quick View

BrainWave Plus® 120 vegcaps
Product Code: REMIN
Brand: Allergy Research Group (ARG)
Vendor Item Code: 72560
Category: Cognitive Support
On vendor backorder, limited quantities available.

Quick View

Brain Memory 60 vegcaps
Product Code: BRA27
Brand: Douglas Labs (DOU)
Vendor Item Code: 99580-60X
Category: Cognitive Support
Prop 65 - Not for sale in California.

Quick View



Brainstorm® 60 tabs
Product Code: BRAI2
Brand: Allergy Research Group (ARG)
Vendor Item Code: 72070
Category: Cognitive Support

Quick View

Cognitex w/ Brain Shield 90 gels
Product Code: L89695
Brand: Life Extension (LIF)
Vendor Item Code: 1896
Category: Cognitive Support

Quick View

Cognitex w/Pregn & Brain Shield 90 gels
Product Code: L89794
Brand: Life Extension (LIF)
Vendor Item Code: 1897
Category: Cognitive Support

Quick View

Brain Vibrance Supreme™ Powder 3.3 oz
Product Code: BRA37
Brand: Crayhon Research (CRA)
Vendor Item Code:
Category: Cognitive Support

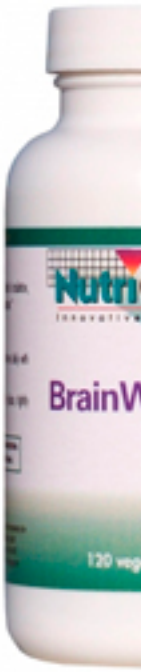
Quick View

ProThrivers Wellness Brain 120 vegcaps
Product Code: IT10530
Brand: Integrative Therapeutics (ITI)
Vendor Item Code: 10530
Category: Neurologic Support

Quick View

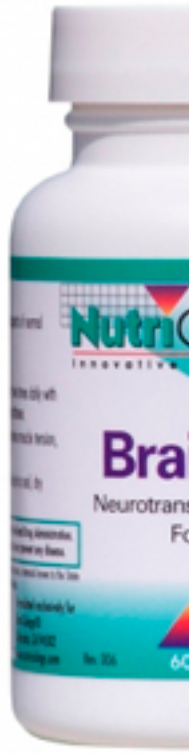
Vital Brain 150 g
Product Code: VN4911
Brand: Vital Nutrients (VN)
Vendor Item Code: VNBRA.
Category: Cognitive Support

Quick View



BrainWave Plus® 120 vegcaps
Product Code: BRA24
Brand: Nutricology (NU3)
Vendor Item Code: 52560
Category: Cognitive Support

Quick View



BrainAid 60 tabs
Product Code: BRA23
Brand: Nutricology (NU3)
Vendor Item Code: 52070
Category: Cognitive Support
This item may expire within the next 6 months.

Quick View

Brain Cell Support 60 caps
Product Code: BRA40
Brand: Metabolic Maintenance (ME3)
Vendor Item Code: 00669
Category: Cognitive Support

Quick View

Brain Beef 100 vcaps
Product Code: A76440
Brand: Allergy Research Group (ARG)
Vendor Item Code: 76440
Category: Glandular Products

Quick View

Brain Shield 60 vegcaps
Product Code: L18026
Brand: Life Extension (LIF)
Vendor Item Code: 1802
Category: Cognitive Support

Quick View

Brain Regain™ 90 vegcaps
Product Code: BRARE
Brand: Protocol For Life Balance (PROT)
Vendor Item Code: P3303
Category: Cognitive Support

Quick View

Brain MOOD 60 vcaps

Product Code: BRA35
Brand: Douglas Labs (DOU)
Vendor Item Code: 98724-60X
Category: Mood Support

Incorporating Nutrition into Your Practice