

Studies Confirm Power of Antioxidants

This week I thought I would go back to the basics and discuss oxidative stress and the free radical theory of aging. As you are well aware, when our cells go through normal metabolism as a byproduct, they produce unstable molecules known as free radicals. These free radicals can also come from sources outside of our bodies such as pollutants, UV radiation from the sun, cigarette smoke, etc. As these free radicals build up in our bodies, it has been shown that they can directly cause damage to tissues/cells, ultimately leading to cell malfunction and death. This process is one of the theories as to why we age.

In an article¹ published in the April 2009 edition of *The American Journal of Clinical Nutrition*, researchers found that aging results in the development of cognitive and motor deficits in humans and animals, and are evident by midlife. The deficits are believed to occur from neuronal damage and dysfunction from several different stressors including increased free radical production associated with oxidative stress. The authors of the article reported that there have been recent advancements in animal research showing that age related cognitive and behavioral decline can be ameliorated through nutritional supplementation with both polyphenol and poly unsaturated fatty acid plant-rich foods.

In the April 2009 edition of the journal *Mechanisms of Aging and Development*, researchers from Ohio State University explained² that according to the free radical theory of aging, an elevation in reactive oxygen species (ROS) and reactive nitrogen species (RNS) damages the membranes of nerve cells and induces oxidative and nitrosative stress. This increased stress in the system is accompanied by a decline in cognitive and motor function in the elderly population. The researchers go on to say diet is a key environmental factor that affects a person's neurological health and supplementation with polyphenols such as resveratrol, ginkgo, curcumin (turmeric), carotenoids, flavonoids and omega-3 fatty acids exert beneficial effects not only by helping to mop up the free radicals, but also by other factors including optimizing neuronal communication.

One of the carotenoids that appear to have great antioxidant power is a nutrient called astaxanthin. Astaxanthin is found in microalgae, salmon, arctic shrimp and krill. Astaxanthin is a 10 times more capable antioxidant when compared to other carotenoids and is non toxic at high dosages. Also very exciting is the fact astaxanthin is a 550 times more powerful antioxidant when compared to vitamin E. Astaxanthin has been found to be beneficial in optimizing healthy skin and cardiovascular health, as well as eye and brain health, due to the fact astaxanthin crosses the blood-brain barrier. It also exhibits anti-inflammatory effects. Astaxanthin's fat soluble structure allows itself to incorporate into the fat layer of the outer cell membrane, acting as a bridge spanning from the outer surface to the inner surface of the cell. It is this distinctive characteristic that allows astaxanthin to protect the cellular membrane.

In a recent animal study³ using a highly natural but purified and concentrated form called BioAstin®, researchers from Japan found that rodents supplemented with this nutrient for one year had significant improvement in muscle weight as well as muscle weight to body weight ratio. The researchers concluded that long term use of BioAstin may reduce age related atrophy of muscles. Loss of muscle strength and mass is common in the aging population and I am very excited that beyond exercise there are nutrients that may help support healthy muscles as we age. BioAstin is a natural form of astaxanthin along with Hawaiian spirulina. I personally know the founder and largest shareholder of Vitacost is taking 8 – 12 mgs per day of our Nutraceutical Sciences Institute® (NSI®) BioAstin and I also plan to add this amazing nutrient to my own personal supplement list. If you would like

to download a free book on astaxanthin [click here](#).

Clearly muscle function is important for optimal health. There was an article⁴ published in the April 2009 edition of the journal *Medicine and Science in Sports and Exercise* in which researchers reviewed numerous studies that date back to the 1950's to assess the relationship between vitamin D and athletic performance. They noted that most randomized controlled trials, mostly in older individuals, showed vitamin D improved physical performance. There are now numerous human studies proving vitamin D in the active form called D3 at levels far higher than the RDA/DV of 400 IU per day can provide multiple health benefits including healthy bones, muscles, balance, cardiovascular and cellular health. I recommend 2,000 – 4,000 IU per day based on the most recent studies. Experts consider D3 safe up to 10,000 IU per day.

Finally, I would to mention an interesting study⁵ published in the April 2009 edition of the journal *Osteoporosis International*. Researchers have long noted that dietary antioxidants such as vitamin C may play a role in bone health. In this study, 365 men and 592 women, average age of 75, were followed for approximately 15 years. At the onset of the trial, a food frequency questionnaire was completed. At the end of the study, it was found that during the follow up period 100 hip fractures had occurred. Subjects in the highest tertile of total vitamin C intake had significantly fewer hip fractures and non vertebral fractures compared to the subjects in the lowest tertile. The researchers concluded that these results suggest a possible protective effect of vitamin C on bone health in older adults.

For optimal bone health, I also recommend 500 mg per day of calcium citrate malate, 300 – 600 mg of NSI magnesium ultra, vitamin K2 at 45 – 90 mcg and vitamin D3 at 2,000 – 4,000 IU per day. You may ask why only 500 mg of calcium and why magnesium? Most diets supply about 800 – 1,000 mg per day of calcium but very little magnesium, usually around 200 mg or less. Also, calcium citrate malate is proven to work at 500 mg per day in human studies and is better absorbed calcium compared to other forms. In addition, over 2,000 mg of gross calcium citrate malate is utilized by NSI to achieve the 500 mg elemental levels. NSI's Magnesium Ultra comes in capsule form for better absorption and it is easier to swallow, but it also combines several highly absorbed organic and chelated forms of magnesium. In fact, if you read the customer reviews you will find 100% would recommend it to others, and the average rating is 4.8 out of 5 stars with most rating it 5 stars; truly amazing when 30 people unanimously agree on the results. Rarely do 30 people agree on anything!

Nutraceutical Sciences Institute® (NSI®) offers what I consider to be the finest line of multi-nutrient (vitamins, minerals, antioxidants, herbs, etc.) products on the market. The Synergy line of products is constantly upgraded and improved based on the most recent breakthrough peer review published medical and science literature. Synergy 3000 Version 11 was recently introduced with numerous beneficial changes made in the product over the last 14 years. All of the Synergy products contain excellent doses of essential core nutrients such as B-complex and 2,000 IU of vitamin D3, along with a multitude of polyphenols such as resveratrol, curcumin, green tea extract and many more. Synergy also provides excellent doses of CoQ10 (a powerful cellular energizing antioxidant), alpha lipoic acid, acetyl –L-carnitine and the list goes on and on.

The NSI Synergy line is our top selling multi-nutrient daily supplement brand at Vitacost.com, as chosen by our almost one million active customers. There is no close second. I would also like to mention New Chapter® recently introduced a new all natural kids multi-nutrient supplement called EveryKid™. It is far superior to the mass market kid's gummy and chewable products. In fact, I was shocked and appalled to read the most

popular kid's chewables contain aspartame (a possible neurotoxin), numerous harmful chemicals including artificial colors and other things I would not feed my children or grandchildren. I would like to thank New Chapter for providing a very special price exclusive to Vitacost customers at 55% off retail, \$14.99 for 28 servings. Vitacost and New Chapter have also teamed up to donate portions of this product to foundations that support children in poverty and in need of good nutrition

Dr. Allen S. Josephs