

## **Improving Brain Health**

By Dr. Carol Ann Fischer, BS, DC, ND

In the US today there are increasing numbers of children and adults with brain related health issues ranging from moodiness, irritability, anxiety and depression to various types of learning disorders. The brain and the nervous system control and coordinate all body functions each and every minute of each and every day. If the brain, through the nervous system, loses communication with any part of the body, it also loses the ability to control and coordinate it, resulting in a decline in health.

The brain consists of about 100 billion neurons. That's about 166 times the number of people on the planet. It would take approximately 3.171 years to count them all. One human brain generates more electrical impulses in a single day than all the world's telephones put together. The brain uses a fifth of the body's electrical energy, while it itself generates energy. The brain is only 2% of body weight, but consumes 25% of available oxygen and glucose.

When the brain has been injured, its function decreases. This contributes to such health issues as leaning disabilities, autism, Diabetes, obesity, chronic fatigue syndrome, auto-immune disorders, depression, anxiety, Parkinson's, Alzheimer's and dementia. These conditions develop due to brain injury that is associated with low-grade chronic inflammation.

Brain inflammation occurs from both physical and chemical stress. Trauma to the brain can occur during the birth process, especially in a premature birth, or if the mother was ill with a fever before the birth. Childhood traumas and injuries from falls, sports, horseback riding etc. where the head is moved suddenly or has had a direct impact cause brain injury and inflammation.

The most common cause of physical trauma to the brain is injury from motor vehicle accidents. Even a low impact collision can cause neurological damage, and stress to muscles, joints and ligaments that remains hidden for years. According to The Spine Institute of San Diego, the average child before they enter their teens has had over 1000 traumas, while the average American has seven auto accidents in their lifetime.

Toxic exposure is the other cause of brain inflammation. According to a report in the National Geographic there are 82,000 chemicals found in our environment from personal care products and processed foods, of which only a quarter have ever been tested for toxicity. Once the brain has been physically traumatized, it is more sensitive to toxins from pesticides, chemicals, vaccinations, air pollution and radiation.

The Environmental Working Group, [www.ewg.org](http://www.ewg.org), did a blood toxicity study of newborn infants. They found their blood had over 200 toxic chemicals that affect the brain, cause cancer, and cause birth defects. These results were reported to a Congressional committee studying the industrial pollution problem in America. Researchers studying the effects of toxins have noted that levels of environmental toxicity have been increasing.

Brain stress is also related to a decreased ability to handle stress, and nervous tension. The National Institute of Health reported that under chronic stress the part of the brain that controls the adrenal glands will cause a constant release of hormones, increasing more stress and inflammation. Researchers for the NIH have found that people under stress have a prolonged healing time, and decreased immune function.

Dehydration is one of the major contributing factors to stress and brain inflammation. Without a sufficient amount of water, thinking becomes foggy, blood sugar becomes unstable, and memory loss, moodiness, irritability and fatigue occur. Drinking beverages containing carbonation, caffeine, chemicals, sugar or alcohol create more dehydration.

The most important nutrient in the brain is water. Water makes up over 80% of the brain. Without proper hydration, the brain is less able to function. Regular water from the tap or bottled water takes 3-4 hours to become bioavailable. Research shows that ionized, alkalized water is rapidly bio-available, high in anti-oxidants, rich in oxygen and hydrogen, and can more easily hydrate the brain and reduce inflammation.

Nearly half the dry weight of the brain is fat. One of the most common deficiencies in the American diet are essential fatty acids. There are two major fatty acids that are essential for the brain and all cell membranes. These highly beneficial fats are called the Omega-3 and Omega-6 oils. The correct dietary ratio for optimal health between these two oils is 2 Omega-6 to 1 Omega-3. Yet, the average American diet has a ratio of 25 Omega-6 to 1 Omega-3 due to the poor lifestyle choices.

The improper ratio of essential fatty acids creates more brain inflammation. Changing this lifestyle habit is just as important as drinking water that can hydrate the brain. These beneficial and healthy fats must come from the diet, as the body cannot make them. The essential fatty acids are found in the diet in only a few food sources: flaxseed, cold water fish, and fish oils. These can also be supplemented in the diet in pill form if a good, non-rancid and reputable brand is used.

Essential fatty acids are required for the proper structure and function of every cell in the body. They regulate cellular processes, influence cell membrane function, aid in nerve conduction, and produce hormones. These fats are named essential since they are vital to the health and function of the brain and entire body

There are many ways to sabotage the ability of the body to use essential fatty acids even with a good diet and supplementation. Essential fatty acids are depleted in the body when the following are part of the lifestyle.

- Alcohol and Smoking
- Medications: Anti-inflammatory, Anti-cholesterol and Cortisone derivatives
- Hydrogenated and partially hydrogenated oils
- Crisco, Margarine, and Non Dairy coffee creamer
- Refined grains - especially in the form of pastries and cakes
- Excessive sun exposure

- Artificial sweeteners: Aspartame (Nutra Sweet), Sucralose (Splenda)
- Sugars that are labeled dextrose, sucrose or as sugar
- Corn syrup and High Fructose Corn Syrup

Other ways to help decrease low -grade chronic brain inflammation are to make dietary changes. Eating anti-oxidant rich, alkaline, raw fresh fruits and vegetables, and reducing consumption of acid foods, like grains and proteins helps decrease brain stress. Avoiding the common food allergens like sugar, dairy and wheat are also helpful in reducing brain inflammation.

Lifestyle changes to add specific exercises on a mini-trampoline helps to increase blood and lymphatic flow, helping improve brain function. There are also specific detoxification programs that help to eliminate stored toxins, which improves brain function by reducing one of the major causes of inflammation.

In addition to taking brain specific anti-oxidants like glutathione, there are specific minerals like calcium and magnesium, that play a vital role in decreasing both brain and body stress. Calcium facilitates the movement of nutrients across cell membranes. It also helps nerve cells to communicate normally, and aids muscle contraction.

Magnesium is critical for energy production and proper nerve function. It also promotes muscle relaxation, and helps the body produce and use insulin. It is involved in the formation of bones and teeth, blood clotting, and the regulation of the heart. Magnesium works with calcium. Certain B Vitamins, like niacin, are anti-inflammatory, and help to reduce the hormonal stress response. The quantity needed of brain supporting nutrients will vary depending on past trauma history, lifestyle choices and overall stress level.

The solution to decreased brain function and stress is make diet and lifestyle changes that include exercise, proper nutrition including essential fatty acids, alkaline rich food, and bio-available water. Participating in specific detoxification programs, and programs to help repair the damage from physical trauma are key to reducing brain inflammation.

The goal of alternative therapies is to improve nerve and brain function, reduce the effects of stress and trauma, and reduce chemical toxicity so that overall brain and body health improve. With proper brain function there is a renewed sense of happiness, peace and contentment with improved mental ability.

The recommendations in this article are not to be taken as medical advice. Please consult a qualified health care practitioner to obtain your dehydration assessment, and for specific recommendations on your personal health issues. Originally published in Natural Awakenings, Wayne County, Michigan in August 2012.

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