

Clinical Nutrition & Supplements For Peripheral and Diabetic Neuropathy

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Introduction

More than 50 million Americans suffer from chronic neuropathic pain, yet there are relatively few safe and effective methods for treating or curing nerve damage.¹ It is estimated that about 25% to 30% of people in the United States will develop neuropathy at some point in their life.³ The difficulty in treating neuropathy stems from the numerous underlying diseases that cause it. This becomes more alarming considering the wide range of age and health status that can develop neuropathy.

Conventional analgesics have been the first line option as it addresses the chief complaint of patients with neuropathy (pain). However, the outcomes have been inconsistent and have caused long term issues. (Addiction, GI complications, and neurologic issues) Since the start of the Opioid Epidemic, new medications are in development that may help in the treatment of Neuropathy.


Recent breakthroughs have found correlation between nutritional deficiencies and a number of disease states. Early studies in have shown nutritional supplementation has help prevent and reduce symptoms for patients with peripheral neuropathy. These finding are especially attractive considering their low associated costs and minimal side effects.

Neuropathy Explained

Neuropathy is the result of damage to either the nerve itself or the protective lining that covers the nerve called the schwann cell. This damage does not allow the stimuli to travel from the central nervous system to the body. This damage leads to numbness, muscle weakness, tingling, and pain in the affected body parts.² Symptoms frequently start in the hands and feet but can occur in any part of the body as well.

Neuropathy can affect a single nerve, nerve type, or multiple nerves either in a single area or throughout the entire body. There are three types of nerves that make up the peripheral nervous system.

- **Sensory nerves** are responsible for the 5 senses sight, smell, taste, hearing, and touch. Damage to this nerve type often causes numbness, tingling, and pain.
- **Motor nerves** are responsible for stimulating muscles to work. They control muscle contraction and muscle strength. messages from your brain to your muscles.

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- **Autonomic nerves** dictate bodily functions that occur subconsciously, such as breathing, sweating, bladder control, blood pressure, heart rate, digestion, and sexual arousal. They are the bodies monitor of the external world and are often the first responder to external stimuli.

Symptoms of Neuropathy

Symptoms of neuropathy can occur immediately (acute neuropathy) or over a long period of time (chronic neuropathy). Tingling, or a “pins and needles” feeling, is one of the most common symptoms of neuropathy, along with numbness in the hands, feet, arms, and legs. Other common symptoms of neuropathy include:

- Intense, sharp, or throbbing pain
- Inability to feel sensation such as pressure, pain, temperature, or touch.
- Loss of coordination and balance
- Loss of sensation in hands and feet
- Muscle weakness that leads to difficulty moving your arms and legs
- Muscle spasms and cramps
- Paralysis in part of the body or loss of muscle control
- Dizziness due to low blood pressure and abnormal heart rate
- Inability to control body temperature
- Bladder and digestion problems
- Unintentional weight loss
- Sexual dysfunction

What Causes Neuropathy?

Neuropathy has no one single cause, but rather it is linked to various diseases or events that affect the health of your body. It has occurred in people of all ages however the incidence increases for people over 60. Certain risk factors for developing neuropathy are diabetes, metabolic syndrome, heavy alcohol use, significant trauma, medication side effects, inflammatory conditions, and repetitive physical motion. How quickly symptoms progress largely depends on the nerves damaged and the underlying disease.



Diabetes

Diabetes is the most common cause of neuropathy. Statistics show that 60% to 70% of patients with diabetes have neuropathy.³ The nerve damage is caused by two mechanisms. The first is excess sugar molecules deposit in the cell membrane of the nerve causing changes in the electrical potential of the nerve itself. The second is the elevated sugar causes microvascular damage that provides the nutrients for the nerve to work. Left untreated diabetic patients can develop complete irreversible nerve destruction. This is closely followed by tissue destruction which often leads to amputation.

Trauma

Another common cause of neuropathy is trauma. Energy transfer from trauma causes significant acute changes to the nerve and its surrounding structures. This causes compression, tractions, and shear on the nerve. This can occur acutely in a car accident but can also occur over longer periods like herniated discs in the back or neck.

Autoimmune Disorders and Infections

Autoimmune disorders and infections cause an abnormal immune response which makes the body attack healthy nerve cells. These can be triggered by any viral infection or can occur spontaneously. The most common viral infection associated with neuropathy is Shingles (Varicella Zoster Virus) while Celiac Disease is the most common autoimmune disorder associated with neuropathy.

Medications and Medical Procedures

Medications and medical procedures are associated with development of neuropathy. It is estimated that 30% to 40% of cancer patients who receive chemotherapy or radiation will suffer from nerve damage.³ Medications used for controlling seizures, HIV medications, and some antibiotics may also cause damage to the peripheral nerves. In addition, exposure to toxic chemicals such as industrial solvents and heavy metals can lead to neuropathy.

Alcoholism and Poor Nutrition

Alcohol itself may be toxic to nerves and can negatively impact your body's overall health.⁴ Furthermore, elevated levels of alcohol deplete the bodies store of essential vitamins and minerals causing nerve dysfunction. Finally, chronic alcoholism results in inadequate intake of vitamins like thiamine, vitamins B1, B6, B12, and niacin. These nutrients are crucial for nerve health and deficiencies can lead to permanent nerve damage.



Vascular Disorders

Similar to the vascular damage caused by diabetes, vascular disorders cause damage to a wide range of blood vessels that compromise the nutrient and oxygen delivery to the nerve fiber. In the acute setting hypoxia of the nerve can cause permanent damage in as little as one hour. The most common cause of vascular disorders is tobacco use. It is important to point out that while smoking is most often associated with vascular disease, all forms of tobacco use have been associated with vascular damage.

Genetic Disorders


Hereditary diseases such as Charcot-Marie-Tooth (CMT), familial amyloidosis, Fabry disease, and metachromatic leukodystrophy (MLD) can sometimes cause neuropathy. The most common hereditary disease to cause neuropathy is Charcot-Marie-Tooth (CMT). CMT disease causes mutations in the PMP22 gene, which affects the development of myelin, the protective sheath surrounding nerve cells.⁵ Other causes of neuropathy include health conditions like kidney disorders, liver disorders, tumors, hypothyroidism, myeloma, lymphoma, and monoclonal gammopathy.

Current Treatments for Neuropathy

Neuropathy should be approached as a symptom not the disease. As such, the first step in treatment is to identify and treat the underlying causes. As outlined above many of the underlying causes are chronic. In this case, treatment should be focused on symptom relief and maximization of the microenvironment of the affected nerves.

Pain medications, antidepressants, anti-seizure medicines, and topical creams and patches are often used for neuropathic pain symptoms. Non-medicinal treatments for neuropathy include physical therapy, occupational therapy, surgery (in some severe cases of neuropathy), and adopting a healthier lifestyle involving proper nutrition and weight loss. Most importantly for lifestyle changes is to stop all tobacco use and reduce alcohol consumption.

Other treatments for neuropathy are transcutaneous electrical nerve stimulation (TENS) and immune-modulating treatments. TENS is a treatment that involves putting electrodes on the skin over the affected area of nerve pain.⁶ A low-level electric current is then delivered through the electrodes to your skin. The goal in using electrode therapy is to disrupt the pain signals before they reach the brain. Immune-modulating treatments are used for patients with autoimmune disorders. The goal of these therapies is to reduce the immune response by either eliminating the immune cell or the antibody responsible for the disease. In extreme cases,



plasmapheresis (removing the immune cells and antibodies and returning the blood to the patient).⁷

Nutrition as Treatment

Most medications and therapies do not address the underlying causes of neuropathy. In the case of medications, they merely mask the symptoms without solving the underlying issues. Furthermore, many of underlying diseases lead to significant nutritional dysregulation and nutrient deficits.

Proper nutrition plays a major role in promoting nerve health. Nutritional supplementation in patients with neuropathy should focus on the nutrients needed for nerve conduction, proper function of the schwann cell, adequate production of myelin, enhanced vascular supply, and reduction of the pro-inflammatory state. Supplements can also assist with symptom relief while addressing the underlying causes of neuropathy.

Natural Supplements For Neuropathy

Herbs and other natural supplements have been used for centuries to treat numerous diseases. Today, we have determined the naturally occurring compounds that help to treat the disease. Natural supplements when taken properly provide an efficient way for patients to enhance the nutrients found in their normal diet with minimal to no risk.

However, the supplement market is currently saturated with various products that claim to be “all-natural.” The supplement market is not required to be regulated by the Federal Drug Administration (FDA). Therefore, it is difficult as a consumer to be fully aware of what you are getting when purchasing supplements from any retailer. Furthermore, many distributors of these supplements claim health benefits that are not clinically proven. As a consumer, it is important to thoroughly research supplement brands before purchasing a product.

Neurazenx is a high-potency nutraceutical derived from all-natural ingredients and packed with pharmaceutical-grade vitamins, minerals, herbs, and supplements. Zen Nutrients, the company behind Neurazenx, selected a team of physicians and pharmacists to create a natural solution for neuropathy support, nerve pain support, and nerve renewal support. All of the 19 natural ingredients are backed by clinical research supporting their claims for neuropathy treatment. Below are the 19 different herbs, vitamins, and supplements Neurazenx has formulated into an all-in-one supplement treatment for neuropathy:



Alpha Lipoic Acid

Alpha-lipoic acid (ALA) is an antioxidant that is made naturally by the body and can also be found in some foods.⁸ Antioxidants play an integral role in cell protection from oxidative stress and assist in protecting against hypoxic states, immune response to infections, and vascular growth.

Oxidative stress caused by hyperglycemia specifically damages nerve cells, thus leading to neuropathy in diabetics.⁹ Studies show that ALA improves motor nerve conduction velocity in those with diabetic neuropathy and can protect peripheral nerves from ischemia.^{10,11} Patients treated with ALA supplements had reduction in pain, paresthesias, and numbness in just three weeks.^{12,13,14} Furthermore, ALA has been shown to improve wound healing.^{15, 16} This is especially important in diabetic patients who have a higher risk of non-healing wounds and wound


Vitamin B1 (Benfotiamine)

Vitamin B1 (Thiamine) is an essential vitamin that is found in foods such as legumes, nuts, and fortified grain products like cereals, pasta, and rice. Thiamine is necessary for cell growth and function. Low levels of thiamine have been linked to health concerns such as Alzheimer's disease and diabetes. While Thiamine deficiency is rare in the general US population, it is seen commonly in patients with bariatric surgery, Crohn's disease, and alcohol abuse.

Vitamin B1 can help ease symptoms of neuropathy in patients with type 1 and type 2 diabetes.¹⁹ After six weeks of supplementation, patients had significant improvements in symptoms taking 600mg/ day.²⁰ Benfotiamine has been shown to reduce neuropathic pain, reduce hemoglobin A1c (HbA1c), and increase nerve conduction velocity.^{20 21} It does so by reducing harmful glucose metabolites and inhibiting the intracellular formation of certain proteins that contribute to microvascular damage.²²

Vitamin B2 (Riboflavin)

Riboflavin is one of the essential B vitamins. It is necessary for healthy bodily functions, including breaking down carbohydrates, proteins, and fats, as well as making it possible for oxygen to be used by the body.²³ It is found in foods such as meat, eggs, milk, nuts, green vegetables, and some enriched flours. The best way to obtain vitamin B2 is through a healthy balanced diet. Riboflavin deficiency leads to itching and burning eyes, eye sensitivity to light, a sore or painful tongue, itching and peeling of the skin on the nose and scrotum, and sores in the mouth.²⁴ The body can only absorb riboflavin in small amounts; thus, vitamin B2 is needed daily to maintain healthy bodily function. Many conditions can contribute to reduced B2 absorption from the diet and supplementation is recommended for most neuropathic patients.



In rare instances patients can have riboflavin transporter deficiency. These patients are unable to deliver B2 to the cell. These patients often have significant disease and shortened life expectancy.²⁵ Treatment with oral supplementation of riboflavin has been proven to improve symptoms of neuropathy caused by this disorder and save lives in some cases.²⁶

Vitamin B6

Vitamin B6, or pyridoxine, is needed for converting carbohydrates into glucose. It also helps the body to metabolize fats and proteins.²⁷ Like all B vitamins, vitamin B6 is necessary for healthy skin, hair, eyes, liver, and normal nervous system function. Foods that contain vitamin B6 include fish, poultry, beans, dark leafy greens, bananas, fortified cereals, oranges, and cantaloupes.

The body is unable to store B6 in the body and must replenish daily. We need vitamin B6 to maintain normal nerve function.²⁸ Vitamin B6 helps the body make neurotransmitters, which are chemicals that transport signals from one nerve cell to another. This is necessary for normal brain development, function, mood, and regulation.


Additionally, vitamin B6 is known for helping to maintain the cover of the body's nerve endings as well as help the body absorb vitamin B12.²⁹ Deficiency in either B6 or B12 can lead to permanent nerve damage. However, high doses of B6 are also linked to nerve dysfunction.

Neuropathy caused by B6 toxicity usually affects sensory nerves; however, in cases of extreme toxicity, motor nerves can be affected as well.³⁰ Safe amounts of B6 should not exceed more than 200 milligrams. However, proper dosage B6 supplementation may alleviate symptoms of neuropathy, according to one 2017 review.³¹

Vitamin B9 (L-Methylfolate calcium)

Vitamin B9 (Folic Acid or Folate) is one of the essential B vitamins needed for healthy bodily function. Folic acid must be obtained from dietary or supplemental sources as the body cannot produce it on its own. Foods with naturally occurring folate include fortified cereals, soybeans, beef liver, salmon, orange juice, milk, leafy greens like spinach, and more. Folic acid plays a crucial role in brain function as well as mental and emotional health. It is necessary for the production of DNA and RNA, especially during infancy, adolescence, and pregnancy when cells and tissues are growing rapidly. It also works together with vitamin B12 to produce red blood cells and helps iron to function in the blood properly.³²

Folate deficiency overlaps with B12 deficiency, as the two are very closely related. Deficiency in both vitamins can lead to neurological disorders such as cognitive impairment, dementia, depression, subacute combined degeneration of the spinal cord, and peripheral neuropathy.³³ Studies show that folate deficiency and insufficiency are associated with a greater risk of



peripheral neuropathy among younger persons.³⁴ Low levels of folic acid can be caused by alcoholism, celiac disease, inflammatory bowel disease, and taking certain medications. Symptoms of folic acid deficiency include poor growth, gingivitis, shortness of breath, tongue inflammation, diarrhea, irritability, and mental sluggishness.

Folate plays a fundamental role in the growth, regeneration, and functioning of the central nervous system. Supplementing with vitamin B9 may help prevent and treat central nervous system disorders such as neural tube defects, Alzheimer's disease, and developmental delays. Additionally, folic acid has been shown as beneficial for peripheral nerve repair, however the mechanism is unknown. In chronic peripheral neuropathy cases, folic acid combined with vitamin B12 and uridine monophosphate reduced pain and intensity of neuropathy symptoms.³⁵

Vitamin B12 (Methylcobalamin)

Vitamin B12 is an important dietary nutrient found only in animal products such as dairy, meat, fish, poultry, eggs, and fortified foods. It can also be taken in supplement form. Vitamin B12 deficiency is linked to multiple health conditions, including peripheral neuropathy.³⁶ B12 deficiency is common and occurs especially among the elderly as their bodies do not absorb the vitamin as well. Deficiency can be caused by a strict vegetarian diet that contains few sources of vitamin B12 rich foods, other health conditions, certain procedures, and medications. Symptoms of B12 deficiency include moderate to severe anemia, degeneration of the spinal cord, nerve damage, sensory loss, and muscle weakness.

A deficiency in vitamin B12 damages the myelin sheath created by the Schwann cells, which is the insulating layer around nerves that allow electrical impulses to transmit quickly and efficiently.³⁷ Even mild B12 deficiency can affect the nervous system and the brain's functioning. If not treated, vitamin B12 may cause permanent nerve damage.

Vitamin C

Vitamin C, commonly referred to as L-ascorbic acid, is an essential vitamin naturally present in fruits and vegetables such as citrus fruits, potatoes, broccoli, Brussels sprouts, and strawberries. It is also commonly taken in supplement form to prevent the common cold and boost the immune system. Vitamin C acts as a powerful antioxidant that protects your cells from harmful free radicals. In a 2-year study, patients diagnosed with painful diabetic peripheral neuropathy symptoms were treated with 200 mg of oral vitamin C. After 12 weeks, patients reported a significant decrease in pain on the visual analog score (VAS).³⁹ The pain-reducing effect of vitamin C in diabetic neuropathy can be attributed to its antioxidant and anti-inflammatory properties. It has been shown to increase the synthesis of catecholamine and dopamine, as well as act as a cofactor in the synthesis of norepinephrine, all of which play a major role in pain relief.⁴¹



Vitamin E

Vitamin E is an essential fat-soluble vitamin with several forms, only one of which can be used by the human body, alpha-tocopherol. Vitamin E is another important antioxidant. It also improves immune system function and prevents clots from forming in the arteries in the heart.⁴² Vitamin E is found in many fatty foods, including avocado, almonds, peanuts, soybeans, mango, asparagus, and wheat germ oil. Those with digestive disorders like bariatric surgery, celiac disease, pancreatitis, and cystic fibrosis are at risk for developing a vitamin E deficiency due to their inability to absorb the vitamin properly. Vitamin E deficiency causes neuropathy, retinopathy, ataxia, and decreased immune function.

Vitamin E deficiency must be ruled out in patients with neuropathy. Even without deficiency, patients with neuropathy, treated with supplements, had improved nerve conduction compared to controls.⁴³


Vitamin D

Vitamin D is a fat-soluble vitamin that is activated with UV light exposure to the skin. It can also be found in some foods such as oily fish, red meats, eggs, fortified foods, and liver. Vitamin D is an essential nutrient that is important for bone growth, immune system function, reducing inflammation, and cell growth.⁴⁵ Vitamin D deficiency is common due to a lack of vitamin D-rich diets and modern-day lifestyles that reduce regular sun exposure. Symptoms of vitamin D deficiency can include muscle weakness, fatigue, bone pain, and even rickets in children.⁴⁶ High risk patients with lower levels of vitamin D have a higher chance of developing neuropathy than patients with normal Vitamin D levels.⁴⁷

Vitamin D deficiency can lead to the development of diabetic neuropathy by triggering inflammation and hyperglycemia. Supplementing with vitamin D has been shown to be beneficial in treating neuropathic pain and preventing neuronal degeneration.⁴⁸ Studies conclude that vitamin D can improve axonogenesis and sensory neural response in peripheral nerves and help with electrophysiological recovery.^{49,50} It also plays a role in increasing nerve growth factor (NGF) synthesis in cells, which diabetic neuropathy is commonly linked to.⁵¹

Inositol

Although inositol is sometimes referred to as vitamin B8, inositol is not actually a vitamin but instead a type of sugar. Inositol is a carbohydrate that is found in your body and in some foods and dietary supplements. Food sources containing inositol include grains, nuts, beans, and some fruits and vegetables. Inositol is important for building cell membranes as well as regulating insulin. It also plays a role in regulating serotonin and dopamine, the chemical messengers in



our brain. Treatment with inositol is suspected to enhance nerve conduction strength in diabetic patients through numerous mechanisms.⁵²

Magnesium


Magnesium is a mineral found naturally in the earth, sea, animals, plants, and human bodies. Approximately 60% of the magnesium in our bodies is found in our bones, while the rest is found in soft tissue, muscles, and blood.⁵³ Magnesium plays an important role in many bodily processes, including regulating muscle and nerve function, blood pressure, blood sugar levels, and fortifying bones. Insufficient magnesium in the body can result in the development of numerous diseases such as heart disease, stroke, and diabetes. Most of our magnesium comes from our diet and is found in whole grains, legumes, seeds, nuts, and vegetables. Magnesium can also be found in supplement form to treat magnesium deficiency. A deficiency in magnesium is linked to higher inflammation markers in the body.

Magnesium itself does not have any analgesic effects, but it does inhibit calcium ions from entering cells by blocking NMDA receptors, therefore producing an antinociceptive effect. This antinociceptive effect prevents central sensitization caused by peripheral tissue damage.⁵⁴ Central sensitization causes hypersensitivity and produces pain even when peripheral stimuli have disappeared. In one study, patients with diabetic neuropathy were given 500 mg of magnesium sulfate intravenously. The test subjects reported improved pain intensity and pain relief after the treatment.⁵⁵ Another study showed that magnesium chloride reduced protracted pain and regions of allodynia in patients with peripheral neuropathic pain.⁵⁶

Acetyl l-carnitine

Acetyl l-carnitine is a form of the amino acid l-carnitine that is found in red meat. L-carnitine is made in small amounts by the brain, kidneys, and liver. The body uses the amino acid to help release energy from fat cells by moving fat into the power plants within the cells where fats are then burned as fuel. Cellular power plants, or mitochondria, are responsible for making the energy that cells need to function normally. L-carnitine helps produce adenosine triphosphate (ATP), the primary carrier of energy in cells that is used for every biological process in the body. Carnitine deficiency is linked to confusion, muscle weakness, brain abnormalities, heart and liver failure and can lead to coma or death.

Carnitine has amassed growing clinical interest for its analgesic effect in treating painful symptoms of neuropathy as well as pain prevention.^{58,59} Carnitine has been shown to strengthen nerve growth factor actions and promote peripheral nerve regeneration.⁶⁰⁻⁶³ Studies showed that acetyl l-carnitine provides a neuroprotective function in vitro, in vivo, and in animal models of diabetic neuropathy.⁶⁴ The pain reduction induced by acetyl l-carnitine is likely due to its neuroprotective and central antinociceptive mechanism. Multiple studies proved that acetyl l-



carnitine can be a safe and effective treatment in painful peripheral neuropathy, especially in diabetic neuropathy.

L-Arginine

L-arginine is an amino acid found naturally in the body that helps your body build protein. It can also be found in protein-rich foods like fish, red meat, soy, poultry, whole grains, dairy, and beans. L-arginine can be taken in supplement form either orally, topically, or intravenously. This important amino acid acts as a vasodilator and increases oxygen supply to tissues.⁶⁵ This allows for better nerve cell repair, therefore reducing symptoms of neuropathy.

Moringa Oleifera

Moringa oleifera is the name of a plant native to the Indian subcontinent. The tree is fast-growing and drought-resistant. Other common names for the tree include drumstick tree, horseradish tree (due to the horseradish-like taste of the roots), and the ben oil tree. Its young seed pods and leaves are used for traditional herbal medicine as well as for water purification. Moringa oleifera is highly nutritious and contains a number of vital nutrients, including:

- Vitamin A
- Riboflavin (vitamin B2)
- Thiamine (vitamin B1)
- Vitamin C
- Potassium
- Calcium
- Iron
- Magnesium
- Phosphorous
- Zinc

Moringa oleifera is said to have many health benefits, such as lowering blood sugar, reducing inflammation, and providing antioxidant benefits that destroy free radicals.^{67 68}



Turmeric Powder

Turmeric is a rich yellow, flavorful spice most often used in Asian cooking. The main component of turmeric is curcumin, a powerful anti-inflammatory compound known for its antioxidant properties and analgesic properties. Curcumin is best absorbed by the body when taken alongside piperine, a compound found naturally in black pepper. Turmeric has been shown to have neuroprotective effects in treating various neurological disorders like Alzheimer's disease, tardive dyskinesia, depression, and diabetic neuropathy.^{69,70} Several studies show that curcumin demonstrates an anti-nociceptive effect in neuropathic pain, though its mechanism of action is not well understood.^{71,72} Curcumin may be especially helpful when taken on a regular basis in supplement form during the early stages of peripheral neuropathy.


Oat Straw Extract

Oat straw extract is derived from the *Avena sativa* plant, also called the common oat, a species of cereal grass known for its nutritious seeds. Mature seeds are often used for the oats that we buy in stores. Oat straw extract comes from the leaves and stems, which are harvested early on.⁷³ It is high in several important nutrients, including iron, zinc, and manganese. It is known for helping reduce inflammatory markers as well as relieving pain associated with inflammation due to neuropathy. Additionally, it is said to calm the nervous system and reduce anxiety.⁷⁴

Feverfew Herb

Feverfew is a daisy-like plant commonly found in gardens and along roadsides. It is known for its medicinal properties in treating numerous ailments such as:

- Fevers
- Migraine headaches
- Stomach aches
- Tooth aches
- Rheumatoid arthritis
- Insect bites
- Infertility
- Menstruation problems
- Labor pain during childbirth

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- Allergies
 - Psoriasis
 - Asthma
 - Tinnitus
 - Dizziness
 - Nausea and vomiting

The plant contains anti-inflammatory properties that may help in relieving acute, inflammatory, articular, and neuropathic pain.^{75 76}

Passionflower Herb


One study suggests that the passionflower herb may be useful for treating neuropathic pain. This is due to the plant's antinociceptive (pain-relieving) and behavioral findings, which are thought to stem from underlying opioidergic and GABAergic mechanisms.⁷⁷ It has been used in both Native American Tribes and Europe for its medicinal properties.

Chinese Skullcap

Chinese skullcap is a member of the mint family rich in nutrients, specifically antioxidants called flavones, that reduce damage caused by oxidative stress on different tissues in the body.⁷⁸ The herb is often used in Chinese traditional medicine to treat insomnia, inflammation, epilepsy, hepatitis, cancer, anxiety, and atherosclerosis. Chinese skullcap contains two important compounds, baicalin and baicalein, that are known for having a wide variety of healing properties. Studies found that the herb proved effective in diminishing inflammatory pain, which is associated with tissue damage as well as infiltration of immune cells. It also reduced injury-induced neuropathic pain caused by damage to the nervous system.⁷⁹

Neurazenx™ all in one formula for Neuropathy

Treating and curing neuropathy has remained an ongoing challenge for physicians. Though there are some cases of neuropathy that occur without a cause, the majority are related to preventable underlying conditions. Copious amounts of data prove that maintaining a healthy lifestyle is the best way to prevent a multitude of diseases. Good health starts with what we put into our bodies. Receiving proper nutrition is and will remain our best defense against disease. The same can be said for preventing neuropathy. A substantial amount of research exists on the



role of nutritional supplements for treating neuropathy, yet it is still not widely utilized as therapy.

Neurazenx provides an all-in-one effective supplement formula for both treating and preventing harmful symptoms of neuropathy. The physicians and pharmacists behind Neurazenx believe in utilizing only high-grade quality products that are proven effective by science. As the presented research suggests, the 19 vitamins, herbs, and supplements that are provided in each capsule of Neurazenx aid in relieving painful symptoms of neuropathy. Additionally, many of these natural ingredients are essential for maintaining a healthy functioning body. Supplementing with Neurazenx may not only help in treating neuropathy but may also correct any vitamin deficiencies that could be the cause. If you're ready to be proactive in treating your neuropathy, start by giving your body the nutrients it needs to take care of you.



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