Carnitine and Alpha-Lipoic Acid for Nerve Function

Here is some interesting info on carnitine and nerve function that I found on the McVitamins website:

If you drive your car down the road at a moderate pace, you use up a certain amount of petrol. If, however, you take that car onto the freeway and speed the same amount of miles, you will use up more petrol. It is similar with the body. You need certain nutrients to survive. If you are exposed to toxins, you need certain specific nutrients. If you have physical stress or mental stress, you need more nutrients. So, what do we need to survive?

http://mcvitamins.com

Carnitine and Alpha-lipoic acid (ALA) are both key to supporting healthy nerves. Healthy nerves don't make you feel pain, burning, itching, tingling, or numbness in your fingers, toes, hands or feet.

Carnitine -
This is an amino acid (a building block for proteins) that is naturally produced in the body. It helps the body produce energy at the cellular level.

Your body makes carnitine in the liver and kidneys and stores it in the skeletal muscles, heart, and brain.

One of the main roles of carnitine is to carry fatty acids from the cytosol (the main body of the cell) into the mitochondria (the energy-producing furnaces within cells) so that these fats can be burned for energy.

Thus, carnitine improves the cells ability to produce energy. And so this reduces fatigue. The cell, no matter what type of cell, is working better.

A collaborative study between the Mayo Clinic and a medical centre in Russia found that carnitine is a powerful antioxidant that provides significant nutritional support for normal nerve conduction and healthy nerve function, in addition to normalising sensation from burning and prickling pain. The findings were published in the professional journal, Diabetes Care. "We were surprised by the magnitude of the change and the rapidity of the response to carnitine. It is very safe and there have been no known complications," says Dr Peter Dyke, Mayo Clinic neurologist and peripheral nerve specialist.

Some small preliminary studies suggest carnitine may also help support healthy nerves. Evidence indicates that taking carnitine and ALA together results in even greater results than taking either ingredient alone.

Alpha-Lipoic Acid –
Alpha-lipoic acid is an antioxidant that is made by the body and is found in every cell, where it helps turn glucose into energy. More energy production in the cells is created with carnitine but this creates more free-radicals. Adding ALA to carnitine handles these free radicals.

Antioxidants attack "free-radicals," ie waste products created when the body turns food into energy. Free-radicals cause harmful chemical reactions that can damage cells in the body. Antioxidants can get rid of free-radicals and may reduce or help prevent some of the damage they cause.

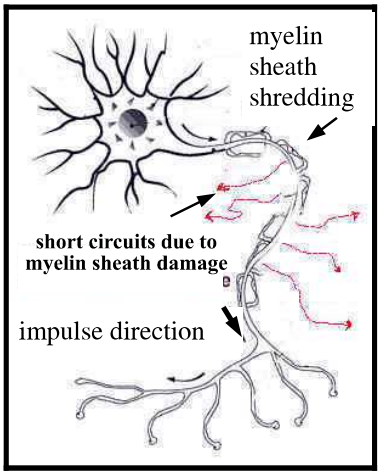
Other antioxidants work only in water (such as vitamin C) or fatty tissues (such as vitamin E), but ALA is both fat- and water-soluble ie it can work throughout the body.

Antioxidants in the body are used up as they attack free-radicals, but evidence suggests ALA may help regenerate these other antioxidants and make them active again.

Since carnitine helps the body produce energy, it is important for heart and brain function, muscle movement, and many other body processes.

Memory
It has been known for some time that this combination improves memory. Carnitine has been extensively studied and found to have significant cognitive effects as well as having anti-aging effects. Several clinical trials suggest that carnitine improves overall mental functioning and mood. Together they help the brain to utilize glucose needed to function optimally.

Nerve Damage:
Studies show that ALA has an ability to kill free-radicals which may help people who have pain, burning, itching, tingling, and numbness in the arms and legs from nerve damage.



Nerve damage or neuropathy normally occurs when the outer sheathing or the myelin (protective covering) of nerve cells degenerate. Without this protection the electrical signals are not transferred properly just like if you stripped the covering off the electrical wires in your house. As the nerve damage gets worse, the nerves either lose their ability to transmit information (numbness), or they start sending false signals (pain and tingling). When the insulation begins to crumble, the unprotected "wire" will start short-circuiting.

High blood sugar levels damage nerves in the body, especially the arms, legs, and feet, causing pain and numbness. Some small preliminary studies suggest carnitine may help reduce pain and improve feeling in affected nerves. It is also possible that carnitine can help nerves regenerate.

B1 - is also used in the development of myelin sheaths: which are the protective covering of the nerves whose break down is the problem. Deficiency of vitamin B1 results in weakening of the sheaths. Adequate intake of vitamin B1 ensures the development of myelin sheaths and aids nerve functioning. It is also required to regulate the transmission of particular types of nerve signals along the brain and the spinal cord. **B2 -** The body utilizes vitamin B2 to keep tissue healthy and to help accelerate healing of injuries. B2 protects the nervous system. **Vitamin D** - One of the functions of Vitamin D too is the regulation of nervous system development and function.