



IMAGE AWARENESS WELLNESS INSTITUTE

Neuropathy & Nerve Health

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NEUROPATHY

Neuropathy is most often characterized by loss of peripheral nerve function. Symptoms may include tingling sensations, numbness, loss of function, pain, or muscle weakness. Involvement of the deeper nerves can result in interference with normal heart function, alteration in the functioning of the bladder and bowels, and impotence.

Neuropathies are among the most frequent complications of diabetes. They can also be caused by other factors including allergy, heavy metal exposure, xenobiotic toxins, and endotoxins. These will be discussed below.

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FATS AND DIABETIC NEUROPATHY

Diabetic neuropathy is characterized by decreased conduction velocity of the nerves. This may be contributed to by damage to the energy producing mitochondria or structural defects in the nerves due to inability to obtain from the diet or to synthesize critical nutrients for nerve health.

Diabetics are notorious for their inability to properly handle fat soluble nutrients. Dr. Mark Altschule found that diabetics often have an

inability to convert carotenoids into vitamin A. This often results in heavy callusing on the bottom of the foot which he identifies as a diabetic risk indicator. Altschule wrote, "In diabetes mellitus...patients show readily visible signs of vitamin A deficiency in the form of perifollicular hyperkeratosis (hardening around the hair follicles) over the trunk and proximal parts of the extremities and also very thick and resistant calluses on the feet and elbows... vitamin A...is not readily available for body use in zinc deficiency."

David Horrobin reports that it has been known since 1966 that diabetics are compromised in their ability to convert linoleic acid to gamma-linoleic acid (GLA). This deprives neurons of nutrients they need to function properly. GLA supplementation of diabetic laboratory animals has been used to correct impaired nerve function. It improves microcirculation in the nerves, nerve conduction, and prostaglandins or tissue hormones which influence cellular function. Human studies of GLA have shown it significantly better than placebo. The best sources of GLA are black currant oil or evening primrose oil.

Omega-3 fatty acids are also critical for nerve function. About one-third of nerve cell structure consists of omega-3 fats. Decreased nerve conduction is characteristic

of diabetic neuropathy. Omega-3 fats have been shown to significantly speed the transmission rate of the p300 brain wave associated with memory and learning.

In one study, 21 diabetics with neuropathy were given 600 mg EPA, an omega-3 fat, three times a day for 48 weeks. Improvement began in 12 weeks. These diabetics not only experienced improved blood flow to the feet, but also significant improvements in kidney function, a common problem for diabetics.

GNLD's new Salmon Oil Plus is an excellent source of omega-3 oils. The product contains all 8 of the master molecules of the omega-3 family in certifiable amounts. It is also tested for 160 different pollutants. This is a valuable feature because omega-3 fats are avidly taken up by the body and can actually displace contaminated fats in cell structures reducing the total burden of fat loving toxins in the body.

Toxin accumulation appears to be a major problem associated with the development of diabetes which often leads to neuropathy. In one study the ten percent of a population with the highest levels of six common pollutants had a prevalence of diabetes 38 times higher than the 25% with the lowest levels of the toxins in their blood.

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SUGARS AND THE DIABETIC

There is a good body of evidence which suggests that sorbitol accumulation contributes to diabetic neuropathy. Sorbitol decreases nerve conduction velocity.

Sorbitol is a toxic waste product of glucose metabolism. Non-diabetics convert sorbitol to fructose and excrete it. Unfortunately, diabetics with elevated blood sugar do not convert sorbitol to fructose and excrete it efficiently. Even worse, glucose is shunted into the sorbitol pathway. As sorbitol accumulates it can cause swelling of tissues and loss of important nutrients like vitamin C, magnesium, glutathione, and inositol which have been shown to benefit neuropathy.

The tissues most susceptible to

damage from sorbitol are the lens of the eye, retina, kidneys, pancreas and the peripheral nerves.

Fortunately, vitamin C counteracts many of the harmful effects of sorbitol. It does this by inhibiting an enzyme called aldose reductase which manufactures sorbitol.

The diabetic should be aware of the fact that glucose and vitamin C have the same transport in the body. High levels of blood sugar can interfere with vitamin C utilization.

The half-life of vitamin C in the blood is about 30 minutes which means that for optimal effectiveness a continuous release form of vitamin C or multiple doses are required for optimal effectiveness. Studies also suggest that vitamin C is much more effective when accompanied with flavonoids.

GNLD's Super C provides a sustained release by locking the vitamin C in a protein mesh which is slowly digested. This improves absorption and also helps maintain higher blood levels of the vitamin. The product also contains highly bioactive citrus flavonoids.

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FOOD AND BACTERIAL TOXINS

Coeliac is a Latin word for abdominal and refers to the early observation of diarrhea and general debilitation associated with intolerance to gluten by a man named Aretaeus in the first century. In the 1950's gut biopsy became available and it became obvious that the villi were deteriorating in response to gluten in the diet.

In 1966 gluten intolerance was shown to cause a skin rash. In the same year, ten patients with severe progressive neuropathy due to gluten intolerance were identified. It was learned that intolerance to gluten could damage not only peripheral nerves, but also the Purkinje cells, the largest neurons in the brain. Destruction of these cells causes lack of awareness of where the feet are. The most common neurological manifestations of gluten intolerance are peripheral neuropathy and unsteady and clumsy motion (ataxia).

Allergic or negative responses to foods other than gluten can also influence nerve function. Allergy to gluten and/or dairy products is common in schizophrenia, autism, ADHD, depression, epilepsy, migraine, and autoimmune conditions.

Nightshade plants can be a real problem for susceptible individuals. These plants contain cholinesterase-inhibiting enzymes. This enzyme allows nerves to return to a relaxed state once they have been activated. Cholinesterase inhibitors are potent neurotoxins and are components of some snake venoms. Extracts of tobacco and other nightshade plants have been used as pesticides.

Overgrowth of harmful bacteria in the digestive tract can be an unsuspected cause of nerve problems. These bacteria can release toxins like acetaldehyde which not only damage the nerves which



control the functioning of the digestive tract, but the toxins can also enter the blood stream and influence other parts of the body.

Dr. Campbell-McBride observes that at least one in ten psychiatric conditions are due to self-poisoning from toxins released by bacteria in the bowel.

Overgrowth of *Candida albicans*, a fungus, can result in the release of powerful neurotoxic substances which can cause peripheral nerve damage as well as resulting in liver damage. A damaged liver is ill prepared to cope with exposure to toxic substances like heavy metals or pesticides.

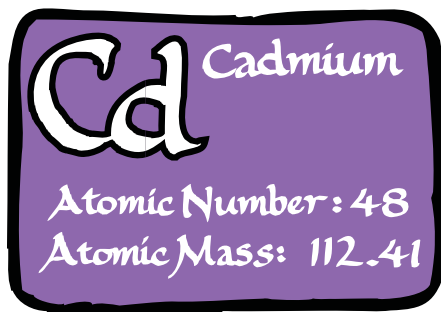
Restoration of intestinal health requires avoiding any foods to which one is intolerant such as gluten or dairy as well as restoring normal gut microflora and tissue integrity.

Fiber is particularly important for the health of the digestive tract since the proper kind of fiber will serve as a nutrient medium to nourish beneficial bacteria while sweeping harmful intestinal bacteria and their toxins out of the body.

My favorite fiber is the GNLD Multi-Fiber Blend. Most people think of fiber as a single entity, but each fiber source has different characteristics. Some fibers are soluble regulating blood sugar, others are insoluble promoting elimination. Pectins absorb toxins. The Multi-Fiber blend provides a wide variety of fibers from 12 different sources.

The GNLD Acidophilus Complex is also excellent. It provides a targeted delivery technology delivering billions of robust beneficial organisms to the part of the digestive tract where they are needed.

In some situations hydrochloric acid in the form of a supplement called Betagest will be helpful if bacteria have taken up residence in the stomach. These bacteria can release toxins with wide ranging effects.



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TOXIC EXPOSURES

One of my friends named Michael came home from work and laid in the grass near his home. He was unaware of the fact that a toxic chemical named Dursban had been sprayed on the grass. The result was severe damage to the nervous system and near total debility. Dursban has now been banned, but the idea of putting toxic products on the market to make a profit until they are proven to be harmful is damaging the health of multiple thousands of people every year.

Our environment is loaded with what are called lipophyllic or fat loving toxins. These are stored in fatty tissues like nerve and brain tissue where they can do a great deal of damage.

Numerous fat loving toxins have been shown to contribute to nerve damage and neuropathy. Two-thirds of PCB poisoned individuals were found to suffer with neuropathy in one study.

Almost half (54%) of retired cadmium workers were found to suffer with peripheral neuropathy. The neuropathy was directly related to cadmium body burden as reflected by excretion of cadmium in the urine.

Neuropathy is a well-known consequence of lead poisoning as well. Mercury has been shown to have an affinity for nerve tissue and to destroy the basic structural integrity of nerve cells.

The ability to detoxify heavy metals, chemical pollutants, pesticides and herbicides relies heavily upon the ability of the gut and liver to detoxify. Antioxidants and amino acids play a key role in this process.

Toxic compounds are made water soluble (Phase 1 detox) and then excreted (Phase 2 detox). Deficiencies of specific amino acids or other key nutrients can hinder this process. Water solublized toxins are much more dangerous than those which are not water soluble so failure of Phase 2 detox is particularly problematic.

The most important part of the detoxification process is probably glutathione. This is an antioxidant which is produced in the human body from 3 amino acids. Glutathione levels are supported by supplementing with vitamin C and alpha-lipoic acid. Vitamin C should not be taken with iron as it increases iron absorption.

Glutathione can also become depressed if protein intake is inadequate or poorly digested. Older people are particularly prone to develop neuropathy and other neurologic problems. This is the very population group which is most likely to have declining levels of hydrochloric acid production and pancreatic enzymes which are essential for proper breakdown and absorption of protein in the diet.

We often find that older people benefit greatly from supplementation with the GNLD Glycemic Response Control Meal Replacement or other GNLD protein products. These formulas contain protein which is predigested with enzymes at body temperature through GNLD's exclusive Protogard Process. They contain all 22 amino acids in



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readily assimilable form. The protein products also have a great taste which encourages compliance with the use of the product.

Glycemic control or regulation of blood sugar within a healthy narrow range is very important for nerve health. Blaylock reports that if blood sugar is low due to hypoglycemia neurons can become one hundred times more susceptible to toxic damage from glutamate than if blood sugar is stable.

Other supplements which can support the process of detoxification include Liver Plus C and Betagard. Liver Plus C is a defatted liver from range fed animals which is saturated with vitamin C and encapsulated in a protein shell to prevent rancidity. It contains a vast array of nutrients which support healthy liver function.

Betagard is a supplement developed by world-famous toxicologist Dr. Arthur Furst. The supplement contains the nutrients which Dr. Furst found most helpful in detoxifying carcinogens.

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FAT TISSUE SUPPORTING NUTRIENTS

There are some specialized nutrients which are sometimes helpful for neuropathy as well. Most of these are nutrients with a unique ability to protect or support the fatty structure of the nerve cells. These specialized nutrients include carotenoids, vitamin E, phospholipids, acetyl-L-carnitine, CoQ10, benfotiamine and other specialized forms of B vitamins designed to be fat soluble.

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