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# Editor's Letter



Spring could not come soon enough!

Winter in Canada is famous for its cold temperatures and snowy weather, but this year, we received an extra layer of crushing chills in the form of pandemic-related shutdowns, restrictions, and—in Quebec—an 8 p.m. curfew. While we appreciate how these measures have helped slow the spread of the coronavirus and reduce the workload for overextended health-care providers, we are also longing for a return to everything we've been missing. With the change of season comes a hope for better days.

Few people would disagree that we are all looking forward to spring "like never before." So, as the weather warms up, let's take every opportunity to enjoy some time outdoors. Nothing compares to the first barbecue in spring, with the warm sun on your skin and succulent aromas stirring up the appetite. Dust off the bike, the golf clubs, or tennis racket, and get moving with an old friend or maybe someone new. But, as you do so, please remain vigilant, and do your best to keep everyone safe and healthy.

With this in mind, I invite you to read on as we feature some great reads on dealing with adrenal fatigue, arthritis, and seasonal allergies. We also delve into infections and health, discover how probiotics influence brain health, and how sleep is essential to our immunity.

Every step towards better health is a step in the right direction, and a step that will help you flourish!

Sophia Golanowski, BCom, MBA  
Editor-in-Chief

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# Infections and Health

by Dr. Ludovic Brunel, ND



Our family has not been sick since the spring. With two young kids, one starting preschool and the other in kindergarten, we would usually expect quite a few colds to roll through the household, especially at this time of the year. The statistics show that young children can get as many as eight to ten colds each year.

On the one hand, this is great news: Not having had a cold or flu for this long certainly does not feel like it should be a problem. It also shows that, as difficult as it might be, social distancing is slowing the spread of viruses and infections.

According to the “hygiene hypothesis,” the increasing incidence of autoimmune diseases and allergies in the developed world may be linked to a decreasing incidence of infections. Studies show that attendance at a daycare for the first six months of life significantly reduces the risks of developing eczema or asthma. Animal models also support the idea that lower infectious

burdens lead to a higher incidence of autoimmune disease. Basically, the infectious agents that evolved with us protect us from a spectrum of immune-related disorders.

Normal exposure to microbes, especially in children, is needed for the normal development of our immune system. According to some researchers, this may explain the rising incidence of asthma in the last decade in the developed world. The incidence of eczema has also dramatically increased in industrialized countries over the last 30 years and now affects 15–30% of children and 2–10% of adults. Similarly, autoimmune diseases are on the rise, with increases seen in inflammatory bowel disease, type 1 diabetes, and multiple sclerosis. While causation cannot be elucidated, there is a strong correlation.

There are currently more than one billion people worldwide with an allergic disease, and the problem is expected to affect four billion by 2050. Asthma is a significant factor in this epidemic, with 300 million affected patients of all ages. Animal studies show that infection with respiratory viruses leads to protection from asthma.



Of course, no one is suggesting that you should try to get sick more often. The idea is not to avoid getting sick, but getting sick less often and with less drastic effects, encouraging the immune system to function better and prevent allergic and autoimmune disease. Research studies looking at the influence of infections on our immune system function points to a relationship on the effects of beneficial bacteria and the microbiome—all the microbes that live on or in the human body—in regulating its function.

Probiotics, containing healthy live bacteria, have been shown to be particularly helpful when it comes to maintaining a normal immune response. A review showed that children taking probiotic supplements are less likely to develop respiratory tract infections. When scientists reviewed 23 research trials involving more than 6,000 children, they found that probiotics significantly decreased the risk of having at least one respiratory tract infection. Children supplementing with probiotics were also less likely to be absent from daycare or school.

Not only are probiotics effective at disease prevention, but research also demonstrates that probiotics improve symptoms of autoimmune disease. Trials have shown that modification of the bacteria in our gut with probiotics improves gastrointestinal symptoms and inflammation in rheumatoid arthritis, ulcerative colitis, lupus, and multiple sclerosis.

Another natural supplement with benefits when it comes to balancing the immune system is vitamin D. Our main source of this vitamin remains the sun. Studies show that sun avoidance is a risk factor for some major causes of death and is linked to higher rates of some cancers as well as heart disease, both of which have some involvement with some function of the immune system. We now spend most our time inside, which has led to low levels of vitamin D in the general population. The prevalence of vitamin D deficiency has therefore increased significantly. The Canadian Health Measures Survey, done between August 2009 and November 2011, showed that about 32% of Canadians were deficient in vitamin D<sub>3</sub>, with less than 50 nmol/L of 25(OH)D<sub>3</sub>, a marker of vitamin D<sub>3</sub>, in the blood.

Vitamin D deficiency is prevalent in several autoimmune diseases such as multiple sclerosis, type 1 diabetes, and lupus. Multiple studies show that vitamin D receptors are found on several immune cells and that vitamin D has effects on the immune system. It regulates the growth and differentiation of multiple cell types, and it helps to regulate the immune response. The vitamin reduces the production of immune cells involved in inflammation and plays an important role in the prevention of autoimmune disorders. There is mounting evidence demonstrating

that vitamin D deficiency increases the risk of upper respiratory tract infections and influenza. One study in school children demonstrated that receiving 2,000 IU of vitamin D per day reduces the risk of contracting the flu from 18.6% to 10.8%. It is not surprising that some experts are asking for immediate action when it comes to protecting the population from vitamin D deficiency.

To minimize the risk of complications following infections, as well as developing chronic diseases, it is clearly in our interest to maintain an effective immune response. The hygiene hypothesis and science show that experiencing minor infections helps to prevent allergies and autoimmune diseases. In addition, measures such as supplementation with probiotics and vitamin D have been shown to protect health and balance the immune system.

To support our immunity, we also need to focus on some of the key determinants of health. Staying active, maintaining a healthy weight, not smoking, and eating more vegetables are all lifestyle factors that have been shown to improve health and reduce the risk of negative health outcomes after contracting an infection.



**Dr. Ludovic Brunel, ND**

Dr. Brunel has 15+ years' of experience as a Naturopathic Doctor and practices in Calgary. His

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# Probiotics and Brain Health

## *So Happy Together*

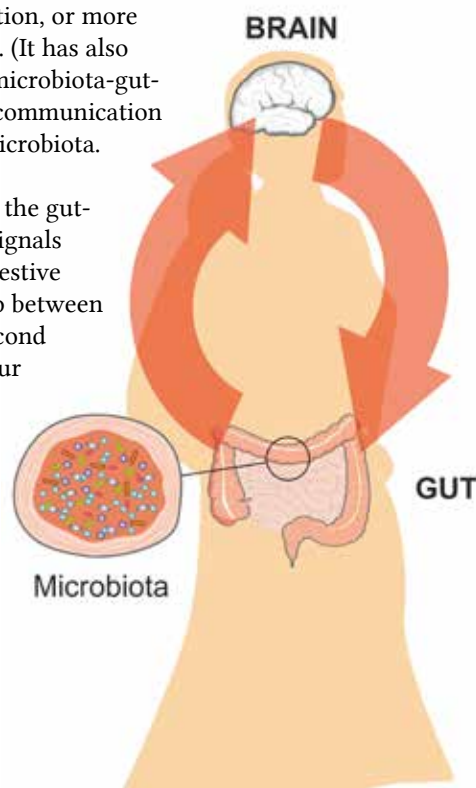
by Andrea Donsky, RHN



There seems to be no end to the exciting things we are learning about the microbiota, that collection of bacteria, viruses, fungi, and protozoa living on and inside our body. It has been said that the microbiota may weigh up to five pounds—these are five pounds we do not want to lose, and for several reasons!

Experts have come to recognize an intimate connection between the microbiome (the environment where the flora lives), probiotics, and brain health. The bacteria living in the microbiome are busy, helping with digestion, protecting against bad bacteria that cause disease, producing vitamins, and regulating the immune system.

There is also the brain connection, or more specifically, the gut-brain axis. (It has also sometimes referred to as the microbiota-gut-brain axis.) There is constant communication between the brain, gut, and microbiota. The bidirectional exchange of information that occurs along the gut-brain axis involves chemical signals between the brain and the digestive system. This close relationship between the primary brain and the “second brain”—the gut—means that our food choices, the condition of our digestive system, and the microbiota all have a significant impact on our brain health, emotions and mood, cognitive function, reactions to stress, sleep, and our overall health.



Because the relationship between the brain and gut is so powerful, it only makes sense that you want—and need—to keep the gut in balance. Probiotics, or beneficial bacteria, can help with this critical task.

## The Brain-Gut Axis and Brain Health

Aparna Lyer, MD, assistant professor of psychiatry at the University of Texas Southern Medical Center, said: “I can foresee more widespread usage of probiotics in the treatment of mental health, especially since most people can tolerate them well.” This is promising news for everyone who wants to take better care of their brain health and the traffic that travels along the gut-brain highway.

This highway system is called the vagus nerve, which is the tenth cranial nerve that extends from the brainstem through the neck and thorax down to the abdomen. Signals move in both directions along this route, but guess which



but guess which end of the axis sends the most messages? If you guessed the brain, you are wrong. Your gut actually does most of the “talking” to the brain, another indication that the gut and microbiota are necessary players in brain health.

You may be used to hearing about the central nervous system (brain and spinal cord) and the peripheral nervous system (PNS)—nerves that control muscles, organs, and sensations. However, there is a branch of the PNS in the gut known as the enteric nervous system that actually has more nerve cells than the spinal cord. This is one reason why the gut is referred to as the “second brain.”

Your second brain is where about 90 percent of your body’s supply of serotonin is produced before travelling to the brain. Serotonin is known as the “happy hormone,” because it plays an essential role in mood, happiness, and feelings of wellbeing. This hormone also enables brain and other nervous-system cells to communicate with each other; it also helps with digestion, eating, and sleeping. All these factors make it critical for you to keep your gut environment healthy so serotonin can continue to be produced and sent to the brain.

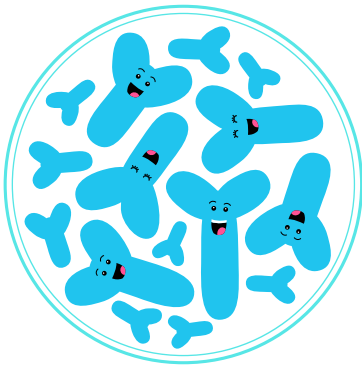
## Probiotics and Brain Health

When there is an imbalance in the microbiota (a state known as dysbiosis) caused by too many unhealthy species of bacteria or other microbes, the brain can be affected. For example, dysbiosis has been associated with an increase in depressive symptoms. Research findings demonstrate the link between the state of the microbiota and the brain.

Enter probiotics, the live bacteria and yeasts available in selected foods and supplements that have been shown to be beneficial for a variety of health conditions. The most common types of bacteria classified as probiotics belong to one of two groups: *Lactobacilli* or *Bifidobacteria*. Mostly, you may be familiar with their use to help with digestion, diarrhea, irritable bowel syndrome, allergies, and inflammatory bowel disease. Probiotics also may boost immune-system function and help promote heart health.

However, more and more researchers and health professionals are examining the probiotics’ ability to help with mental health and brain health. Some species, for example, have demonstrated an ability to help with mood and anxiety disorders in clinical trials.





*Bifidobacterium*



*Lactobacillus*

## Psychoprotiotics and Brain Health

That brings us to a growing interest in “psychobiotics,” beneficial bacteria which have been shown to help balance your mood and behaviour as well as improve depression and anxiety symptoms, when taken in adequate amounts. Two probiotics, in particular, have demonstrated good results against depression and anxiety: *Bifidobacterium longum* and *Lactobacillus helveticus*. These bacteria amplify serotonin. Anxiety and depression are often linked with inflammation; probiotics have an ability to reduce inflammation through the immune system.

In a study, the two probiotics were given for two weeks to a group of rats and, for 30 days, to a group of healthy human volunteers. The use of the probiotics was shown to significantly reduce anxiety-like behaviour in the animals and to reduce psychological distress in the human volunteers.

## Choosing Probiotics

Which probiotics should you buy? Always look for a multistrain supplement that provides at least 10 to 20 billion colony-forming units (CFUs). This number refers to how many viable bacterial cells in a sample can divide and form colonies. Your individual dosing needs should be discussed with a knowledgeable health-care provider.

Look for enteric-coated and refrigerated probiotics. The coating protects the live bacteria from the harsh gastric acid and allows them to reach the intestinal tract where they can get to work and benefit your intestinal flora.



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naturallysavvy.com

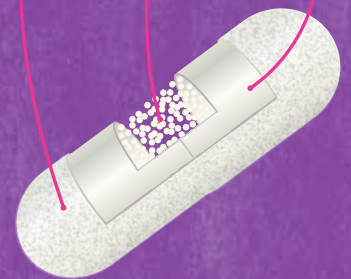
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\*Kuate, S.P., S. Bai, and A. Hossain. “In Vitro Comparative Study of the Survival of Probiotic Capsules in a Simulated Gastric Environment.” Data on file.



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# Adrenal Fatigue

by Dr. Farnoush Khodarahmi, MSc, MA, ND

Adrenal fatigue affects individuals who suffer from physical, mental, environmental, or emotional stress for more than three months. Adrenal fatigue can affect anyone, but more likely single parents, individuals who are drug-dependent, those who have faced a life crisis or trauma, or those who have a stressful job circumstance. The term “adrenal fatigue syndrome” encompasses a broad spectrum of debilitating symptoms associated with chronic adaptation to stress. Nervousness, body aches, sleep disturbance, digestive problems, reduced memory, and feelings of tiredness and exhaustion are some of the common adrenal fatigue symptoms.



## Does Adrenal Fatigue Really Exist?

Prolonged exposure to stress leads to degenerative and physiological changes that are brought up by the excessive stimulation of the sympathetic nervous system in our bodies. As of now, no specific medical condition can diagnose this progression to health degeneration.

Science demonstrates that stress affects adrenal-gland activities and hormonal or glucocorticoid secretion via the hypothalamus-pituitary-adrenal (HPA) axis, supporting the theory of the adrenal fatigue syndrome.

Whether or not the diagnosis exists, simple options are available to help with the collection of symptoms. A personalized and holistic plan that includes counselling, medications, herbs, supplements, and lifestyle changes can help to support the body’s adaptation to stress. In herbal medicine, plants that support the adaptation to stress are called “adaptogens.”

## Then, What Is the Real Theory Behind Adrenal Fatigue?

Adrenal fatigue occurs when the body’s attempt to withstand chronic stress fails to respond appropriately to that stress. Adrenal glands are two small organs that are located above our kidneys; they are responsible for secreting the release of our stress hormones like cortisol and adrenaline. With long-term

stress, or maladaptive coping mechanism, the adrenal glands may release less stress-related hormones because of a negative feedback loop associated with hormone production via the HPA axis. Symptoms of adrenal fatigue occur because of such conditions. Physiological progression of adrenal fatigue consists of three phases: the alarm, the resistance, and the exhaustion phases.

During the alarm phase, also known as the fight-or-flight response, the body responds to the release of stress hormones by increasing blood pressure, heart rate, and blood flow to muscles. During the resistance phase, the action of cortisol is most prevalent. Anti-inflammatory when secreted in small amounts, cortisol suppresses the immune system when there is too much and increases the risk of disease. Diminished amounts of cortisol and aldosterone during this phase cause a decrease in gluconeogenesis, rapid blood-sugar fall, sodium loss, and potassium retention.

## Adrenal Fatigue Versus Adrenal Insufficiency

Adrenal insufficiency is a medical condition that occurs when our adrenal glands do not produce enough hormones, due to damage in the adrenal or the pituitary glands. The pituitary gland is a pea-sized gland present in the brain; its primary function is to instruct the adrenal glands to produce cortisol. A person who has adrenal insufficiency can be confused as well as dehydrated and experience severe weight loss. They can feel tired, weak, and dizzy; and have blood pressure abnormalities.



Other symptoms include nausea, diarrhea, stomach pain, and vomiting. Adrenal fatigue is not as severe, nor is it a medical condition, and it is characterized by high stress levels that affect the optimal functioning of the adrenal glands.

## Symptoms and Signs of Adrenal Fatigue

The most common symptoms and signs of adrenal fatigue are the following:

- decreased energy and stamina—feeling exhausted and run-down most of the day
- reduced resilience
- decreased productivity
- feeling overwhelmed
- lack of a refreshed feeling, even after eight hours of sleep
- hypoglycaemia
- mild depression
- concentration problems
- craving sugar and salt
- digestive problems
- trouble in waking up and getting to sleep
- tiredness
- lightheadedness when standing up quickly
- inability to really wake until after 10 a.m., afternoon low between 3 and 4 p.m., and then feeling better after 6 p.m.
- increased effort to do everyday tasks.

## Natural Treatment of Adrenal Fatigue

### Lifestyle Modification

There are some modifications that you can bring into your lifestyle for reducing the effects of adrenal fatigue:

- Identify your biggest stressors, and what have been your usual coping mechanisms.
- Increase your free time up to two hours per day, away from screens and portable telephones.
- Practice mindfulness and deep breathing.
- Practice moderate daily exercise.
- Have a regular sleep schedule.
- Create a chart! After prioritizing the items, start doing more of the things that make you feel good and try to reduce the things that are making you feel low or stressed out.
- Avoid people or situations that drain your energy or reduce the amount of time with them.
- Eat meals at around the same time every day.

## Dietary Changes: Foods to Avoid

It is recommended to limit the use of drinks and foods which are high in sugar. Here are some foods which should be consumed in moderation or avoided:

- white flour
- white sugar
- caffeine
- alcohol
- soda
- processed food
- fried foods
- artificial sweeteners
- fast foods

## Foods to Eat

Prefer foods that have healthy fats, a balanced amount of protein, and nutrient-dense carbohydrates. Increase fruits and vegetables to at least five servings per day. Here is a list of foods you should include in your diet to help cope with adrenal fatigue:

- fish
- eggs
- nuts
- legumes
- colourful vegetables
- leafy greens
- whole grains
- olive oil
- grapeseed oil
- coconut oil
- low-sugar fruits

## Nutraceuticals

Vitamins B and C as well as magnesium are also good for the optimal functionality of the adrenal glands. Vitamin C, which is essential in the production of adrenal steroid hormones and used in the adrenal cascade, is a crucial vitamin for adrenal recovery.

## Herbal Supplements

Here are some adaptogenic botanicals that enhance the “state of non-specific resistance” in stress, to help you with the collection of the symptoms.

### Licorice Root

Licorice (*Glycyrrhiza glabra*) root has shown benefits for those in the exhaustion phase of adrenal fatigue. Studies demonstrate that licorice functions to regulate cortisol levels and improve energy. Deglycyrrhizinated licorice may be preferable for people with high blood pressure.

### Siberian Ginseng

Siberian ginseng (*Eleutherococcus senticosus*) is an herb that supports the adrenal glands and increases body stamina. It also helps to improve memory, chronic fatigue, irregularities in blood sugar levels, and lowered immunity. It is one of the best natural treatments for adrenal fatigue.



### Golden Root

Golden root is also known as *Rhodiola rosea*. If you are suffering from adrenal fatigue, then this root can help improve energy and mood.

### Maca Root

Maca contains vitamins B and C, zinc, magnesium, calcium, and iron. Maca is a good source of phytonutrients, antioxidants, and plant-based proteins. It helps to relieve depression and anxiety as well as to support mood balance and energy.

## Outlook

If you feel symptoms such as weakness, feelings of tiredness, or exhaustion, then you should visit your naturopathic doctor for your full diagnosis. You may also have anemia, sleep apnea, depression, fibromyalgia, or other health-related problems, so it is advised, if you suffer from multiple health concerns, to visit a naturopathic doctor.



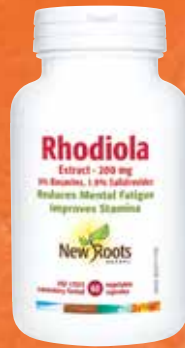
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patients as they grow on their journey to their optimal health and wellbeing, inspiring others around them to do the same for themselves.

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# Arthritis

## Comprehensive Integrative Management

by Dr. Philip Rouchotas, MSc, ND,



Arthritis refers to any number of conditions causing joint pain, swelling, and stiffness resulting in disability. According to the Public Health Agency of Canada, arthritis affects 16% of Canadians over the age of 15. There are several different types of “arthrides,” including osteoarthritis (“wear-and-tear” arthritis), rheumatoid and other types of autoimmune arthritis, juvenile arthritis, systemic lupus erythematosus (SLE), and gout. The pain and joint damage associated with arthritis is caused by the presence of uncontrolled inflammation and degeneration of the cartilage. Therefore, the goal of treatment is to reduce inflammation and promote joint healing.

### The Role of Diet

Dietary factors can be a source of inflammatory triggers. Alterations in digestive function, specifically the development of “leaky gut,” have been identified in a number of chronic inflammatory conditions including fibromyalgia, juvenile arthritis, lupus, and ankylosing spondylitis (AS). When gut-barrier function is altered, food proteins that are normally held in the intestinal lumen to be digested prior to their absorption instead go into the blood. These nondigested macromolecules are then recognized by the body as foreign elements, triggering an immune reaction and the development of immune hyperactivity. Studies of patients with fibromyalgia suggest higher rates of gluten intolerance, and studies of patients with rheumatoid arthritis show increased levels of food-specific antibodies present in their intestinal fluid. The involved foods included proteins from cow’s milk (*alpha*-lactalbumin, *beta*-lactoglobulin, casein), cereals, hen’s egg (ovalbumin), cod fish, and pork meat.

Dietary avoidance of proteins that drive this intractable inflammation prove very useful for alleviating symptoms of arthritis and other autoimmune diseases. This is the basis for recommendation of gluten and dairy-free diets as a treatment in arthritis.

### Supplements May Be Beneficial

A four-pronged approach is described for achieving maximal clinical improvement among patients with various types of arthritis. The approach calls upon natural health products that distinctly work to relieve pain and inflammation. When combined, the collective impact to joint pain can be profound. The four components of this method are the immune modulation, the anti-inflammatory action, the improvement of joint structure integrity, and the enzymatic approach.

Two key interventions that achieve the outcome of immune modulation are probiotics and vitamin D. Among their wide array of important positive health outcomes, both probiotics and vitamin D have been shown to improve pain and other parameters among individuals with arthritis. Vitamin D and



probiotics earn the title “immune modulatory” because they deliver very unique clinical impact. They act as “immune-adaptogens,” meaning that they alleviate immunity processes that drive autoimmune disease, yet they simultaneously ramp up the anti-infectious immunity response. Vitamin D and probiotics improve symptoms of arthritis while reducing the likelihood of getting a cold or flu, and if a cold or flu occurs, they reduce its severity and duration.



Many natural health products have been shown to serve as anti-inflammatory. Preferred considerations for management of arthritic pain include omega-3, boswellia, and curcumin. Physiologically, cells of the immune system use arachidonic acid to create cytokines and eicosanoids—hormone-like molecules of the immune system—which are powerful drivers of inflammation.



Arachidonic acid is acted upon by one of two enzymes—cyclooxygenase or lipoxygenase—which condition the transformation of arachidonic acid in highly inflammatory byproducts. Boswellia and curcumin work by inhibiting the two enzymes. As for omega-3s, they work by replacing the substrate of the cellular membrane, which results in the transit of some EPA and DHA through the two enzymes, resulting in anti-inflammatory products as opposed to proinflammatory.

For the structural aspect of this integrative approach, glucosamine and chondroitin help to strengthen joint tissues. They have been very thoroughly researched in humans. They have been shown to improve pain, reduce circulating markers of inflammation, and actually slow progression or reverse damage caused by arthritis to joint space.

The final component of this four-pronged approach is enzymatic. A very large body of controlled human studies has shown that oral supplementation with digestive enzymes—in this case proteolytic—achieves important benefits for pain control.

## Discussion

Given how widespread arthritis is, how debilitating arthritic pain can be, and unwanted side effects delivered by conventional treatments, it is not surprising that diet and natural health products have received a lot of attention in this area. If diet and natural health products can individually bring moderate benefits to individuals suffering from arthritis, their combination in a comprehensive approach can deliver an important magnitude of benefits.

## Overview of Comprehensive Approach for Arthritis Management

Intervention	Basis
Strict gluten-free and dairy-free diet	Eliminate dietary proteins reproducibly implicated in causing/progressing leaky gut
Four-Pronged Supplemental Approach	
Probiotics, vitamin D	Immune modulatory
Fish oil, boswellia, curcumin	Anti-inflammatory
Glucosamine, chondroitin	Structural
Proteolytic digestive enzymes	Enzymatic

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# Seasonal Allergies

## Naturopathic Management

by Dr. Kaitlyn Zorn, HBSc, ND

The warm weather does not only signal that summer is on its way, but that the pollen is out! Allergy sufferers worldwide understand this love-hate relationship with spring and summer. My personal experience with allergies as an adolescent drew me to naturopathic medicine. Through nutrition, supplements, herbal medicine, and other lifestyle strategies, I no longer rely on antihistamines like I once did. Allergic rhinitis lends itself well to the incorporation of both holistic and mainstream approaches, as many naturopathic treatments will not interact negatively with pharmaceutical treatments if needed, especially acupuncture and dietary recommendations.

### Allergic Responses

Pollen is recognized by the body of allergic individuals as a foreign antigen (invader), causing the immune system to start an inflammatory cycle. This involves the immune system to recruit mast cells (defenders) in response to the antigen. Mast cells release histamine which leads to more blood flow directed to the area where the pollen is (e.g., nose, eyes, throat), causing ongoing allergy symptoms such as:

- Sneezing, congestion
- Itching: nose, eyes, ears, palate
- Bronchial irritation
- Postnasal drip
- Fatigue, drowsiness, malaise
- Dark under-eye circles

If left unmanaged, allergic rhinitis can lead to sinusitis, otitis media, sleep apnea, and eustachian-tube dysfunction.

### Conventional Treatments

Conventional treatments involve controlling environmental exposure to known allergens (e.g., pollen, dust mites, mold), and use of medications such as pharmaceuticals and immunotherapy. Pharmaceutical antihistamines aim to prevent the immune response from getting out of control, by targeting the molecule histamine. Over the counter antihistamines, decongestants, and nasal sprays (steroids) are most commonly used. Medication side effects include dry mouth, headache, drowsiness, and rebound congestion (this may occur with over-usage and long-term dependence on antihistamines).



## Lifestyle Strategies

Both medical doctors and naturopathic doctors choose first to do no harm. This means starting with the basics such as closing windows to avoid pollen buildup, dusting, using HEPA/air purifier filters, washing of linens containing allergens, and frequent washing of bedding, just to name a few.

Other basic “antiallergy strategies” start with a healthy diet rich in antioxidant and anti-inflammatory foods. This change is not elaborate but supports eating large servings of fruits and vegetables, choosing more lean proteins/fish over processed meats, healthy fats (e.g., avocado, coconut oil, olive oil), and spices like turmeric and ginger that target inflammation. Packaged foods with high fat and sugar promote congestion and inflammation, leading to more allergy symptoms. So, try reducing processed foods and sugars when possible. Milk and dairy consumption may also worsen mucous formation, therefore worsening nasal congestion.

Stress reduction helps the body better tolerate excess antigens (the pollen “invaders”), allowing your body to have less of an immune response. Try some yoga, meditation, or go for a walk to help promote healthy breathing and aid in relaxation.

## Naturopathic Supplements and Herbs

Research shows that some naturally occurring plant compounds have antihistamine effects. Naturopathic supplements including probiotics, vitamin C, quercetin, and nettle work to reduce inflammatory pathways related to allergies.

### Quercetin

This compound is a flavonoid (plant antioxidant) that has been shown to have both antiallergy and anti-inflammatory effects in animal and human research models. Foods that are high in quercetin are capers, onions, apples, and dark red or blue berries.

### Vitamin C

Ascorbic acid, the active constituent in vitamin C, has been found to lower histamine concentrations in the blood of patients with allergic diseases. From this, we can gather that vitamin C possesses antihistamine activities, similar to a pharmaceutical version. Vitamin C is found in a plethora of foods like bell peppers, dark leafy greens, broccoli, and citrus fruits.

### Nettle (*Urtica dioica*)

This plant, also known as “stinging nettle” due to its small spikes, has many uses and has shown promise in allergy reduction. A cell study found that nettle was an antagonist of histamine receptors (basically inhibiting the receptor stimulation) and inhibited inflammation. Nettle can be found in the form of tea leaves or an herbal tincture. You can forage nettle outdoors, but you should know how to properly handle the stinging leaves.



### Probiotics

Probiotics used early in life may work preventatively to reduce allergy incidence in adolescence and onwards. Evidence shows that the gut controls various immune-system functions, so using probiotics can help reduce the body’s allergic response. Early childhood uses of probiotic strain *Lactobacillus rhamnosus* (daily by mother from 35 weeks gestations to 6 months postpartum while breast-feeding, and then from birth to 2 years of age) prevented atopic sensitization (allergies, eczema) and hay fever prevalence later in life.

Other mentionable supplements used in naturopathic medicine for control of allergy symptoms are bromelain; omega-3 fatty acids; and other herbs such as astragalus, reishi, and eyebright.

## Acupuncture

It is thought that acupuncture may positively benefit the immune system, therefore may have a positive impact on allergic rhinitis (allergies). A meta-analysis found that compared to the control group (no acupuncture), the acupuncture treatment group showed a significant reduction in the following:

- Nasal symptoms
- Use of medication
- Quality-of-life scores
- IgE levels in the bloodstream, which is a measure of allergic responses in the body



There is an abundance of literature regarding the specific acupuncture points that have been shown to benefit allergic rhinitis. A randomized controlled trial found that several acupuncture sessions involving a series of specific acupuncture points reduced the number of days that an antihistamine was required. In this study, acupuncture points such as L14, LI11, Yintang, Bitong, LU7, SP6, and ST36, among others, were used for allergy control. Acupuncture protocols involving points over top of the sinus area (Yintang, Bitong), and on other parts of the body, may also reduce antihistamine dependence and allergic symptoms. Both LI4 and LU7 are important points, controlling aspects of the face and lung/respiratory system. Acupuncture has shown the potential ability to limit reliance on antihistamines for allergic rhinitis management, and to reduce antihistamine and other drug-induced side effects that can also affect quality of life.

## Conclusion

Including both naturopathic and lifestyle techniques in your seasonal allergy regiment can be helpful in reducing reliance on antihistamines and nasal decongestants and provide more long-term relief.



### Kaitlyn Zorn, HBSc, ND

A Guelph naturopathic doctor who uses a blend of modern science and traditional healing therapies to treat the whole person. Her journey has helped her develop an interest in brain health, pain management, and critical illness relief.

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# Together, We'll Thrive

by Gordon Raza, BSc

There are no shortage of opinions from health-care professionals and laypersons alike regarding COVID-19. Whatever your point of view, we're in this together. The term "herd (or community) immunity" is a concept gaining in popularity and perceived by many as the eventual solution for COVID-19. Herd immunity is reached when between fifty to ninety percent of a given population are resistant to the cause of a disease—this percentage varies with how contagious an infection is. Vaccination, which is being rolled out across Canada, and surviving infection, are central to herd immunity. However, maintaining a strong immune system by means of a healthy lifestyle and strategic supplementation further inhibit disease transmission. The same goes for following public safety guidelines.

While some of us see the light at the end of the tunnel, let's remember others may still be struggling. Gestures such as asking a neighbour if they would like you to pick them up something while shopping, slowing down to accommodate pedestrians on roads while social distancing, or a simple check-up call matter. Keep the kindness going and be mindful of the importance of public safety guidelines, especially for those more prone to infection.

As temperatures increase, so do activities we can move outside. To stay safe and remain sane, break down your day to maximize what can be done outdoors. Reading, studying, listening to music, food prepping, grilling, cooking, and exercising can all be shifted to an outdoor setting. Last summer reflected these trends as sports stores exhausted their inventory of bicycles, kayaks, paddleboards, and camping gear. The common denominator for these activities is nurturing body and mind while keeping a safe distance from others.

When it comes to outdoor living, the classic kettle grill has given way to sophisticated outdoor dream kitchens. In fact, even an outdoor pizza oven is a must for the serious foodie. If you're "old school," stock up on charcoal, as last year saw the first charcoal crisis of our lifetime. For downtown dwellers, you'll be impressed with the amenities at your local outdoor store for an impromptu picnic. Better yet: Why not book a campsite for an affordable weekend getaway where you can get back to nature without bursting anyone's bubble. If you want to get that camping groove minus the travel, pick up a firepit at your local hardware store.

Here's to building upon the positive elements COVID-19 has exposed in the way our communities have come together in the past year. We have a lot more in common than what divides us. Together, we'll survive and thrive.

# Sleep and the Immune System

## Naturopathic Perspectives

by Dr. Chelsea Azarcon, BSc, ND



Hitting the hay, sawing logs, catching ZZZs—these are terms we use to describe sleep, but what is happening is more like a well-timed orchestra’s performance. Areas of the brain work in concert; some turn on and some turn off, directed by cues from light and chemical messengers called neurotransmitters. However, recent research suggests that sleep is not a process confined to the brain but that can receive input from the entire body, most prominently through the immune system.

The fact that sleep deprivation is associated with increased risk of high blood pressure, obesity, diabetes, depression, and early death is the first clue that sleep is a process directed by the entire body. The role of the immune system is suggested by research revealing that not sleeping makes you sick and, conversely, being sick causes you to feel tired and sleep. Invading pathogens like viruses, bacteria, or fungal species carry markers that activate the immune system and begin a cascade of chemical messengers, especially cytokines, that increase the need for sleep, promote fatigue, and decrease sleep quality. It turns out that this is true for acute and chronic infections.

Other health conditions interact with sleep via the immune system. Narcolepsy, for example, has been suggested to be an autoimmune disease, as it is strongly correlated with a genetic variant implicated in many autoimmune conditions. Sleep apnea has also been identified with immune activation, displaying higher levels of the chemical messengers’ cytokines.

## Sleep

It is estimated that 25% of Canadians are dissatisfied with their sleep. Conventionally, this is managed with prescription medications that address isolated symptoms, but also may cause undesirable side effects and worsen insomnia. Recent research has begun to reveal that changes in sleep may be a consequence of imbalances in the immune system. Even disruptions in healthy sleep patterns can activate the immune system. Chronically shortened or interrupted sleep, known as fragmented sleep, can induce changes in the cardiovascular and metabolic systems as well as alter the microbial balance of the intestines. These changes create oxidative stress, a condition in which there is an excess of reactive, charged particles that



attack cell membranes, proteins, and DNA. Oxidative stress, in turn, activates the immune system. While discrete health conditions, like diabetes or infection, can alter sleep through the immune system, the immune triggers associated with oxidative stress, cytokine production, and immune-activating markers can be produced in response to exposures of everyday life such as food, psychological stress, and environmental toxins.

## From the Immune System to the Brain

The brain protects itself from chaos in the rest of the body by carefully arranged cells. This defence is known as the blood-brain barrier. The chemical messengers produced by an activated immune system as well as oxidative stress can compromise the integrity of this barrier, allowing cells that do not normally have access to the brain, such as immune cells, to cross the barrier. A few areas of the brain are not protected by this barrier and can be directly attacked. One such structure is the pineal gland, which produces melatonin, the hormone responsible for regulating the body's sleep clock. Interestingly, melatonin has recently been revealed as an important player in many immune-related functions. Some immune cells have also demonstrated an ability to cross an intact blood-brain barrier under the influence of injury, inflammation, or disease. To make matters worse, loss of sleep may further compromise the function of the blood-brain barrier and make it more permeable to invasive substances. Once inside the brain, components of the immune system impact the brain's communication network and trigger the brain's own immune network.

## Brain Immune Activation

Neurotransmitters are the chemical messengers the nervous system uses to communicate. They are part of the orchestra that links different parts of the brain to produce sleep and regulate many other functions

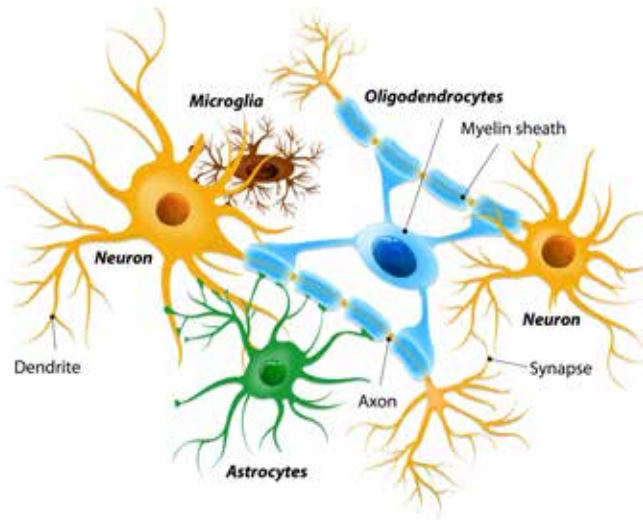
including mood. Two of the neurotransmitters involved in sleep, that tend to have a calming effect and help make melatonin, are serotonin and tryptophan. Both cytokines of the immune system and oxidative stress have been identified to decrease available levels of serotonin and to shunt tryptophan away from its normal neurotransmitter pathway to make a brain-toxic chemical instead. Glutamate and dopamine are two additional neurotransmitters that, in excess, have an excitable effect. Activated immune cells can impact dopamine levels, increase glutamate, and create anxiety that disrupts sleep.

When inflammation or oxidative stress activates the brain's own immune network, it enters a delicate dance with sleep patterns. Inflammatory processes in the brain occur through two types of cells unique to the brain, astrocytes and microglia, responsible among other functions for repairing and maintaining nerve cells. Astrocytes are also directly involved in sleep processes. A body of research has studied how these special cells behave when activated by sleep deprivation, oxidative stress, and immune chemical messengers' cytokines.

In the presence of these triggers, brain cells generate excess waste and undergo changes in their cell surfaces that place an extra "clean-up" burden on microglia and astrocytes. Brain clean-up is accomplished through a process called phagocytosis. Usually, phagocytosis is intended to eliminate waste products, but under the influence of inflammation-promoting triggers, microglia and astrocytes begin to phagocytose parts of nerve cells; another way of saying



## NEURONS AND NEUROGLIAL CELLS



this is that the brain begins to eat itself. Although this may be the body's attempt to repair worn nerve cells, the self-destruction has consequences. In the mouse brain, microglia activated by only 24 hours of sleep loss caused deficits in learning and memory that lasted at least seven days. Activation of astrocytes by acute and chronic sleep loss has also been correlated with cognitive decline. Over the long term, both sleep loss and activation of brain immune cells may lead to neurodegenerative disorders such as Parkinson's and Alzheimer's diseases. This is due to disruption of neurotransmitter production, immune-cell activation, and a resulting inability of the body to clean up brain waste.

Brain inflammation is also self-perpetuating. Activated brain immune cells produce their own inflammation-promoting cytokines and reactive particles, worsening the cycle of inflammatory triggered brain inflammation. If activation of these cells—namely microglia—continues, it may cause the brain to be more vulnerable to other types of damage and promote ongoing nerve-cell injury.

## Conclusion

Instead of being a discrete condition, sleep disruption may be related to a wide variety of underlying conditions. Thus, when working with a naturopathic doctor to improve sleep, it is important to address underlying health conditions, reduce inflammation, and identify sources of oxidative stress in daily life; and perhaps the answer to improving sleep lies in the immune system.



### Chelsea Azarcon, BSc, ND

Dr. Azarcon takes a whole body approach to treatment, addressing each patient's biochemical and nutritional needs, implementing foundations to healing, and identifying conditions preventing the body from working optimally.

[auburnnaturopathicmedicine.com](http://auburnnaturopathicmedicine.com)

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# Hot Detox Hemp Burgers

These vegan burgers are perfect travel companions that pack up easily. The balance of protein, fibre, and superdetox nutrients will keep you full for hours! Cashews and hemp hearts are excellent sources of magnesium. Every single cell in the human body needs magnesium to function. Strong bones and teeth, balanced hormones, relaxed muscles, a healthy nervous system and, most important in the hot detox, well-functioning detoxification pathways!

## Ingredients

- 2 cups grated carrots or unpeeled sweet potatoes (using a food processor)
- 2 cups filtered water, for soaking cashews
- 1½ cups kasha (toasted buckwheat groats)
- 1 cup raw cashews
- 1 cup hemp hearts
- ½ cup raw sunflower seeds
- ¼ cup filtered water, for soaking the flaxseeds
- ¼ cup red onion, chopped
- 3 tbsp. coconut aminos
- 2 tbsp. flaxseeds, freshly ground
- 1 tbsp. dried basil
- 1 tsp. pink rock or gray sea salt
- Optional: ½ cup dried cranberries, sweetened with apple juice

## Instructions

In a small bowl, soak the cashews in 2 cups water for 1 hour. Drain well. In another bowl, combine the ground flax and ¼ cup water and set aside for about 5 minutes until it gels.

Preheat the oven to 300 °F, and line two baking sheets with parchment paper.

Using a food processor, purée the soaked cashews until smooth.

Add the flax and the remaining ingredients, except for the kasha and carrots, and process until well-combined. Then, add the kasha and carrots, and the dried cranberries if using, and pulse, to avoid overmixing, until the mixture starts to form a ball.

Using your hands, shape the mixture into patties (about ¼ cup each). Place the patties on the baking sheet and bake for 25 minutes, flipping halfway through.

Makes 16 patties. Will keep for up to 4 days in the fridge or up to 3 months in the freezer. These freeze well. For an easy detox meal, just pop them into the oven or toaster oven and cook until warmed through.



**Julie Daniluk, RHN**

Nutritionist and TV personality, she is an award-winning, bestselling author that appeared on hundreds of television and radio shows, including The Dr. Oz Show.

[juliedaniluk.com](http://juliedaniluk.com)





# Honey Garlic Ginger Slow Cooked Chicken Thighs

Over years of working with families, I have learnt that meal planning plays a key role in healthy eating. In addition, having some extra-easy meal ideas can often serve as motivation for families to try new meals and have some fun in the kitchen.

This slow cooker chicken thigh recipe is both a family favourite and a client favourite. It's especially great on busy week nights.

## Ingredients

---

- 10–12 chicken thighs, boneless and skinless
- 4 cloves of garlic, minced
- ½ cup vegetable or chicken broth, keep aside
- 3 tbsp. honey
- 3 tbsp. light soy or tamari (you can even use coconut aminos)
- 2 tbsp. avocado oil
- 2 tbsp. sesame seeds
- 4 tsp. dried ginger or fresh ginger
- 3 tsp. arrowroot powder, keep aside
- 2 tsp. dried garlic
- Salt and black pepper, to taste

## Instructions

---

Place all chicken thighs in the bottom of a slow cooker.

Mix vegetable oil, broth, tamari, honey, ginger, and garlic. Combine well and pour over chicken thighs.

Slow cook for 6 hours.

Once the chicken is done cooking, warm the vegetable or chicken broth and mix in arrowroot powder. Mix the powder in well and pour into slow cooker to thicken sauce.

Sprinkle sesame seeds on top of chicken thighs and serve with cooked rice or any vegetable of choice.



**Angela Wallace, MSc, RD**

A registered dietitian with the College of Dietitians of Ontario, personal trainer, and family-food expert who specializes in women and child nutrition and fitness, she loves helping families get healthy together.

[eatrightfeelright.ca](http://eatrightfeelright.ca)

# Call-of-the-Wild Mushroom Soup

## *Flourish* Original Recipe

The complex flavour profile of Lion's mane powder makes this non-dairy take on mushroom soup the "cream of the crop."

### Ingredients

---

- Portobello mushroom caps, sliced then sautéed, broiled, or grilled.
- 1 medium-sized onion, diced
- 2 cloves garlic, diced
- 4 oz oyster mushrooms, finely chopped
- 4 cups low-sodium chicken broth
- 1 cup coconut cream
- 6 tbsp. butter
- 3 tbsp. all-purpose flour
- 4 tsp. New Roots Herbal's Lion's Mane Powder
- ½ teaspoon sea salt
- ½ teaspoon freshly-ground pepper

### Instructions

---

Make a roux with the butter and flour. Gently heat half the butter, add flour when butter has melted, and stir until mixture has a uniform appearance and nutty aroma. Set aside to cool.

Add four teaspoons of Lion's Mane Powder, salt, and pepper to one litre low-sodium chicken stock. Bring to boil and let simmer for twenty minutes.

Sauté onions, garlic, and oyster mushrooms in other half of butter until onions are translucent.

Whisk one cup of broth into roux, then return to broth along with onion and garlic mushroom mixture. Stir in coconut cream, simmer and stir until desired consistency is reached.

Broil, sauté, or grill olive oil-brushed portobello caps. Garnish with parsley and portobello.

Bon appetit! Serves four.



# AskGord



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Not all mushroom capsules are created equal, if the polysaccharide content is not listed, you may be paying for a simple powder as opposed to a potency-validated medicinal mushroom.

*Stress has been getting the better of me over the last year, any suggestions or supplements that could help?*

I understand you; between waiting for vaccinations and overdue vacations, we're more prone to stress and uncertainty. Begin with a fish oil supplement rich in EPA. Harvard Medical School reports that EPA-rich omega-3 fatty acids cross the blood-brain barrier to interact positively with mood-related molecules. According to the Mayo Clinic, B-vitamins are instrumental in producing chemicals in the brain that affect mood. A comprehensive B-Complex supplement can shore up levels of these water-soluble vitamins we can easily run low on.

Ashwagandha, rhodiola, and kava are a trio of botanicals that can increase resistance to stress. Reishi can also work magic with a rich history in Traditional Chinese Medicine for stress resistance.

Here's to keeping your "chill on," naturally!

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

# Flourish

## Blog Preview

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### Red Raspberry Leaf: *Partus preparator*

Naturopathic doctors Philip Rouchotas and Heidi Fritz review the traditional use and clinical research supporting red raspberry leaf as a uterine tonic and in preparation for childbirth.



### This Will Rub You the Right Way

We'll share a recipe with a robust take on an Indian flavour profile. Our dry rub contains several ingredients you'll likely find in your pantry and features the complexity and warmth of fermented turmeric and ginger.

Great for chicken, shrimp, salmon, sweet potatoes, and more.



### Tiny Gardens, Big Rewards!

For those of us tight on real estate, look for a discussion of flowers, herbs, and vegetables suitable for a raised-bed garden or to adorn a roman porch. We'll share some practical tips that may even impress Martha!

## Chillin' and Grillin' Contest

The great outdoors are calling! Between picnics, camping, backyard barbecues, or dinner on the terrace, Canadians crave fresh air—and great food!

We invite you to share your favourite ideas that make use of New Roots Herbal's many functional foods. It can be a recipe for home-brewed mushroom iced tea, a signature rub using Fermented Turmeric, a salad dressing featuring Pumpkin Seed Protein powder, a dessert spruced up with Elderberry Juice Powder, or even an ingenious way to sneak Chlorella or Peacegreens into your kids' meals!

We'll test it... and maybe even publish it in a future issue!

If you prefer to follow recipes, just let us know which New Roots Herbal functional food you'd like to see a recipe for.

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