



# The Role of **MICRONUTRIENTS** In **NEUROLOGY**

**A single micronutrient deficiency can contribute to any number of disorders of the nervous system, including migraines, neuropathy and even Alzheimer's. Similarly, a high amount of oxidative stress at the cellular level could predispose a person to certain neurological complications. SpectraCell's micronutrient testing measures over 33 vitamins, minerals and antioxidants in your body.**

## **A HEALTHY NERVOUS SYSTEM**

Antioxidant therapy has the potential to contribute to preventing or mitigating many neurologic disorders. SpectraCell Laboratories can measure a person's total antioxidant function with their SPECTROX™ test, in addition to measuring the performance of individual antioxidants. Since nutrients play multiple roles, a comprehensive assessment of nutritional status is key.

## **MIGRAINE PREVENTION**

Anyone who has experienced migraine headaches knows how debilitating they can be. Fortunately, nutritional intervention can be very successful in migraine prevention. Although the mechanism of action is not totally understood, several nutrients that facilitate energy production at the cellular level may benefit the treatment of migraine headaches. Supplementation with coenzyme Q10, a powerful antioxidant that aids energy metabolism, may reduce both the frequency and intensity of migraine headaches. Similar results occur with magnesium and vitamin B2, since they also help mitochondria (energy-producing centers in our cells) function properly. "Mitochondrial dysfunction" is one possible trigger to migraine headaches.

The role of oxidative stress in causing migraines is not totally understood, but studies do show that low levels of specific antioxidants, such as glutathione and lipoic acid are associated with migraine occurrence. Correcting specific deficiencies, specifically B3, B6, B12 and folic acid, may produce dramatic results for reducing the pain and frequency of migraine headaches.

## **MINIMIZING NEUROPATHIC PAIN**

Damage to nerves in the limbs but outside the spinal cord causes the painful condition called peripheral neuropathy. Although potentially debilitating, there is considerable evidence that neuropathy symptoms responds well when specific nutrient deficiencies are corrected. In some studies, vitamin B1 and vitamin B12 significantly reduce neuropathic pain. High levels of oxidative stress increase neuropathic pain, which explains why the powerful antioxidants cysteine, vitamin E and lipoic acid may be successful in treating neuropathy. The pain reducing effects of carnitine and omega-3 fatty acids has been demonstrated in several trials.

## **KEEP YOUR NERVES "INSULATED"**

Nerves are covered with a protective coating called myelin, much like the insulation that coats electronic wiring. If the myelin sheath deteriorates, neurological problems arise, which is what happens to people with multiple sclerosis (MS). A key enzyme needed to manufacture this protective coating contains serine, an important amino acid needed for neurological health, which is why serine deficiency may contribute to neurological problems. Research shows that patients with MS have lowered calcium levels and that symptoms of MS are more severe when blood levels of vitamin D are low. Copper deficiency can cause symptoms seen in MS patients as well.



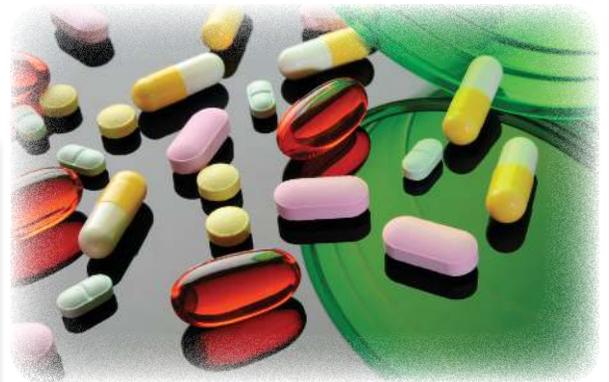


## REDUCING THE RISK OF ALZHEIMER'S AND PARKINSON'S

Nutritional deficiencies have been linked to several neurodegenerative diseases. For example, research shows that over half of people with Parkinson's disease are deficient in vitamin D. Research also shows that the administration of coenzyme Q10 slows the neurological deterioration seen in Parkinson's disease. Similarly, a higher intake of vitamin C and vitamin E can slow the progression of dementia that is seen in Alzheimer's patients. Evidence confirms that copper deficiency contributes to the progression of Alzheimer's disease.

## KNOW YOUR PERSONAL NUTRITIONAL NEEDS

A single deficiency – mineral, vitamin, antioxidant or amino acid – can set off a cascade of events where metabolic processes are disturbed. Conversely, repletion of such deficiencies can and often do resolve clinical neurological symptoms such as migraines and neuropathy.



**SpectraCell's micronutrient tests measure 33 vitamins, minerals and antioxidants in your body and evaluates how well your body absorbs and utilizes each nutrient. Ask your doctor about SpectraCell's micronutrient testing today!**

### VITAMINS

- Vitamin A
- Vitamin B1
- Vitamin B2
- Vitamin B3
- Vitamin B6
- Vitamin B12
- Vitamin C
- Vitamin D
- Vitamin K
- Biotin
- Folate
- Pantothenate

### MINERALS

- Calcium
- Magnesium
- Zinc
- Copper

### AMINO ACIDS

- Asparagine
- Glutamine
- Serine

### ANTIOXIDANTS

- Alpha Lipoic Acid
- Coenzyme Q10
- Cysteine
- Glutathione
- Selenium
- Vitamin E

### SPECTROX™ FOR TOTAL ANTIOXIDANT FUNCTION

### CARBOHYDRATE METABOLISM

- Chromium
- Fructose Sensitivity
- Glucose-Insulin Metabolism

### FATTY ACIDS

- Oleic Acid

### METABOLITES

- Choline
- Inositol
- Carnitine

