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HEALTHY BODY, MIND, AND SPIRIT

The Impact of
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on Digestion

What is
*Peripheral
Neuropathy?*

Inside an ISO 17025–
Accredited Laboratory

An ND's Perspective on Testing

Vol. 9, No. 2 · Free
Spring 2025



Editor's Letter



Recent events have spurred a great deal of national patriotism. This got me thinking: What does being Canadian mean, and how far are we willing to go to support each other?

To me, being Canadian implies being part of an extended, coast-to-coast family, with siblings, cousins, and in-laws spread throughout our beautiful homeland. Like any family, sometimes

we don't get things right. We might take each other for granted, forgetting the integral roles we each play. We may get caught up with our children or our work, and neglect to visit one another. We may even find ourselves prioritizing our interests over those of a loved one. But when times get tough, we don't hesitate. Canadians don't just stand up for one another, we "stand on guard," showing up with strength, conviction, and community spirit.

One simple way to stand on guard for our Canadian family and to support each other is by choosing local: Shopping at stores owned by our neighbours, selecting products manufactured here in Canada, and supporting brands owned by Canadians. It keeps our economy strong, our communities vibrant, and ensures that our hard-earned dollars stay where they belong—helping our fellow Canadians.

It's much more than just saying we care—it's about living it. Let's all do our part so Canada can continue to *Flourish!*

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Editor-in-Chief

Flourish

Flourish magazine is published quarterly and distributed throughout Canada.

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Legal Deposit: Library and Archives Canada

Legal Deposit: Bibliothèque et Archives Nationales du Québec

ISSN 2371-5693 (Print Version)

ISSN 2371-5707 (Online Version)

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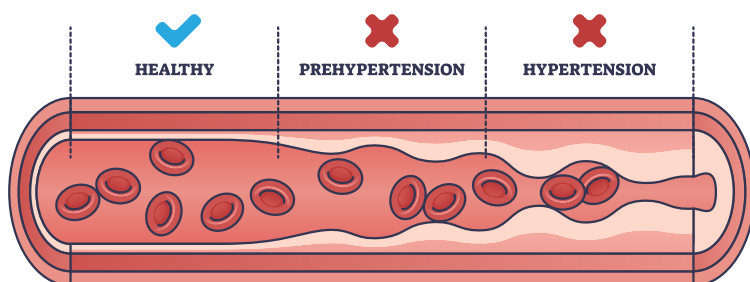
Healing Hearts

by Felicia Assenza

A common reason my patients initially come to see me in the clinic is after receiving a new diagnosis of high blood pressure or high cholesterol. They are usually coming to ask about alternative options to medications for managing these conditions. While I can happily say I have successfully supported patients in managing these conditions with diet and lifestyle modifications, botanical and nutritional support, and stress-management tools like meditation and acupuncture. It is important to note that each case is different, and if you have been diagnosed with either of these conditions, please consult with your health-care practitioner on the best course of action. With that said, let's take a closer look at heart health and high blood pressure and high cholesterol.

What Is High Blood Pressure and How Does That Impact the Heart?

To understand this, it helps to understand blood pressure. Blood pressure refers to the pressure of the blood in your arteries or the amount of force the blood in your arteries exerts on your artery walls. Your arteries are the blood vessels that receive blood from your heart and bring it out to the rest of your body. Therefore, blood pressure can be a helpful tool in understanding how much blood your heart is pumping and how well that blood is moving through your blood vessels.



Your blood pressure changes throughout the day quite a bit, depending on what you are doing. Your blood pressure may be high when you are active or exercising, and lower while you are relaxed or at rest. Higher blood pressure in itself is not necessarily a bad thing. For example, while exercising, it makes sense that your blood pressure would be higher, as your heart works a little harder to bring blood to your muscles. However, consistently high blood pressure can lead to issues down the road and might indicate that your heart is overworking. If your blood pressure remains consistently high, it's a clear sign that you should explore why your heart is working so hard and find ways to support it.

What Is High Cholesterol, and Does That Impact the Heart Too?

I find a diagnosis of high cholesterol can sometimes lead patients to fear cholesterol and try their best to avoid it completely.

They will refrain from eating anything that contains cholesterol. In this situation, like with blood pressure, it is important to recognize that cholesterol in itself is not a bad thing either. In fact, it plays very important roles in the body, such as maintaining the integrity of cells, making hormones and vitamin D, and even helping to digest fats. However, cholesterol comes in different forms and different sizes. When we start to see too many small cholesterol particles or low-density lipoprotein (LDL) cholesterol relative to bigger, high-density lipoprotein (HDL) cholesterol, it raises the concern of blocking the arteries, increasing blood pressure, and putting extra stress on the heart.

How Can a Naturopathic Doctor Help with These Conditions?

A naturopathic doctor (ND) will take the time to investigate these conditions with you. They will likely ask you about your food and nutrition. Questions like: What are you eating on a daily basis? How are you eating? Are you eating in a relaxed environment, or are you eating on the go? They will also probably ask about your lifestyle, especially when it comes to stress management. Questions like: How do you cope with stress? What brings you joy? They will ask about your exercise habits as well as sleep and digestion.



Together, you and your ND will identify which factors may be contributing to your high blood pressure or high cholesterol and come up with a plan to address the factors that can be changed. As you work to make diet and lifestyle changes, your ND may also make treatment suggestions such as botanical support, nutritional support, supplements, or acupuncture and monitor progress by regularly taking your blood pressure and reviewing blood work.

Research also demonstrates that diet and lifestyle changes as well as specific foods like premium-quality olive oil and hibiscus tea can help support healthy cholesterol and blood-pressure levels.

If I Start Medications, Will I Have to Take Them Forever?

I have worked with patients where significant diet and lifestyle changes—coupled with extra support like teas or tinctures, acupuncture, and supplements—resulted in no longer needing blood-pressure or cholesterol medications. Here, it becomes important to work in tandem with a naturopathic doctor and a medical doctor that you trust to monitor blood work, blood pressure, and symptoms as you make medication changes.

Don't Forget Gratitude!

Your heart is a wonderful organ that works hard to pump fresh oxygen, nutrients, and even immune support throughout your body. A great way to express gratitude is to care for your heart and offer it extra support during stressful periods.



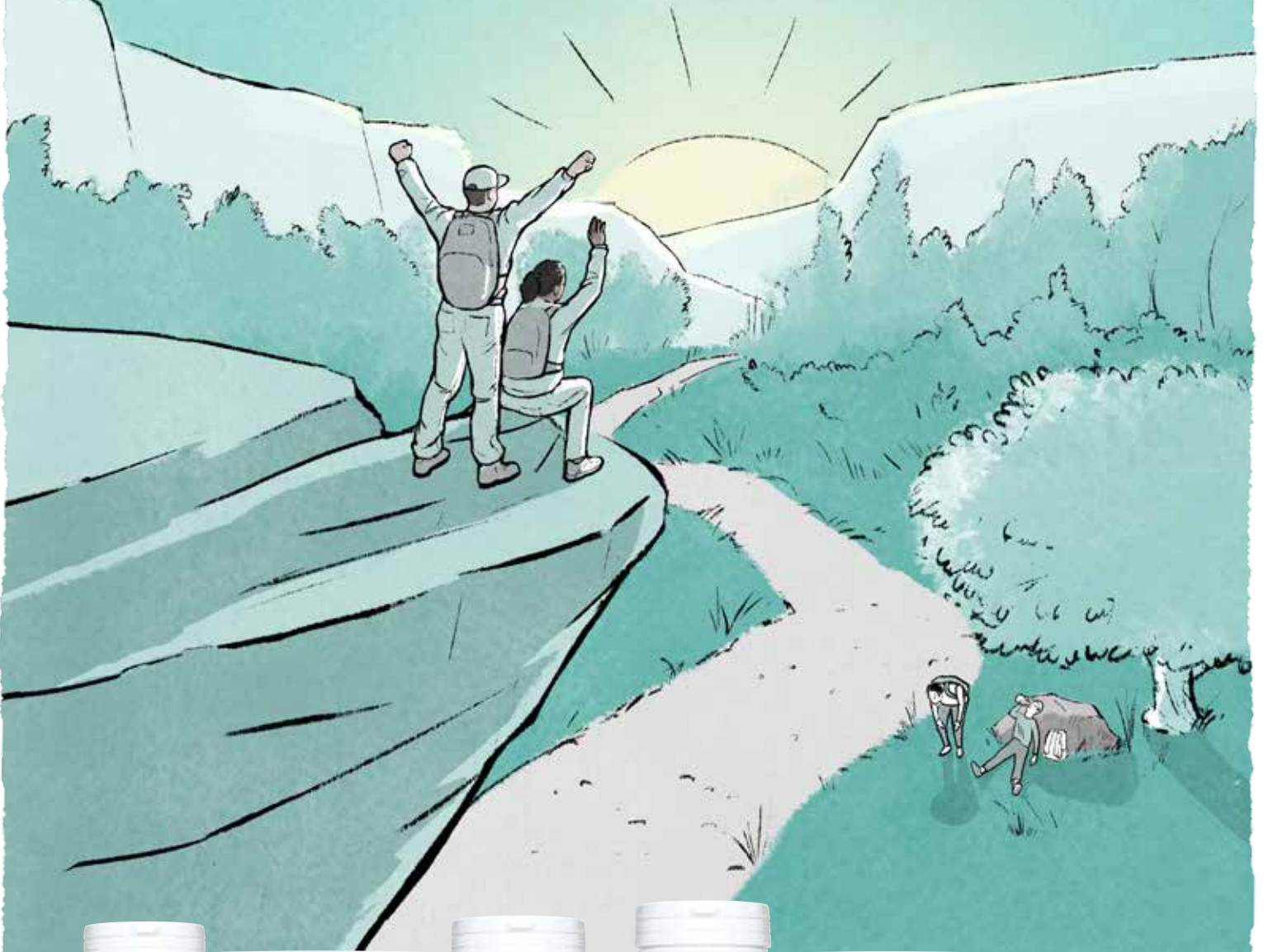
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Holy Basil and Stress Relief

A Natural Solution for Modern-Day Challenges

by Kaitlyn Zorn, ND

In today's fast-paced world, stress has become an almost universal experience. From work deadlines to personal responsibilities, we constantly face pressures that affect our mental and physical wellbeing. While many people turn to medications or various coping mechanisms to alleviate stress, there's a growing interest in natural alternatives. One such solution is holy basil, an Ayurvedic herb known for its stress-relieving properties. Let's explore how holy basil can be a powerful ally for managing stress.

What Is Holy Basil?

Also known as *Ocimum sanctum* or "tulsi" in Sanskrit, holy basil is a leafy plant native to Southeast Asia. For centuries, it has held a place of honour in Ayurvedic medicine, where it's often called the "Queen of Herbs." Unlike the sweet basil commonly used in Western cooking, holy basil has a distinct, slightly peppery flavour and offers a range of health benefits. It is considered a sacred plant in Hindu culture, where it's often cultivated in households as a symbol of protection and purity.

The medicinal benefits of holy basil are attributed to its high concentration of phytochemicals including ursolic acid, eugenol, and rosmarinic acid. These natural compounds have antioxidant powers and the ability to reduce inflammation, support immune function, and balance the body's stress response.

How Holy Basil Reduces Stress

Holy basil is classified as an adaptogen, a unique category of herbs that helps the body adapt to physical, psychological, and environmental stress. Adaptogens work by balancing the adrenal system, which controls how our bodies respond to stress. When we experience stress, our adrenal glands release cortisol, also known as the "stress hormone."

While cortisol is helpful in short bursts (such as during a "fight-or-flight" response), prolonged elevation of cortisol levels can lead to chronic stress and related health issues like anxiety, depression, and even weight gain.

Holy basil is known to regulate cortisol levels, allowing the body to manage stress more effectively. By helping stabilize the release of cortisol, it prevents the body from staying in a prolonged stress response. This is crucial because it enables the nervous system to recover more quickly, ultimately promoting a feeling of calm and relaxation.

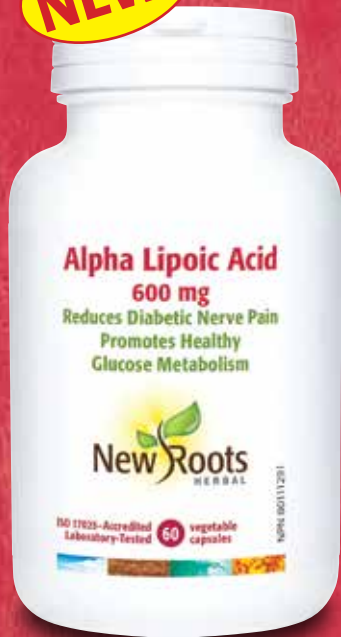
Scientific Studies Supporting Holy Basil's Effects on Stress

Holy basil has shown neuroprotective, cognition-enhancing, and stress-reducing effects in animal models. Human studies show similar effects.



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A review found that daily supplementation of 300 mg of holy basil in young adults led to a significant reduction in anxiety and stress levels, with two studies reporting reductions of 31.6% and 39% in overall stress-related symptoms and psychosomatic problems over four weeks compared to a control group. Another study found that taking a daily capsule of *Ocimum sanctum*, which contained 300 mg of an ethanolic leaf extract, led to a significant improvement of cognitive performance markers, lowered salivary cortisol, and alleviated anxiety symptoms after 15 days, compared to placebo.

Several studies support the claim that holy basil can effectively reduce stress and its negative effects on the body such as sleep problems, exhaustion, and forgetfulness. Additionally, they showed improvements in overall wellbeing, mood, and cortisol levels.



Further Health Benefits of Holy Basil

Aside from its stress-relieving properties, holy basil offers a wealth of other health benefits.

Antioxidant Properties

Holy basil is rich in antioxidants, which help neutralize free radicals and reduce oxidative stress in the body. This is especially beneficial for brain health and overall vitality.

Immune Support

The herb has antimicrobial properties, making it effective against common pathogens, which can help support a strong immune system.

Anti-Inflammatory Effects

Chronic inflammation is linked to various diseases, from heart disease to cancer. Holy basil contains compounds that reduce inflammation, supporting long-term health.

Improved Digestion

Holy basil is known to improve digestion and promote a healthy gut, which is important because the gut-brain connection plays a significant role in mood regulation.

Blood Sugar Regulation

Holy basil was shown to have a positive effect on blood sugar, which is helpful in chronic stress, which impairs glucose control.



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How to Use Holy Basil for Stress Relief

Holy basil is available in several forms including dried leaves, tea, tinctures, and capsules. Here are some popular ways to incorporate it into your daily routine:

- **Tulsi Tea:** Brew holy basil leaves to make a soothing tea. Many people find that drinking tulsi tea once or twice daily helps them feel calm and grounded.
- **Tinctures:** Holy basil tinctures are liquid extracts that can be added to water or juice. This form is often more potent than teas and capsules, so it's best for those seeking a higher dosage.
- **Capsules:** If you prefer a more convenient option, holy basil capsules or tablets provide a concentrated dose. Follow the recommended dosage on the label or consult a health-care practitioner.

Are There Any Side Effects?

Holy basil is generally safe for most people, but it may have mild side effects like nausea or dizziness if taken in large doses. Pregnant or breast-feeding women should avoid it, as it can stimulate uterine contractions. As with any supplement, consult a health-care practitioner before adding holy basil to your routine, especially if you're taking other medications.

Incorporating holy basil into your life can be a natural way to address stress while reaping numerous other health benefits. Its adaptogenic properties make it an ideal choice for those who experience the physical and emotional effects of stress daily. By reducing cortisol levels, promoting relaxation, and supporting overall health, holy basil offers a holistic approach to stress management.



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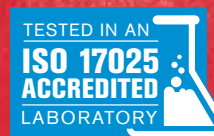
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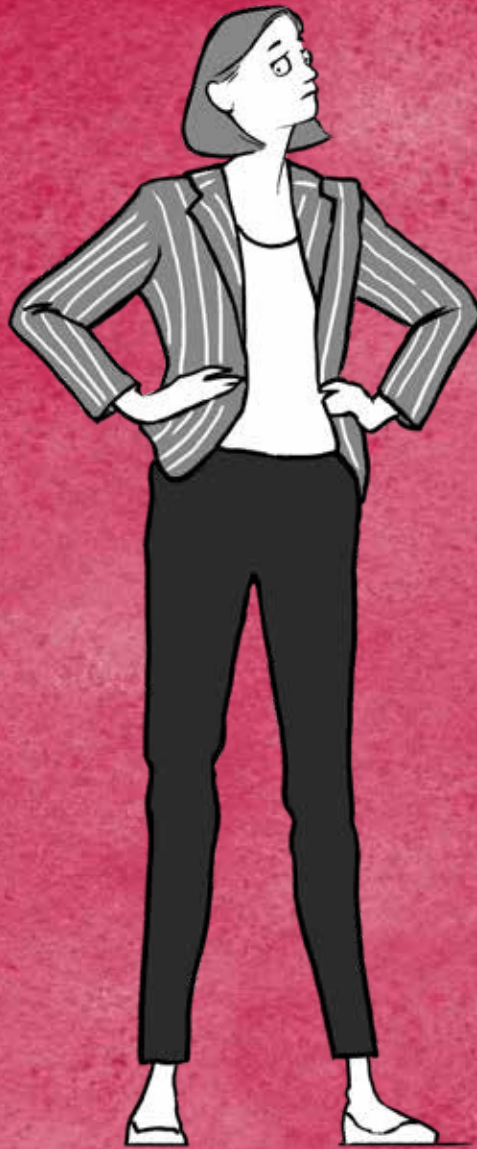
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Digestion 101

by Krista Mackay, BSc, ND



Welcome to Digestion 101! To start, I would like you to think of your body as a donut. Not the cream-filled ones; the traditional hole-in-the-middle donut. Now, imagine taking a cross section of it. The thin baked outer part represents your skin; the fluffy baked dough on the inside represents your other internal organs, bones, blood, muscles, glands, etc.; and the hole in the middle represents your digestive tract, going from your mouth to your anus. Just like your skin, the digestive tube creates a barrier between you and the outside. So, much of your immune system lies right there inside that digestive tract.

To run through, from top to bottom: We chew food in our mouths as it mixes with saliva, we swallow and it travels down the oesophagus, entering into the stomach. Here, powerful muscles and acid start protein digestion and kill unwanted microbes. As the food sludge leaves the stomach and enters the duodenum (first part of the small intestine), the pancreas adds in digestive enzymes and the gall bladder squeezes to release bile, aiding in fat digestion.

The small intestine is the major area for nutrient absorption and has a lot of infoldings to maximize surface area. Next, this liquid food moves into the large intestine or colon where the majority of the microbiome lies. Most of the water is absorbed into the body along this part of the journey, forming a solid stool, and is finally eliminated as waste through the anus.

A healthy digestive system allows for proper breakdown of food into nutrients that the body can use for energy, growth, immunity, mood, and mental health. When things are out of balance, we can experience discomfort, nutrient deficiencies, and chronic health issues. Some of the signs of poor digestion include bloating and gas; stomach aches or cramping; heartburn or acid reflux; constipation or diarrhea; brain fog; fatigue; changes in weight; and even skin issues such as eczema, psoriasis, acne, or rashes can be related to the health of your gut. More recent studies are looking at the role of the gut flora on diabetes, difficulty losing weight, and mental illnesses. Other, more serious health conditions related to the digestive system are inflammatory bowel diseases (IBDs) such as Crohn's and colitis, celiac disease, gastroesophageal reflux disease (GERD), gall stones, pancreatic insufficiency, and a variety of cancers. Let's look at a few!

Acid Reflux

The first thing I would like to point out is that acid reflux is not usually a problem of too much acid: it's a problem of location. The stomach lining is designed to handle a lot of acid, but when contents spurt upwards, it burns the lining of the oesophagus that is not equipped to deal with acid. Antacid medications, such as proton-pump inhibitors (PPIs), are often prescribed to decrease acidity, but they aren't always the best long-term solution. Having low stomach acid for a long time can lead to other problems, such as unwanted bacteria entering the digestive system causing small intestinal bacterial overgrowth (SIBO) or dysbiosis (imbalance in the microflora), or the inability to efficiently absorb vitamins and minerals, leading to deficiencies. A thorough workup with testing is important to figure out the root cause. Acid reflux can look like a variety



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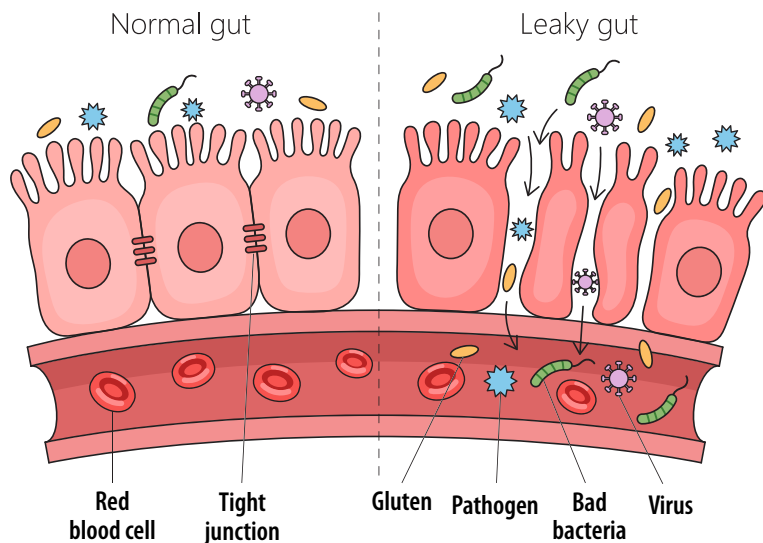
of things, so testing the cardiovascular system, the respiratory system, doing an endoscopy, and testing for *Helicobacter pylori* should all be considered. Supporting stress, correcting breathing, and testing for SIBO are also important in treatment.

Small Intestinal Bacterial Overgrowth

Probiotics are not always the solution to your digestive issues! Bacteria—both in the body and in probiotic capsules—are measured in colony-forming units (CFU). There is an abundance of bacteria in the mouth (10^6 CFU/ml) and in the colon (10^9 CFU/ml). However, the acidity of the stomach keeps bacterial counts low (< 100 CFU/ml) and the small intestine is comparable (< 1000 CFU/ml); much lower than the large intestine. Small intestinal bacterial overgrowth (SIBO) is a condition where there is actually too much bacteria (good or bad), inhabiting the small intestine. This creates fermentation too high up in the digestive tract, causing bloating and discomfort, and is often related to irritable bowel syndrome (IBS). There are a variety of reasons that SIBO occurs, but the risk of developing it is higher in inflammatory bowel diseases, problems with motility, low stomach acid, and gall-bladder removal, to name a few.



To test for SIBO is a challenge, because accessing the small intestine is not easy. Currently available are breath tests, such as the lactulose breath test, measuring gases (hydrogen, methane, and hydrogen sulfide) to get an idea of what types of bacteria are overgrowing. Also important to note: Bacteria living together in the intestines naturally produce a protective layer called a biofilm. This happens in your bathroom sink and on your teeth, if you don't clean regularly. So, in order to treat SIBO, we have to use a "biofilm opener" supplement to get access to the bacteria and strong antimicrobials or antibiotics to kill the bacterial overgrowth. Biofilm openers include NAC, ALA, and black cumin seed extract, or a specific combination of products. Oregano, thyme, goldenseal, berberis, and garlic are a few examples of antimicrobial herbs, while antibiotics such as rifaximin may also be used as treatment. It is of utmost importance to test first and definitely do not experiment on your own. I would highly recommend seeing a naturopathic doctor (ND) with specialized training in SIBO for a comprehensive plan.



Hyperpermeability, aka Leaky Gut

To support digestion, NDs often use functional tests that are not always indicative of an illness. Various tests using stool samples are available to see the types of bacteria that may be living in your colon. Important measures are the quantity and quality of bacteria, the presence of pathogens or parasites (bacterial, viral, yeast, protozoa, and worms), inflammatory markers (calprotectin), and assessment for hyperpermeability (zonulin). Leaky gut means there are spaces in between the cells of the intestinal wall, allowing larger-than-normal particles to pass through. This can cause a variety of problems such as pain, cramping, food sensitivities, and immune reactions. Studying intestinal permeability is quite complex, but research is finding relationships with leaky gut and autoimmune diseases, autism, metabolic conditions (diabetes, obesity, and liver disease), and neurological diseases. The base support for leaky gut is to strengthen the intestinal wall using colostrum or an amino acid called glutamine. In a randomized, placebo-controlled trial, it was found that glutamine supplements dramatically improved IBS symptoms and rarely produced negative events. Zonulin is a test marker for permeability, and in a small study on athletes, all the measures went back to normal after 20 days of colostrum supplementation.

The digestive tract is definitely an intricate donut hole, and although I separated a few conditions, nothing ever happens alone. Billions of bacteria communicate, and this system is closely connected with the rest of the body. In all the ways to support overall health, in my opinion, the digestive tract is central.



Dr. Krista Mackay, BSc, ND

Krista practices both in Montreal, Quebec, and Montevideo, Uruguay. A busy mom of two boys, she focuses on naturopathic general/family medicine, helping to find a reasonable balance to optimal wellbeing and stress management, including nutrition, herbal medicine, and mind-body work.

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The Impact of Stress and Anxiety on Digestion

by Angela Wallace, BSc, MSc, RDN

Stress and anxiety have become common aspects of modern life, and their effects extend well beyond mental health. One of the areas most affected during periods of heightened stress is the digestive system. It is as if our gut becomes directly affected by all that tension as well.

The Gut-Brain Axis: A Bidirectional Communication Pathway

The relationship between the brain and the digestive system is bidirectional, meaning they communicate with each other regularly. This communication is regulated by the gut-brain axis. The gut-brain axis connects the central nervous system (CNS) with the enteric nervous system (ENS), often referred to as our “second brain.” Through chemical messengers like hormones and neurotransmitters, the gut both influences and is influenced by your mental state.

Think back to a time when you received big news, whether it was exciting or a bit more on the sad side. Did you feel something in your gut? Maybe butterflies fluttered around, or a wave of nausea hit. That was your body’s way of showing just how much stress and emotions can make an impact on your digestion!

Your enteric nervous system is a network of nerves located in the walls of your digestive tract, stretching from the oesophagus to the rectum. The ENS is responsible for managing digestion, including the movement of food, the release of digestive enzymes, and blood flow to the gut.

Did you know that about 90% of your serotonin is produced in your gut? Serotonin helps regulate mood, sleep, appetite, and digestion. This highlights just how closely your mental health and digestive health are linked.

Four Ways Stress and Anxiety Impact Digestion

Changes in Gut Motility

Stress and anxiety can lead to changes in how quickly or slowly food passes through your system. Slowed digestion is commonly associated with constipation and accelerated digestion with diarrhea. Both symptoms are common in irritable bowel syndrome (IBS), which can be influenced by levels of stress.

Alterations in Stomach Acid Levels

During periods of stress, stomach acid levels can either increase or decrease. An increase in stomach acid can lead to symptoms of reflux and heartburn, whereas a decrease can impair digestion and nutrient absorption.



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Increased Intestinal Permeability

Over time, stress and anxiety can weaken the intestinal lining, making it more permeable. This can allow undigested food particles and toxins to enter your bloodstream, which may trigger inflammation and immune system reactions.

Impact on Gut Microbiota

Stress and anxiety can affect the balance of “good” and “bad” bacteria in your gut. This imbalance is called dysbiosis, which can lead to inflammation and other digestive problems over time.

Potential Physical Symptoms of Stress on Your Digestion

It is important to remember that everyone is unique, so how your digestive system reacts to stress might be different from someone else's.

- Bloating
- Stomach cramps
- Nausea
- Heartburn
- Irregular bowel movements (constipation or diarrhea)
- Gas
- Loss of appetite or overeating (constant appetite)

Five Ways to Support Your Digestion

Eat Smaller, More Frequent Meals

Eating smaller, more frequent meals might reduce digestive discomfort and prevent overwhelming the digestive system.

Whether you are eating smaller frequent meals or larger spaced meals, it is important to practice mindful eating. Chew food thoroughly, eat slowly, and try to avoid distractions to support proper digestion.



Seeing into Your Future

by Wendy Presant, RHNC, CFMP



The eyes, which have been called “the windows to the soul,” are also the windows to our overall health. Many conditions seemingly unrelated to eye health—such as diabetes, thyroid, and heart disease—are often first found through an eye exam.

Let’s dive into three conditions we commonly associate with the eye as we grow older: age-related cataracts, age-related macular degeneration, and glaucoma. With their silent symptoms, they may not prompt a person to seek out early medical care, but all of them can steal your ability to see if undetected and untreated. The Canadian Association of Optometrists recommends an eye exam every 1 to 2 years, depending on your age and health conditions.

We have all three eye conditions in my family, so I know that I have an increased genetic risk. There is not much I can do about that, but thankfully, genes are only one part of the risk. My lifestyle and environment, which I do have some control over, have a greater impact than my genes on the development of these diseases.

Cataracts

Age-related cataracts are a very common eye condition. The lens of the eye, sitting right behind the pupil, lets in light, then transmits it to the back of the eye, where an image forms on the retina. A cataract is a clouding of all or part of the lens, impeding the passage of light through the eye. Vision becomes less clear and sharp. This type of cataract occurs over time as the proteins in the lens break down and clump together.

While aging is a prime risk factor in developing age-related cataracts, studies have shown that oxidative stress also accelerates their formation. Increasing the amount of antioxidant-rich foods in the diet can help prevent a cataract or slow down its progression. Exposure to ultraviolet (UV) rays can also increase oxidation in the lens, which makes wearing a good-quality pair of sunglasses outdoors mandatory. Exposure to cigarette smoke and drinking alcohol will also speed up the process.

If cataracts increase to a point where they are significantly interfering with vision, surgery can restore sight by replacing the cloudy lens with an artificial one.

Age-Related Macular Degeneration

Age-related macular degeneration (AMD) affects the retina, and more specifically the macula located in its centre. This area is responsible for sharp, central vision. With AMD, the macula is damaged by leaking blood vessels or thinning tissue. Risk factors include aging, cigarette smoke, high blood pressure, being overweight, and family history.

Risk reduction of AMD is seen with an increased consumption of green leafy vegetables, which are high in the carotenoids lutein and zeaxanthin. A meta-analysis showed that including fish in your diet twice a week lowers your risk of early AMD by 23–30%.



A large clinical trial conducted by the National Eye Institute (NEI), called Age-Related Eye Disease Study 2 (AREDS-2), followed the impact of specific nutrients on age-related macular degeneration (AMD). The formula developed through this research includes vitamin C, vitamin E, lutein, zeaxanthin, zinc, and copper. Supplementation with the AREDS-2 formula was shown to be effective only in reducing the risk of progression from intermediate to severe AMD, not in preventing or treating mild AMD. The greatest benefit in using these supplements came to those who had a diet low in leafy green vegetables before the study. If you choose to take supplements for your AMD, it is best to talk to your doctor first and show them the supplement(s) you want to use, to make sure there's no conflict with other medications or disease conditions.

In situations where the retina is damaged to the extent that it severely impedes vision, central vision may be lost. In some cases of AMD, laser treatment may slow down progression, but sight that has been lost cannot be restored. Retinal-cell transplantation is another treatment for AMD, but it is still in early stages and not a common procedure.

Glaucoma

Images from the retina are transmitted along a bundle of nerve fibres called the optic nerve, where they are processed by the brain to give us vision and make sense of what we are seeing. When the optic nerve is damaged, the condition is known as glaucoma. Glaucoma is generally caused by fluid building up in the eye, increasing the pressure on the nerve. Untreated, glaucoma can cause blindness. The treatment goal is to keep the pressure in the eye stable, typically using eye drops or, in some cases, with surgery. You could be at risk if glaucoma runs in your family, if you have high eye pressure, if you are taking certain medications, or if you have certain health conditions. Because glaucoma could present without any symptoms too, the most important action you can take is to see your

eye doctor regularly. Optometrists test your eye pressure and examine your visual fields, to see if there is any loss in your peripheral vision. Early detection is key.



There are some ways you can help lower intraocular pressure (IOP) which can lessen damage to the optic nerve. Being physically active with walking or jogging can help, as does yoga, though you should avoid inverted postures as they can increase intraocular pressure. Consuming green leafy vegetables every day is also helpful (this should be part of all our diets anyway). It is important to wear protective eyewear when using tools or operating equipment, as eye injuries could lead to optic-nerve damage.

Taking simple steps like scheduling regular eye exams; staying active; protecting your eyes from injury; and eating for optimal eye health with leafy greens, orange-coloured vegetables, and fatty fish can all go a long way in preserving your vision and supporting long-term eye health.



Wendy Presant, RHNC, CFMP

With a background in nursing, naturopathic, and functional medicine, Wendy Presant is currently registered as a health-and-nutrition counsellor. She provides virtual coaching services to individuals looking to optimize their health.

naturalcoachathome.care

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What is Peripheral Neuropathy?

by Jill Northrup, ND

Peripheral neuropathy (PN) is one of the most commonly encountered neurological concerns in primary-care settings. Characterized by its anatomic distribution in a “stocking and glove” pattern affecting the extremities, PN presents as loss of sensation, pins and needles, numbness, tingling, and sometimes burning pain. Underlying causes include diabetes, nerve compression, nutritional deficiencies, and genetic diseases, to name a few. Peripheral neuropathy can often become progressive, leading to muscle weakness or atrophy.

Prevention and Restoration

Lifestyle factors can reduce the risk of developing PN by addressing some of the conditions that may cause it. These include avoiding alcohol, limiting exposure to toxins, maintaining a healthy weight, and ensuring sufficient nutrients are consumed every day.

Various nutraceuticals can also be used to relieve symptoms associated with peripheral neuropathy.

Acetyl-L-carnitine

Diabetes mellitus is one of the main causes of PN, and PN is one of the most common systemic complications related to diabetes. Acetyl-L-carnitine is a dietary supplement used as an adjunctive support for diabetics, due to its glucose-metabolism modulating and insulin-sensitizing effects. A review that examined the treatment of diabetic PN with acetyl-L-carnitine found significant reductions in pain. Participants rated pain associated with diabetic neuropathy using a 100-point visual analogue scale, with higher scores indicating more pain. Overall, doses of acetyl-L-carnitine ranging from 1,500 to 3,000 mg/d for 6–12 months contributed to a 15-point pain reduction score. Lower doses, less than 1,500 mg/d, did not contribute to significant improvements.

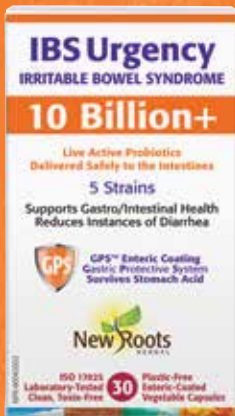
Two studies included in this review also found that, with acetyl-L-carnitine supplementation (compared to placebo), there were small increases in nerve conduction velocity (NCV), an objective measure of how quickly electrical signals move through our nerves. Abnormal results can confirm the diagnosis of PN. The clinical significance, however, is uncertain.

B Vitamins

Symptoms of deficiencies of vitamins B₁, B₆, and B₁₂ are often found in those with PN. Deficiencies can result from inadequate dietary intake. Malabsorption symptoms include various gastrointestinal diseases such as Crohn’s disease and autoimmune conditions like pernicious anaemia, which can be the case for vitamin B₁₂ deficiency. Additionally, alcoholism is a common cause of vitamin B₁ deficiency. Vitamin B₁₂ deficiency is also associated with elevated methylmalonic acid (MMA) and homocysteine levels, which are



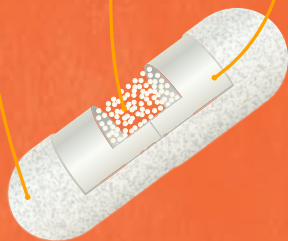
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toxic and contribute to nerve damage. Correcting vitamin levels is an important component of treatment for those with PN caused by nutrient deficiency. Among those with diabetic PN and alcohol-related neuropathy, vitamin B₁ supplementation has shown significant improvement in symptoms.

alpha-Lipoic Acid

alpha-Lipoic acid (ALA) has antioxidant activity on its own and increases that of the body's primary antioxidant, glutathione. Treatment with ALA, both orally and intravenously, can reduce pain and numbness associated with diabetic PN. Oral supplementation of 600 mg of ALA taken daily for 5 weeks significantly reduced subjective total symptom scores—which assess the presence, severity, and duration of stabbing pain, burning pain, paresthesia, and numbness—compared to placebo. Higher doses were not seen to be more effective than 600 mg/d of ALA. After 5 weeks, 62% achieved a greater-than-50% reduction in total symptom scores with 600 mg/d ALA, compared to 26% with placebo. A meta-analysis examining intravenous ALA at the same dosage (600 mg/d) found significant improvements in total symptom scores after 3 weeks in comparison to placebo.

Curcumin

Curcumin, derived from turmeric, has anti-inflammatory, antioxidant, and blood-sugar- and lipid-modulating effects. Clinical research supporting the use of curcumin as a therapeutic for PN is lacking. However, preclinical data suggests that curcumin may be a promising therapeutic option for managing components of neuropathies in various populations. Current evidence suggests that curcumin may have a useful role in alleviating chronic neuropathic pain due to carpal tunnel, disc herniation, or lumbar canal stenosis in humans, alongside pharmaceuticals, and was shown to help with peripheral nerve regeneration in an animal model. Further research is required to elucidate the effects and use of curcumin for peripheral neuropathy.



Fish Oils

Omega-3 fatty acids are a key component of cellular membranes and help modulate inflammation. Various case studies have shown omega-3 supplementation as a potential therapeutic option for various types of neuropathic pain, including cervical radiculopathy and neuropathic leg pain. A meta-analysis and systematic review concluded (with low certainty) that omega-3 supplementation reduces sensory loss and neuropathy incidence due to chemotherapeutics in comparison to placebo. Among diabetics, following one year of omega-3 supplementation, corneal nerve-fibre lengths were found to have increased. Corneal-nerve abnormalities, including reduced length, is a finding among diabetic patients.



NAC

N-Acetylcysteine (NAC) is a potent antioxidant, an anti-inflammatory, and a glutathione precursor. Among patients with painful diabetic PN, treatment with adjunctive NAC (600 mg twice daily) alongside pregabalin, a standard pharmaceutical for neuropathic pain relief, experienced significant pain reductions compared to pregabalin and placebo. NAC also has potential therapeutic value for chemotherapy-induced peripheral neuropathy, with 1,200 mg/d NAC significantly lowering the severity of neuropathic symptoms.

Conclusion

Peripheral neuropathy can significantly affect daily life, but a combination of lifestyle modifications, nutritional support, and evidence-based supplements offers a holistic approach to managing symptoms. By addressing underlying causes and promoting nerve health, these naturopathic interventions can help improve both comfort and quality of life.



Dr. Jill Northrup, ND

A Toronto-based naturopathic doctor with a passion for health and natural medicines, she values an evidence-based treatment approach and emphasizes patient education and preventative medicine in her practice.

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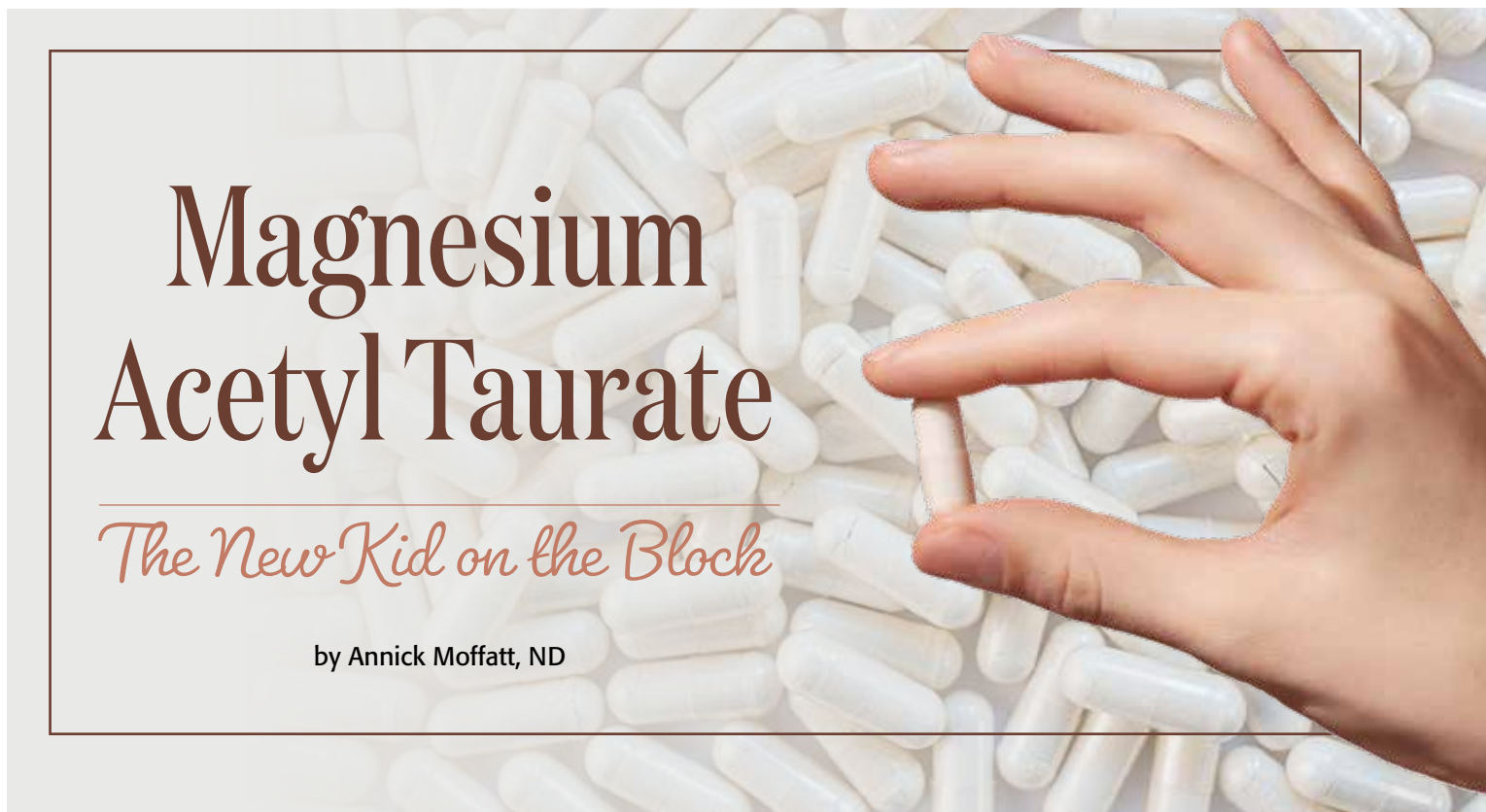
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Magnesium Acetyl Taurate

The New Kid on the Block

by Annick Moffatt, ND

In a sea of magnesium formulas available on the market, it can often be challenging to determine which one is best suited for specific health needs. To complicate matters further, innovation in **chelation** has introduced an array of new options, each with unique properties. One such innovation that has garnered attention is magnesium acetyl taurate, a formula designed to reach the brain and potentially support mental clarity and brain health, and even help with headaches, migraines, and fatigue.

Chelation: *The process of binding minerals, like magnesium, to other compounds to improve their absorption and stability in the body.*

What Is Magnesium Acetyl Taurate?

Magnesium acetyl taurate is a unique compound where magnesium is paired with two taurine molecules that have undergone a process called acetylation. This acetylation makes the compound more “lipophilic,” meaning it can mix easily with fats. Since the **blood-brain barrier** is made up of fatty layers, this property theoretically helps the compound pass through it and deliver its benefits directly to brain cells.

Blood-brain barrier: *A protective layer that shields the brain from harmful substances in the bloodstream while allowing nutrients in.*

Crossing the blood-brain barrier is thought to be crucial for magnesium acetyl taurate, as it may allow the compound to reach the brain’s receptors and potentially influence key neurological functions.

For Brain Health

Once inside the brain, magnesium helps regulate NMDA receptors, which play a vital role in learning, memory, and neuroplasticity. Meanwhile, taurine supports brain health by protecting cells, reducing stress caused by harmful molecules, contributing to overall neuronal health.

Furthermore, taurine levels naturally decline with age, which may impact brain health and increase susceptibility to neurodegeneration. By replenishing these levels, magnesium acetyl taurate may support **neurogenesis** and modulate neurotransmitters like GABA, promoting a calming effect on the nervous system.

Neurogenesis: *The formation of new neurons in the brain, playing a key role in learning, memory, and overall brain health.*



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Additionally, taurine's protective properties may help mitigate damage from stress, aging, and inflammation, making this compound a potentially valuable tool for maintaining cognitive and emotional wellbeing.

These effects could make a difference for people struggling with stress, irritability, depression, fatigue, migraines, or headaches. Animal studies suggest that magnesium acetyl taurate can reduce anxiety and protect the brain from damage after a traumatic injury by calming overactive areas like the amygdala, which processes emotions.

For Heart and Eye Health

Magnesium acetyl taurate is not just beneficial for brain health: it may also support heart and eye health. Magnesium plays a key role in regulating calcium levels, which helps reduce the risk of high blood pressure, irregular heartbeats, and arterial issues.

Taurine, on its own, has been shown to lower blood pressure, improve cholesterol levels, and protect the heart from oxidative damage.

Together, magnesium and taurine may also benefit people with diabetes by improving insulin sensitivity and protecting the eyes from complications such as cataracts and diabetic retinopathy.

While more research is needed to confirm these effects specifically for magnesium acetyl taurate, its components show promise for overall health.



For Women's Health

Magnesium acetyl taurate may offer relief from menstrual migraines and PMS symptoms. Studies suggest that its ability to cross the blood-brain barrier and its higher absorption rates (20–50% better than other magnesium supplements) could explain these effects.

While most studies on magnesium acetyl taurate have been conducted in rodents, recent human studies have begun to highlight its potential benefits in addressing menstrual migraines and premenstrual syndrome (PMS).



Menstrual Migraines

In a case study, a 27-year-old woman with frequent migraine attacks was given two 350 mg capsules of ATA Mg[®] (magnesium acetyl taurate) daily for two months, along with dietary suggestions. The supplementation significantly reduced the frequency and intensity of migraines and alleviated related symptoms, including stress, anxiety, mood disturbances, and breast pain. These findings suggest that magnesium acetyl taurate may help address hormonal migraines by stabilizing the nervous system and reducing neuroexcitation.

Premenstrual Syndrome (PMS)

In another study, 19 women aged 18 to 45 with various PMS symptoms were treated with 770 mg of ATA Mg[®] (magnesium acetyl taurate) daily. Over three menstrual cycles, participants reported significant reductions in all 20 studied PMS symptoms, including mood swings, irritability, bloating, and fatigue. These improvements may be attributed to magnesium acetyl taurate's potential to regulate neurotransmitters, stabilize hormone fluctuations, and calm the nervous system's response to stress.

Magnesium acetyl taurate represents a promising development in magnesium supplementation. Its potential to cross the blood-brain barrier and deliver magnesium and taurine directly to the brain highlights its unique design. While more research is needed to confirm its full range of effects, early evidence suggests this innovative compound may support overall wellbeing and mental clarity, ease migraines, improve stress and mood, and promote heart and eye health. As further studies emerge, magnesium acetyl taurate could become a valuable tool for addressing complex health challenges.



Annick Moffatt, ND

With more than 20 years of experience in the health domain, first in psychology, then as a naturopathic doctor, she brings a holistic approach to health problems.

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Inside an ISO 17025– Accredited Laboratory

An ND's Perspective on Testing

by Ludovic Brunel, ND



As a naturopathic doctor, I often hear patients ask: “How can I trust the supplements I take? What does third-party testing really mean?” These are valid questions, given the overwhelming number of products on the market and the plethora of brands offering them. Whether it’s companies claiming that they are self-certified, that they adhere to Good Manufacturing Practices, or that they use certificates of analysis from their Chinese suppliers to support the purity of their products, there are horror stories when it comes to the varying standards companies adhere to.

Recently, I had the privilege of touring N.H.P. Laboratories, an ISO 17025–accredited facility. What I witnessed left a lasting impression: A level of rigour, precision, and care that sets a high benchmark for the natural health industry.

Behind the Scenes at N.H.P. Laboratories

Established in 2005, N.H.P. Laboratories has grown into a powerhouse of scientific excellence, staffed by a team of globally recruited experts and equipped with cutting-edge technology. Their commitment to excellence was palpable in every corner of the laboratory. From the near-infrared spectroscope to the gas chromatograph/mass spectrometer, each piece of equipment plays a critical role in testing for identity, purity, potency, and delivery in order to ensure the effectiveness and safety of the products being assessed.



Why an ISO Accreditation Matters

ISO 17025 accreditation is the gold standard for laboratory testing worldwide, signifying meticulous adherence to protocols. This reassured me as a practitioner who frequently discusses the importance of quality with patients. Certified testing methods conducted in the laboratory are subjected to annual audits by an ISO accreditation body, ensuring consistency and excellence.



Testing That Inspires Confidence

During my tour of the laboratory, I learned about the comprehensive nature of their testing procedures. For example:

- **Identity Verification:** Using near-infrared spectroscopy technology, the laboratory can differentiate between species of botanicals, ensuring patients receive the exact therapeutic compounds they need.
- **Non-GMO Certification:** A genetic test used to detect DNA sequences belonging to genetically modified organisms.
- **Purity Analysis:** Contaminants like heavy metals and pesticides are identified with remarkable precision, down to parts per trillion.
- **Potency Confirmation:** Advanced tools like the ultraperformance liquid chromatograph/mass spectrometer quantify active compounds in extracts, ensuring accurate label claims.



Enteric-coated capsules that resisted a simulated gastric test for 90 minutes.

- **Delivery Assurance:** Equipment simulating gastric conditions test capsules for their ability to release contents where they are most effective in the body. This is particularly important to assess the disintegration and delivery of enteric-coated capsules used to protect probiotics from the harmful acid found in our stomach.



The Value for Patients

As I observed the scientists' methodical work, I felt a profound sense of reassurance. This is not just about meeting regulatory standards—it's about exceeding them. When companies use ISO 17025-accredited laboratories to test products, each step ensures patients like mine can trust they are getting safe, effective products. Whether it's detecting genetically modified organisms with PCR testing or validating the efficacy of enteric-coated probiotics, every detail is scrutinized.



Dr. Ludovic Brunel, ND

Dr. Brunel has 15+ years of experience as a naturopathic doctor and practices in Calgary. His approach has always been to improve health outcomes by relying on the best research available.

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Going Vegan?

Nutritional Considerations for the Plant-Based Eater

by Colleen Hartwick, ND



There is a growing trend among Canadians to eat a plant-based diet. In 2020, approximately 850,000 Canadians identified themselves as vegan, and an additional 2.3 million Canadians identified themselves as vegetarian. Plant-based eating has been widely celebrated for its numerous health benefits, including reduced risks of heart disease, type 2 diabetes, and some cancers. Veganism has gained a strong following as people seek more ethical and environmentally sustainable ways of eating. However, as with any diet, a vegan or exclusively plant-based lifestyle requires careful planning to ensure balanced nutrition. Without proper attention, certain nutrient deficiencies may arise, potentially leading to health issues over time. In this article, we'll explore some of the most common nutrient deficiencies among vegans.

Common Nutrient Deficiencies in a Vegan Diet

Iron Deficiency

Iron is essential for oxygen transport, energy production, and immune function. While plant-based foods like lentils, spinach, and quinoa provide iron, it's in the nonheme form, which the body absorbs less efficiently than the heme iron found in animal products. The difference in bioavailability is stark, with 25–30% of heme iron being absorbed as compared to 1–10% absorption for nonheme iron. Iron deficiency is common among vegans, with studies showing that vegans have lower serum ferritin (the storage form of iron) levels compared to omnivores.

Vitamin B₁₂ Deficiency

Vitamin B₁₂, also known as cobalamin, is one of the most critical nutrients that vegans must monitor. It plays a vital role in red blood-cell production, neurological function, and DNA synthesis. Deficiency in B₁₂ can lead to anaemia, neurological disorders like tingling or numbness in the extremities, and cognitive impairments. The primary sources of B₁₂ are animal-based foods such as meat, dairy, and eggs, making it difficult for those following a plant-based diet to get enough. Recent studies show that B₁₂ deficiency is common in vegans and can lead to anaemia, nerve damage, and cognitive impairments. Vegans were found to consume considerably less B₁₂ than omnivores, taking in only 10% of the B₁₂ of the average omnivore.

Iodine Deficiency

Iodine is crucial for thyroid function, as it supports the production of thyroid hormones that regulate metabolism, growth, and energy production. Vegans are at risk for iodine deficiency, as plant-based diets typically lack reliable sources of iodine. Dairy, eggs, and seafood are the

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primary sources of iodine, and while some plant-based foods (such as seaweed) do contain iodine, the levels can vary dramatically depending on where the seaweed is sourced. Vegans are particularly vulnerable to iodine deficiency, which can lead to hypothyroidism, fatigue, and weight gain.

Vitamin D₃ Deficiency

Vitamin D₃ is vital for bone health, immune function, and mood regulation. Vitamin D is primarily obtained through sunlight exposure, but it's also found in fatty fish, eggs, and dairy. Given the main food sources of vitamin D₃ are animal products, it's more challenging for those following a vegan diet to obtain enough. Some plant-based foods are fortified with vitamin D₂; this form of vitamin D is less effective than D₃ in raising blood levels of vitamin D. Vegans are at a higher risk for vitamin D deficiency, particularly in winter and for people living in areas with limited sunlight.



Zinc Deficiency

Zinc is an essential trace mineral that plays a key role in immune function, protein synthesis, and wound healing. The bioavailability of zinc in plant foods is lower than in animal products due to the presence of phytates in legumes and grains, which inhibit zinc absorption. As a result, vegans may have a higher risk of zinc deficiency, which can affect immune function, skin health, and wound healing. In fact, vegans have a higher incidence of zinc deficiency compared to omnivores.

Omega-3 Fatty Acids Deficiency

Omega-3 fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are vital for heart health, brain function, and reducing inflammation. These fatty acids are primarily found in fatty fish, but for vegans, the plant-based alternative is *alpha*-linolenic acid (ALA), which is found in flaxseed, chia seeds, and walnuts. The body must convert ALA into EPA and DHA, but research suggests that this conversion process is inefficient. Vegans have significantly lower blood levels of omega-3 fatty acids.



Calcium Deficiency

Calcium is crucial for bone and dental health, muscle function, and nerve transmission. While dairy is the most well-known source of calcium, many plant-based alternatives—such as fortified plant milks, tofu, and leafy greens—can provide adequate amounts. However, research suggests that vegans often consume less calcium than nonvegans, perhaps because calcium absorption from plant sources can be impaired by oxalates found in calcium-rich plants, which may lead to a lower bone mineral density over time. Vegans show a substantially lower intake of calcium compared to vegetarians and omnivores.



While a well-planned vegan diet can meet most nutritional needs, certain deficiencies—particularly in iron, vitamin B₁₂, iodine, vitamin D₃, zinc, omega-3s, and calcium—are more common. Regular monitoring of nutrient levels and strategic food choices can help prevent deficiencies. A naturopathic doctor (ND) can be a valuable resource in addressing these nutritional gaps, offering personalized guidance based on individual health profiles. NDs may recommend laboratory tests to assess nutrient levels, provide dietary strategies to optimize absorption, and suggest supplements tailored to fill specific gaps, and. By incorporating targeted supplementation into a balanced vegan lifestyle, individuals can support optimal health and reduce the risk of long-term deficiencies, ensuring that the benefits of plant-based eating are fully realized.



Dr. Colleen Hartwick, ND

Dr. Colleen Hartwick is a licensed naturopathic physician practising on North Vancouver Island, BC, with a special interest in trauma as it plays a role in disease.

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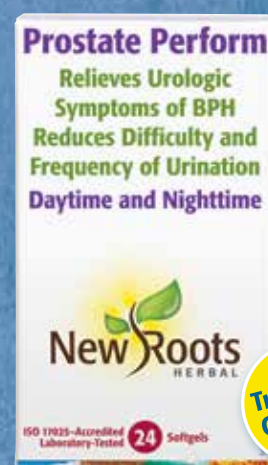
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Quick and Easy Quiche Tarts

These savoury little quiche tarts are a great option for a quick breakfast on-the-go or as a snack, or even as part of your weekly meal prep.

Ingredients

- 1 pack Wendel's gluten-free pie tarts
- 8 organic free-range eggs
- 1 red pepper
- 1 yellow onion
- 3-4 slices bacon
- 1 cup spinach
- ½ cup cremini mushrooms
- ½ cup soft goat cheese
- ½ tsp. spice blend (oregano, paprika, and red pepper flakes)
- Sea salt and pepper, to taste

Instructions

Preheat the oven to 375 °F (190 °C).

In a cast iron pan, begin to cook the bacon. While it cooks, dice up the onion, spinach, cremini mushrooms, and red pepper.

In a large bowl, crack and whisk the eggs, slowly adding the spices, vegetables (pepper, onion, mushrooms), and lastly the goat cheese.

Once bacon is finished cooking, dice and add to the bowl.

Using a measuring spoon, equally divide the portion of liquid to solids in each tart.

Put the tarts on a baking sheet and place them in the oven to cook for 25-30 minutes, depending on the appliance. Once cooked, take them out and let them cool.

Makes 12 quiche tarts.



Megan Luder, CNP

Megan is a certified nutritional practitioner who is passionate about creating and educating on the health benefits of nutrient-dense whole food.
libertynourished.com

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Norway House Wild Rice Salad

Farro and Manitoba-harvested wild rice are the perfect marriage of ancient grains in our protein-packed salad. It serves about eight portions, keeps in fridge for several days, and travels well.

Rice Ingredients

- 1 cup organic farro
- 1 cup of organic roasted pumpkin seeds
- ½ cup wild rice
- ¼ cup diced onion
- 1-1½ cup orange juice

Vinaigrette Ingredients

- ½ cup Heart Smart Organic Sunflower Oil
- ¼ cup New Roots Herbal Apple Cider Vinegar Powder
- 1 tbsp. Dijon mustard
- Salt and pepper to taste

Instructions

Cook farro and rice separately, according to package directions.

For wild rice, substitute water for orange juice.

Let cool. In the meantime, prepare the vinaigrette by mixing all ingredients.

Once the rice and farro are cooled, mix all ingredients along with the vinaigrette.

Serves eight.



Need more protein? Add some Beef Bone Broth Protein to the farro when cooking.

Flourish Original Recipe

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Laredo Lasagna

This Tex-Mex twist on a classic lasagna brings bold flavours and comforting layers together in a delicious new way.

Ingredients

- 375 g box of oven-ready lasagna noodles
- ½ lb ground beef
- 1 can (19 oz. or 540 ml) of kidney beans
- 1 medium-sized onion, finely sliced
- 4 cloves garlic, finely minced
- 2 cups mushrooms (of choice), finely sliced
- 1 cup cherry tomatoes, sliced in half
- 320 g shredded Monterey jack cheese
- 1 tbsp. chipotle peppers in sauce, diced
- ½ cup favourite BBQ sauce
- 2 tbsp. Lion's Mane Powder
- 1 tbsp. chili powder
- Salt and pepper (to taste)

Instructions

Drain and rinse kidney beans. In a 12" × 9" (30.5 cm × 22.9 cm) pyrex baking dish, add the kidney beans, BBQ sauce, and chipotle peppers, and smash with a fork. This forms your bottom layer. No need for cheese on bottom layer.

Lightly sauté tomatoes and hamburger meat; add chili powder. Divide in two layers (second and fourth).

Sauté onions, mushrooms, and garlic, then add Lion's Mane. Add salt and pepper (to taste). Dedicate a layer to this blend.

In a convection oven, bake uncovered at 375 °F (190 °C) for approximately 30 minutes. Remove from oven and leave aside for 5 minutes before serving. Spice it up with marinated jalapeños.

Serves six.

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Flourish Original Recipe

AskGord



Is there a natural health product that can help me cope with my seasonal allergies?

Yes! Black cumin seed oil, rich in linoleic acid, is a safe and effective long-term option. It helps by inhibiting histamine release—the compound that triggers immune responses like runny nose, itchy eyes, and sneezing associated with seasonal allergic rhinitis (hay fever).

These days, allergy seasons last longer due to shifting climate patterns, making the assault of airborne allergens from trees, grasses, and ragweed last about half the year. Black cumin seed oil is an excellent long-term alternative to over-the-counter antihistamines.

Look for certified organic black cumin seed oil in convenient softgels or in liquid form, which can be taken by the spoonful or added to smoothies, shakes, and beverages.

I'm looking at natural health products for long-term stress management, but I'm worried about developing a dependency. Do you have any suggestions?

Good for you. If left unmanaged, stress can contribute to chronic health concerns including cardiovascular disease, mental health disorders, and compromised immune function.

Here are three great options with no long-term dependency. Hot water–extracted *beta*-glucans from reishi mushrooms may help reduce oxidative stress and support balanced inflammatory pathways, promoting resilience to daily stressors.

Ashwagandha extract is renowned for stress management. Be sure the label shows validated withanolides, the compounds which can help tame elevated cortisol levels and increase resistance to anxiety and stress.

Another favourite is certified organic lavender oil. Among its major constituents is a compound called linalool, which is proven for reducing restlessness, exhaustion, and to destress.

Take care and don't let stress get the better of you.

These products may not be right for you. Always read and follow the label. Content provided is for informational purposes only, and does not intend to substitute professional medical advice, diagnosis, or treatment.

You have a question you would like answered about your health and supplements? Gord would be happy to answer them! We could even feature them in this page if others could benefit from the information.

Reach out to him at [facebook.com/newrootsherbal](https://www.facebook.com/newrootsherbal) or call 1 800 268-9486 ext. 237

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