Flourish

HEALTHY BODY, MIND, AND SPIRIT

Fighting Cold and Flu Naturally

Back to Basics!

Stress and Digestion

What's the Connection?

Mindfulness

What Is it, and What Does it Do for You?

Special Promotions Inside!

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Editor's Letter

Winter: Why Survive, When You Can Thrive?

It's the time of year for headlines and tips on how to survive the holiday season and overcome the winter blues. It makes me feel a little nostalgic; where have the days gone where we lived life to the fullest and spent time playing outdoor sports or simply enjoying the snow? We're Canadian, why not embrace winter?

Technology, which should open us up to the world, unfortunately has us staring at our hands-free devices and leaving young children in a trance playing video games. Sometimes, I have to convince my kids to go outside and play. When I was a child, it was the exact opposite: My mother had to insist that my brother and I come inside to eat! I spent hours outside enjoying myself and watching my dad play broomball outdoors on the municipal rink. When I would get cold, my mother would give me a few cents to buy a delicious hot chocolate! Those who know me know how much I love the snow. This year, with the early start to winter, I intend to enjoy it more than ever with my children by introducing them to skiing.

To truly enjoy life, especially in the winter, health is paramount, and in this quarterly issue you'll find tips on how to naturally prevent colds and the flu as well as articles about detoxification, to kick off the year on the right foot. In times of stress, why not remember the benefits of mindfulness? As with each issue, we never fail to end with comforting recipes!

From now until our spring issue, learn to appreciate the beauty winter has to offer by finding an activity that pleases you, and make sure you are properly equipped to stay warm. And don't forget to visit our blog regularly for even more content!

Sonia Lamoureux
Editor-in-Chief

Flourish

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Editor-in-Chief
Sonia Lamoureux

Graphic Designer
Cédric Primeau

Translation/Revision
Guillaume Landry • Amanda Noory • Cédric Primeau • Gordon Raza • Pierre Paquette

Contributors to this Issue
Angeli Chitale • Theresa Nicassio • Odette Bulaong • Angela Wallace • Nicole Henry • Heather Pace

Advertising Sales
Sonia Lamoureux | 450 424-9486 ext. 262
lamoureuxs@newrootsherbal.com
lamoureuxs@flourishbodyandmind.com

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In-House Contributors

Heidi Fritz, MA, ND
A practicing naturopathic doctor since 2007, her areas of focus include women's health, children's health, chronic pain, and more.

Philip Rouchotas, MSc, ND
Well-known in the community as a naturopathic doctor, associate professor, and editor-in-chief of *Integrated Healthcare Practitioners.*

Gordon Raza, BSc
As the technical writer for *Flourish*, Gord shares his unique perspective on natural health products, nutrition, and active living.

Guillaume Landry, MSc, Naturopath
A native of the Jura mountains of eastern France, he shares his passion for the wonders of nature and natural medicine.

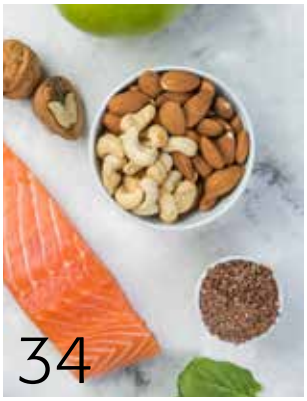
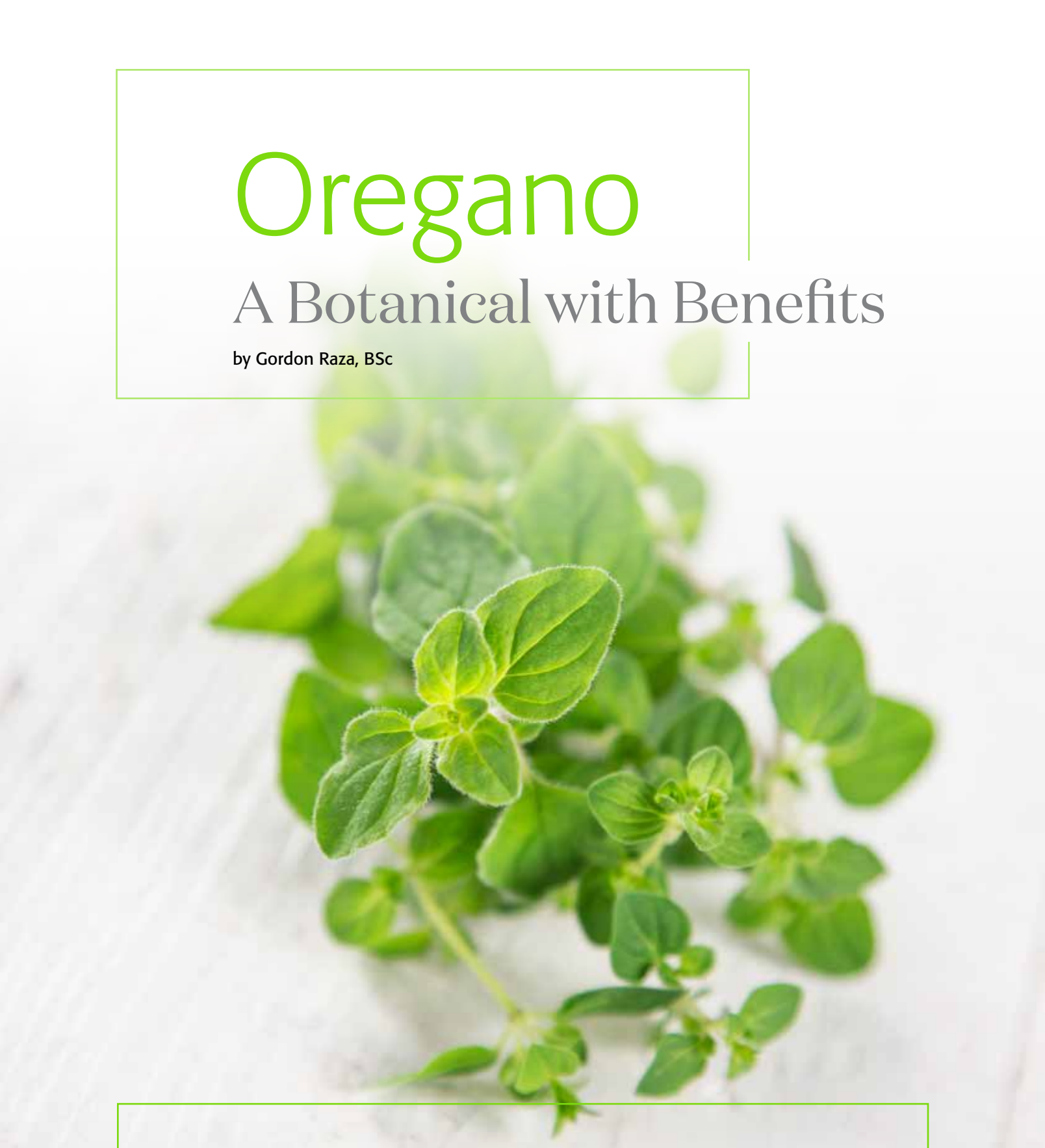


Table of Contents

Oregano

A Botanical with Benefits

by Gordon Raza, BSc



A modest flowering plant stemming from the mint family, oregano has woven itself into the cuisine and cultural fabric of Mediterranean life. Many of its more than fifty species have also been adopted and naturalized worldwide; indeed, oregano is a hearty herb and a mainstay of many a Canadian windowsill herb garden.

Oregano is a multitasking herb that's indispensable for your spice cabinet and even better for your health. Oregano owes its full spectrum of antioxidant, antibacterial, antiviral, and anti-inflammatory action to its roster of biologically active volatile oils.

For therapeutic use, carvacrol has been identified as the most potent and well-researched of the volatile oils present in oregano leaves and flower buds. *Origanum vulgare* is the most common species targeted for commercial production and marketing of steam-distilled oil of oregano blends; however, *Origanum minutiflorum* is recognized as the most potent source of naturally occurring carvacrol. This rare and wild species thrives at altitudes exceeding 1500 m in the harsh environment of the Anatolian mountain range of Turkey. Once hand-picked, steam distillation gently extracts the carvacrol within a mosaic of biologically active compounds.

The antioxidant activity of carvacrol-rich oregano oil is among its main attributes. It helps neutralize free radicals, compounds which can gradually weaken healthy tissue throughout the body, leaving us more susceptible to many age-related degenerative diseases.

For cases of bacterial infection, carvacrol has been proven to break down proteins which serve as the structural scaffolding for biofilm, a protective gel that harmful bacteria secrete. Once carvacrol penetrates this protective biofilm, it proceeds to break down bacterial cell walls, leading to their demise.

In fact, research published in the *Journal of Applied and Environmental Microbiology* demonstrates the natural antimicrobial action of carvacrol as being as effective as commercial-grade sanitizing agents for inhibiting biofilm formation of pathogenic bacteria. Carvacrol works in a similar fashion as an antifungal, as it disrupts the integrity of fungal cell membranes, leading to their destruction.

Clinical trials have also proven carvacrol effective for *Candida albican*s species resistant to the prescription antifungal fluconazole.

Exciting research published in the *Journal of Applied Microbiology* has shown carvacrol to deteriorate the capsid shell, a protein layer which protects the genetic information (DNA) of many forms of the human norovirus responsible for human illness. A few drops of wild oregano oil could perhaps even amplify the healing power of a bowl of homemade chicken soup! Promising research has also shown the potential of carvacrol for interrupting the signaling cascade that drives the process of chronic inflammation.

Carvacrol ranks among the most researched naturally occurring compounds in the wellness industry. The popularity of oregano, *Origanum minutiflorum* in particular, has earned oregano a therapeutic niche that spans a wide range of health concerns—perhaps even a few of yours!

Garlic: The Science Behind the Scent!

The chorus of chronic coughs is a familiar sound during cold-and-flu season. Add excess production of phlegm by the mucous membranes of the upper respiratory tract during times of infection, and even breathing can be a chore. Phlegm serves the role of protecting sensitive tissue of the throat and upper respiratory tract, and for the expulsion of environmental toxins and microbes; yet, when it thickens and stagnates, it can also harbour harmful microorganisms.

There are many strategies for thinning mucous that deliver symptomatic relief such as steam inhalation with essential oils like eucalyptus, or simulating a steam room with a piping hot shower and the fan turned off.

Have you ever considered a volatile antimicrobial agent? Garlic has earned a centuries-old reputation for its anti-infectious action. It's active ingredient, allicin, which is activated upon crushing or chewing, is also available as a steam-distilled concentrate. Allicin exhibits a broad spectrum of activity against bacteria, fungi, and even protozoa. When ingested as a liquid extract, it acts locally to thin out phlegm and create an inhospitable environment for harmful microbes. Ready to go all out? Try teaming it up with carvacrol-rich wild oregano, but steer clear of the steam room with this dynamic duo!

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Fighting Cold-and-Flu Season Naturally

Back to Basics!

by Dr. Odette Bulaong, BSc (Hons), ND

You may have felt them already: the runny nose, the sore throat, that embarrassing cough. Or perhaps you've taken the day off work because you've spiked a fever, felt achy all over, and are so tired you don't want to get out of bed. Cold-and-flu season is in full swing. While your local drugstore is full of conventional and natural treatment options aimed at reducing the symptoms of colds and flu, this article summarizes research that supports going back to basics in terms of nutrition and proper hygiene to help:

- Decrease your risk of catching the cold and flu this season;
- Reduce the length of time you have symptoms (which is great if you have limited sick days!); and
- Lessen the severity of your symptoms (so you can enjoy the season!).

But First, Statistics!

A family of viruses called the rhinoviruses causes about 80% of colds during peak cold season, and 30–50% of colds throughout the rest of the year. That being said, there are actually around 200 other viruses that can also cause the symptoms of a common cold.

The average adult has about two to three colds per year. The common cold typically lasts for 7 to 10 days; throughout the year, that adds up to 14 to 21 sick days on average per adult. If you're one of the unlucky people that have a cold last up to three weeks, you could be looking at 42 to 63 sick days per year. I know what you're thinking: That's unacceptable! I agree. And by the way, luck doesn't have anything to do with it: It's all about your health, specifically the health of your immune system, and how capable it is to fight off infectious causes of illness such as viruses that cause the cold and flu.

What Are the Symptoms of the Common Cold?

The common symptoms (pun intended!) of the common cold are:

- Runny nose;
- Nasal congestion;
- Coughing;
- Sore throat;
- Sneezing;
- Fever—may or may not occur, and is more common in children than adults;
- Fatigue; and
- General discomfort and feeling unwell.

A cold usually runs its course, but in some cases can lead to:

- Sinusitis;
- Otitis media (middle-ear infection);
- Pneumonia; and
- Worsening of asthma and other chronic obstructive pulmonary diseases.

But Is it Really Just a Cold?

It can be easy to confuse the cold with the flu. Influenza virus, which causes the flu, accounts for 5 to 15% of all acute respiratory disease. In general, the flu leads to more serious illness than a cold, with the most common symptoms including:

- Fever;
- Body aches;
- Fatigue;
- Headache;
- Chills; and
- General discomfort and feeling unwell.

The elderly and people who are immunocompromised (e.g. diabetics and those on immunosuppressant medication, including organ-transplant recipients) are at risk for developing more serious complications of the flu.

Due to some overlap in symptoms between the cold and the flu, and understanding that you can have both the cold and the flu (and any other infection) at the same time, it makes sense to support your immune system as a whole this season.

Back to Basics: Natural Ways to Support Your Immune System

A natural approach to support your immune system starts with the basics to build a solid foundation of immunity: good hygiene and optimal nutrition. Here are three often-overlooked yet important natural ways you can help reduce your risk of cold and flu infection, and help your immune system recover as quickly as possible.

Wash Your Hands—The Right Way at the Right Time

It sounds so basic, but many of us are not doing it right. Research shows that handwashing reduces the risk of catching and spreading upper respiratory tract infections like the cold and flu. Since research shows that the influenza virus can survive up to 30 minutes on unwashed hands, this is a simple yet effective practice that you want to ensure you are doing the right way, at the right time.

The Government of Canada summarizes the most effective way to wash your hands:

- Use warm, soapy water and rub hands together for at least 15 seconds (like you've probably heard, this is the length of time it takes to sing *Happy Birthday* twice!)
- Make sure to lather up under your fingernails, between your fingers, and the back of your hands.
- Rinse hands well, and dry them completely.

For best handwashing practices, remember to wash your hands:

- Before and after you prepare and serve food;
- After you use the bathroom;
- After you blow your nose, and after you cough or sneeze into your hands; and
- After you come in from outside (e.g. from work to home, and from home to work).

Think Zinc

Zinc is a mineral that is used in hundreds of chemical reactions in our bodies. Zinc levels must be adequate in order for your immune system to function properly, and it is well-known that zinc deficiency makes you more susceptible to infections. Research has shown frequent dosing of zinc lozenges early on during illness significantly reduces duration and severity of the common cold in adults. Zinc has also been shown to significantly reduce the number of colds per year in children. Due to the known benefits of zinc to immunity, results can likely be extended to adults. Good food sources of zinc include the following:

- Animal protein: chicken, turkey, eggs;
- Pumpkin seeds;
- Nuts: almonds, Brazil nuts, pecans, walnuts;
- Split peas (and other peas); and
- Grains: whole wheat, oats, buckwheat.

Stock Up on Antioxidants from Veggies and Fruit

What are antioxidants—and why does my immune system care?

There are countless vitamins, minerals, and phytonutrients found in vegetables and fruits that can help support the immune system. My goal is to help you get more bang out of your grocery bucks by highlighting two of the most important vitamins for immunity: vitamins A and C. Nothing against the other vitamins, but these two are immune superstars, because a deficiency of vitamins A and C has been shown to make one more prone to infections. One of the reasons for this is that these vitamins are powerful antioxidants, which means they can protect the body from free radicals. What does that mean for immunity?

One of the first lines of defense for our immune system is making sure that the insides of our noses, mouths, and throats are healthy because they serve an important barrier between the outside world (and all of the viruses and bacteria that can linger in the air) and our bodies. Free radicals are compounds that can attack these areas, causing cracks in the linings of our noses, mouths, and throats. This damage can often go unnoticed, but it gives viruses and bacteria an easy way to enter and infect our bodies. Antioxidants help to bind up these free radicals, preventing them from causing this damage to our noses, mouths, and throats, and thus reducing the chance of viruses infecting our bodies. Besides being excellent antioxidants, here's a few more reasons to load up on foods rich in vitamins A and C this season.

Vitamin A

Vitamin A is known to activate specific immune cells and enhance antibody response, both of which are important ways our immune system can kill foreign invaders like the cold and flu viruses. Vitamin A can be formed from *beta*-carotene and other carotenes that are rich in yellow, orange, and dark-green leafy vegetables, including:

- Sweet potato with skin, cooked;
- Carrots, cooked;
- Collard greens, cooked;
- Kale, cooked; and
- Butternut squash, cooked.

Vitamin C

While there is conflicting research on whether or not taking vitamin C can prevent or

decrease the risk of getting the common cold, research has shown that vitamin C can reduce the duration and severity of the common cold in both adults and children. It has also been shown to enhance antibody responses as well as have antiviral and antibacterial effects. Interestingly, vitamin C is depleted in times of stress, so it may be especially useful in defending the body from illness during stressful periods. Some foods that are high in vitamin C include:

- Red and green sweet peppers;
- Oranges;
- Strawberries;
- Broccoli; and
- Pineapple.

Final Thoughts

Your body has an amazing ability to fight off infections on its own, but often, due to poor dietary choices and lack of basic hand hygiene, it is at a disadvantage to do so. Do your immune system, your body, your family, and your coworkers a favour: Go back to basics, and improve your nutrition and handwashing to protect yourself and others this cold-and-flu season.

Visit our blog for the full article including references: newrootsherbal.com/en/blog

Odette Bulaong, BSc (Hons), ND

Dr. Bulaong has a passion for supporting all aspects of women's health, but also enjoys working with patients of all ages and with a wide variety of health concerns. She is a graduate of the University of Toronto as well as of the Canadian College of Naturopathic Medicine (CCNM).

odettebulaongnd.com

ND's Critic

This article provides powerful remedies that can be used to improve immune function and recover from colds. The recommendations are sound and easy to do from the comfort of home. It's never a bad idea to review the basics!

Dr. Ashley Kowalski, ND
ashleykowalskind.com
Hampton Wellness Centre, 1419 Carling Ave., Suite 209, Ottawa, Ontario

Irritable Colon Syndrome?

by Gordon Raza, BSc

Try typing this trio into your search engine and it leads directly to irritable bowel syndrome (IBS). Truth is, according to the internationally renowned Mayo Clinic, IBS is a common disorder that typically affects the large intestine (colon). Common symptoms include constipation, cramping, diarrhea, excessive gas, and bloating. With syndromes defined as being a set of correlated symptoms relating to a common health concern, different treatment options can also be proven effective.

The precise cause of colon discomfort is difficult to diagnose; disruption of smooth-muscle contractions of the intestines (peristalsis), poor nervous system communication between the intestines and brain, stress, inflammation of immune system cells, and changes in gut microflora rank among the factors that can contribute to IBS.

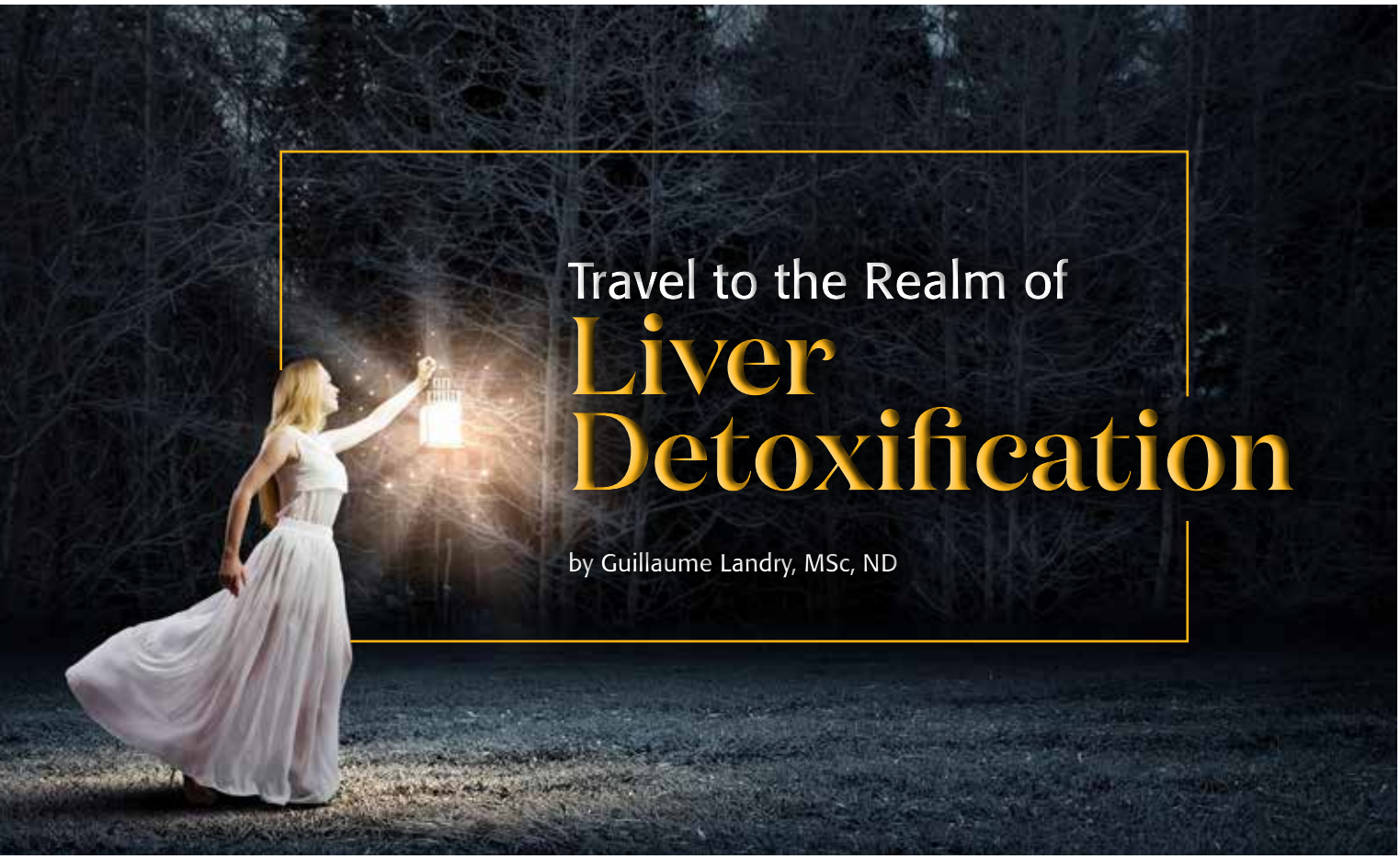
Stress is among the frequent causes of IBS, yet taming the stress response through behavioural modification techniques such as meditation, mindfulness, yoga, and therapy takes commitment, discipline, patience, and even hope. Furthermore, with the correlation between stress and colon health, prescription antianxiety drugs including the benzodiazepine group (e.g. Valium) are not uncommon for treatment of IBS. Unfortunately, their effectiveness and concern for side effects and long-term dependence can be problematic.

Thankfully, intervention with probiotics for intestinal wellbeing and for colon care in general proves promising. Clinical trials for improved intestinal health—with a particular focus on colon care—could prove to be a valuable intervention for a healthy colon and for alleviation of the symptoms of IBS.

A randomized clinical trial with 122 participants suffering from common IBS symptoms was conducted featuring intervention with the probiotic strain *Bifidobacterium bifidum*. Evaluation criteria was based upon symptoms of abdominal discomfort, bloating, and digestive disorder (diarrhea/constipation). Forty-seven percent (47%) of participants reported a significant improvement in quality of life compared to 11% for the control group. An important note is that, along with the effectiveness of *Bifidobacterium bifidum*, side effects were no different than the placebo group.

A meta-analysis of research for the pioneer probiotic *Bifidobacterium infantis* and relief from symptoms of IBS adds to the momentum probiotics have garnered for healthy colon status. Findings revealed this foundation probiotic, which is among the first probiotic species to be passed from mother to child, exerts therapeutic benefits for those coping with IBS. A note of interest is that benefits were more profound when *B. infantis* dosage was formulated with other probiotics.

According to the Canadian Digestive Health Foundation, Canada ranks among the top countries worldwide for the incidence of IBS, with an excess of five million people afflicted. IBS is a dynamic condition with its exact cause(s) difficult to diagnose. When it comes to intervention with probiotics, "diversity is strength"; clinically-proven *Bifidobacterium* strains for colon care within a broad-spectrum probiotic could be the ideal formula to tackle IBS.



Travel to the Realm of Liver Detoxification

by Guillaume Landry, MSc, ND

Imagine...

...a wastewater treatment plant without enzymes or bacteria, and without regular cleaning of its filters; this would be a declaration of disaster for nature and surrounding villages. The same applies to our liver, which is not only intended for cleaning but is also the place where iron, glycogen, vitamin A, and more are stored. Among other major functions, it synthesizes plasma proteins (coagulation factor) and lipoproteins (cholesterol and vitamin D). We will revisit one of the liver's most important functions, detoxification (which is vital for our bodies). We also review the plants and nutraceuticals that are beneficial for the liver.

The Liver: An Immune Fortress

Various detoxification processes take place within the liver, the third largest organ in the body after the interstitium (first) and the skin. The liver guarantees that clean blood, which is supplied by the portal vein, can be continuously recirculated. To achieve this, it filters bacteria, their pathogenic toxins, and immune complexes from the blood, which are then destroyed by macrophage cells (called Kupffer cells) for excretion. This antitoxic and immune role is an important part of the body's detoxification. Now, let's turn our attention to the other detoxification processes that the liver orchestrates.

Of the Imperious Bile and its Court

Bile, which the liver produces in large quantities (nearly a liter per day!), is the second crucial element of beneficial detoxification: This fluid transports excess cholesterol and calcium as well as the remains of dead blood cells to the intestines. Some of Mother Nature's subjects are eminently qualified to support bile in its critical role.

Black radish (*Raphanus sativus* var. *niger*) has sulphurous tools that make it not only a great hepatic drainer but also a urinary one as well, especially with choleretic and cholagogic functions (stimulating bile production and circulation, respectively). Its sulphur derivatives help fluidize bile as well as detoxify and protect us from xenobiotic (foreign) and carcinogenic substances, especially in the colon.

Dandelion (*Taraxacum officinale*) has forged its reputation since humans first began grazing! It comes to the rescue of our bowels with its bitter principles that are liver stimulants and anti-inflammatory, detoxifying and metabolic activators. Dandelions are tonic, depurative, cholagogue, and choleretic. They act in particular in the enzymatic stimulation of the liver and kidneys as well as in the prevention of cholelithiasis (gallstones). Very rich in nutrients and active phytonutrients, they're perfect for preparing a nourishing and detoxifying salad. What's more, those who graze on dandelions will see slimmer silhouettes! Consumption of fibre will enhance and maximize the excretion of toxins, for example work legumes, whole grains, berries, pears, dates, squash, spinach, and artichokes into your daily diet.

The effects of the artichoke (*Cynara scolymus*) on the liver are diverse and powerful: It lowers cholesterol (LDL and triglycerides) and even regenerates liver cells. It is also master of depurative function, is cholagogue, amphocholeretic (stimulating or reducing bile flow), and hepatoprotective.

A Play in Two Major Acts

As we have seen, the liver transforms endotoxins produced by the body as well as environmental toxins into products to be excreted. These dangerous molecules are mostly fat-soluble and are therefore made water-soluble by the liver to be eliminated by the emunctories (liver with bile, intestines with stool, kidneys with urine, skin with sweat and sebum, and lungs with CO_2).

In short, this transformation takes place in two detoxification phases: The first involves enzymes called cytochromes P450 that transform intestinal, environmental, and other toxins into intermediate metabolites. Without these experienced artisans, there is no hepatic kingdom or salvation! Foods that contribute to the proper functioning of phase 1 are brassicas (broccoli, Brussels sprout, etc.) as well as foods rich in B vitamins (whole grains, dietary yeast, etc.) and vitamin C. Beware, however: grapefruit is the exception, as it inhibits P450!

Phase 2 is critical because the intermediate metabolites (free radicals) are even more dangerous than the initial toxins, which could prove to be a dangerous transition! So, to make these oxidized compounds less aggressive, you need enough antioxidants (vitamins A, C, and E; zinc; selenium; coenzyme Q_{10}; flavonoids; silymarin; etc.).

Apart from the powerful desmodium (*Desmodium adscendens*), there is hardly any noble equivalent to milk thistle (*Silybum marianum*) to ensure not only the protection of liver cells, but also their regeneration. Silymarin, its major active ingredient, is hepatoprotective through several mechanisms: antioxidant and anti-inflammatory activities, blocking toxins in the cell membrane, increased protein synthesis, antifibrotic activity, and immunomodulatory effects. It increases the levels of glutathione and the enzyme superoxide dismutase (SOD), two powerful antioxidants that work throughout the body, particularly between phases 1 and 2 of liver detoxification.

Turmeric is also an anti-inflammatory with a very strong hepatic tropism. *Curcuma longa* fights lipid peroxidation and gallstones, and participates in the apoptosis (programmed destruction) of cancer cells.

Different detoxification pathways, known as conjugation, are used by modified toxins during this second phase; these include sulfation, glucuronidation, methylation, etc. The enzymes required for this well-choreographed antioxidant ritual require cofactor nutrients, and the most important are the vitamins of the B group, but also some amino acids (glutamine, glycine, etc.), including sulphur: methionine and cysteine. A healthy diet including sources of protein and B-group vitamins is therefore essential for the proper functioning of liver detoxification processes.

Other Colourful Actors of the "Phytotroupe!"

The liver benefits from the virtues of many plants and nutraceuticals, including *alpha*-lipoic acid. This amazing antioxidant has the capacity to tackle free radicals, both water-soluble and fat-soluble, making it a key compound for liver detoxification. It has more than one trick up its sleeve and also participates in the production of ATP (energy) at the cellular level, increasing glutathione levels and various lymphocytes as well as reducing the danger of lipid peroxidation.

With its arsenal of betaine (derived from amino acids) and other phytonutrients, beet (*Beta vulgaris*) reduces blood homocysteine levels, a well-known inflammatory pyromaniac! Betaine is also one of the donors of methyl groups, as are choline, methionine, and vitamins B_9 and B_{12}, which together contribute to hepatic detoxification, and more generally for protection of the liver and kidneys against fat overload.

Renowned in Asia, Chinese schisandra (*Shizandra chinensis*, or *Wu Wei Zi* in Chinese) proves interesting here, because it is an adaptogenic tonic, antioxidant, and hepatoprotective thanks to its lignans (schisandrine, etc.).

This "five-flavoured fruit" perfectly complements any phytotherapeutic formula for the liver, improving fatigue associated with detoxification.

This summarizes the cast of the botanical actors that play roles in liver detoxification. Although the list is far from exhaustive, it can encourage the use of these plants, alone or in a formula bringing out the advantages of the synergy of the various phytotherapeutic principles.

It now seems fairly obvious that for the proper functioning of our purification plant, the liver, a colourful and diversified diet is essential. Green vegetables, legumes, whole grains, proteins, fruits rich in vitamins and fibre, etc., in addition to which all the beautiful plant nobility listed in this article will make your liver a holy kingdom of detoxification. Ah! I almost forgot the essential (and my grandmother would roll over in her grave), illustrious, timeless, yet very effective ally for liver harmony: the hot water pouch!

A Candid Candida Discussion

by Gordon Raza, BSc

Candidiasis, the clinical term for *Candida* infection, can be difficult both to diagnose and to treat. Except for fungal infections of the mouth (thrush), nailbeds, or recurrent vaginal infections, other symptoms such as chronic lack of energy, bloating, and mental fog could easily be attributed to other factors.

Fluconazole, the "go-to" antifungal drug of the last 50 years, works by stopping the growth of fungal species such as *Candida albicans*. Unfortunately, it's no longer considered as a front-line antifungal, as drug-resistant non-*albicans* species including *Candida glabrata* and *Candida aurus* have emerged. The more recent group of pharmaceutical antifungals are called echinocandins. These drugs interfere with the enzyme responsible for cell-wall integrity. Unfortunately, they exhibit poor oral bioavailability, are costly, and rely upon intravenous administration; this renders them impractical and reliant upon a hospital setting for use.

Candida albicans and other *Candida* species are normal inhabitants of the microbiome of healthy persons. Overgrowth and subsequent infections can emerge when these opportunistic microorganisms grow exponentially following antibiotic use, excessive dietary sugar consumption, chronic stress, excessive alcohol intake, or even from oral contraceptives.

However, there are good news! Many natural botanicals exhibit antifungal activity strong enough to help restore the dominance of beneficial bacteria in your body. Caprylic acids, which are plentiful in coconut and palm oils, possess excellent anticandidal (antifungal) activity within the intestinal tract. They work as they dissolve yeast-cell membranes, which leads to their death.

Garlic, anyone? Research published in the *Journal of Applied Microbiology* demonstrates therapeutic effects on both the morphology of *Candida* cell walls and on their growth when exposed to garlic. Black walnut hull, in powdered form or extracts with higher concentrations of its antifungal constituents, is another antifungal useful to combat *Candida* overgrowth. Juglone is the potent organic compound responsible for most of its antifungal action; it inhibits enzymes within yeast which drive metabolic function, halting yeast growth. Good luck finding mushrooms growing under a walnut tree!

Carvacrol-rich oregano and grapefruit seed extract (GSE) rank among the most popular antifungal products for natural eradication of bacteria- and fungus-related infection. They're available on their own or in *Candida*-specific formulas.

The inner bark of the pau d'arco tree, native to South America, contains a powerful phenolic compound called lapachol within its matrix of biologically-active constituents. It chokes fungal overgrowth by means of interfering with the respiratory system of yeast cells, particularly *Candida* species.

The goal is not to eliminate *Candida* species, nor would it even be possible; rather, it's to keep their population and other resident pathogenic species in check. This helps create a healthy acidic environment, which favours the dominance of healthy probiotics. Following a *Candida*-recovery diet low in processed sugars and complex carbohydrates, and taking a multistrain enteric-coated probiotic will accelerate the road to recovery.

Employing a broad range of natural antifungal agents, whether in a formula or "à la carte," seems like the natural choice when considering the narrow therapeutic range of pharmaceutical antifungals. You can take control of your health, naturally.

Lupine Seed

High-Quality Vegan Protein

by Dr. Philip Rouchotas MSc, ND and Dr. Heidi Fritz, MA, ND

The standard North American diet tends to weigh in heavily with refined carbohydrates and sugars, as is widely known. Many people try to improve the protein content of their diet through supplementation with protein powder. At the same time, increasing numbers of people are choosing vegetarian or vegan diets. While there are many health benefits to these diets—for example, if done properly, they are high in fruits, vegetables, and legumes, and may reduce risk of ischemic heart disease, cancer, and other forms of chronic disease—at the same time, common pitfalls and nutrient deficiencies may arise. One of these is protein deficiency, as well as that of iron, vitamin B_{12}, zinc, vitamin D, and omega-3 fatty acids.

Lupine seed is a high-quality, plant-derived protein source, ideal for vegetarians or vegans as well as others seeking to boost their protein intake. Although not well-known, lupines are legumes (beans), and the lupine family includes white lupine (*Lupineus albus*), yellow lupine (*L. luteus*) and narrow-leafed lupine (*L. angustifolius*). The lupines are native European legumes that, according to a 2015 review, represent "a significant alternative to soya bean." Their seed protein content is high (up to 44%) and they represent a sustainably grown crop.

Lupine also has a good amino-acid profile including all nine essential amino acids (*), with 30 g of lupine seed protein providing approximately:

- Glutamine 5.0 g
- Arginine 2.6 g
- Leucine* 1.6 g
- Lysine* 1.1 g
- Serine 1.1 g
- Glycine 1.0 g
- Valine* 0.9 g
- Tyrosine 0.8 g
- Alanine 0.8 g
- Threonine* 0.8 g
- Isoleucine* 0.8 g
- Histidine* 0.6 g
- Phenylalanine* 0.5 g
- Tryptophan* 0.2 g
- Methionine* 0.2 g
- Proline 0.1 g

In addition to its role as a protein source, lupine contains other constituents that have been the subject of investigation for their health benefits. The ɣ-conglutin protein fraction has been investigated for its potential effects in controlling insulin resistance and diabetes; lupine seeds are rich in the iron-containing protein ferritin; lupine protein is also thought to have possible effects on inflammation, regulation of the gut microbiome, and other metabolic parameters such as lipids and blood pressure.

A number of studies have evaluated the effect of lupine protein supplementation on cholesterol. One randomized, double blind, placebo controlled (RCT) trial evaluated 72 adults with high cholesterol. Participants were randomized into three plans that included supplementation with 25 g daily lupine protein, 25 g daily milk protein, or milk protein plus 1.6 g arginine for 28 days. Lupine protein supplementation resulted in reductions in total cholesterol, LDL ("bad") cholesterol, triglycerides, homocysteine (a marker of heart disease risk), and

uric acid (which is associated with blood-glucose control).

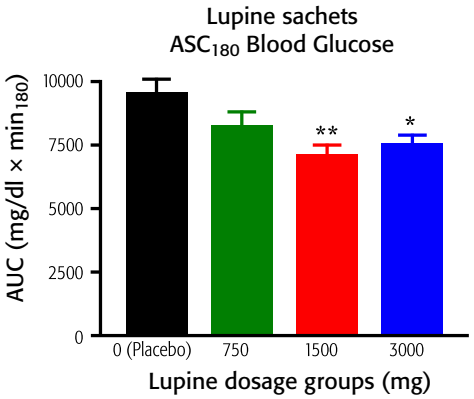
Another RCT evaluated the effect of 25 g lupine kernel fibre compared to citrus fibre or a low-fibre diet for four weeks. Lupine fibre resulted in a 9% reduction to total cholesterol, 12% reduction in LDL, and 10% reduction in triglycerides compared to citrus fibre. Interestingly, lupine fibre was also associated with reduced high-sensitivity C-reactive protein, a marker of inflammation, and reduced systolic blood pressure when compared with baseline values.

Lupine supplementation was uniquely associated with an increase in short-chain fatty acids, especially acetate and propionate, which were hypothesized to mediate these effects at least in part. Short-chain fatty acids (SCFAs) are of interest, because they are thought to provide fuel to the cells lining the intestines, especially the large intestine or the colon.

However, SCFAs are also taken up into the circulation and are used by various organs including the liver. Similar results on cholesterol were found by a third study.

Another study evaluated the effect of lupine protein and one of its active constituents, γ-conglutin, on blood glucose control. In a placebo-controlled trial of 15 healthy participants, one of three doses of lupine protein were administered, followed by carbohydrate loading. Blood glucose was measured over the next three hours. Compared to placebo, lupine protein doses of 1.5 g and 3.0 g (but not lower doses) were associated with lower increases in blood glucose associated with carbohydrate loading. This is depicted in Figure 1.

Figure 1. Hypoglycemic effect of Lupine (from Bertoglio 2011)



Another RCT in 24 patients with diabetes assessed the effect of lupine flour (containing 12.5 g lupine fibre plus 22 g lupine protein) on glucose control when consuming a drink containing 50 g glucose, compared to:

1. Soy flour and glucose drink; and

2. The glucose drink alone (control group).

After the glucose drink, blood glucose was significantly lower in both the lupine and the soy groups compared to the control group. Insulin and C-peptide levels were also higher for lupine and soya compared to control.

Finally, an RCT evaluated the effects of lupine in 88 overweight and obese patients. Participants were randomly assigned to replace 15–20% of their usual daily energy intake with white bread (control) or lupine kernel flour–enriched bread (lupine). For the lupine group, there was a small but significant reduction in systolic blood pressure (–3.0 mmHg), and reduction in pulse pressure (–3.5 mmHg).

Overall, the evidence summarized here indicates that there is a need for high-quality, plant-derived protein supplementation among large numbers of the population. Lupine seed contains all nine essential amino acids, and is relatively high in iron; in addition, lupine is a sustainable protein source. Lupine-seed protein supplementation has been shown to benefit cholesterol, blood glucose control, and blood pressure, and may also have anti-inflammatory effects as well as beneficial effects on the gut flora and production of short-chain fatty acids.

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Modified Citrus Pectin

Dr. Heidi Fritz, MA, ND

Modified citrus pectin (MCP) is a lesser-known natural substance that has been used for years by naturopathic doctors as an adjunct to cancer treatment, but is also of interest for its gentle chelating effects as well as possible effects in the area of cardiovascular disease. This article reviews the uses of this unique substance.

MCP is a low-molecular-weight form of citrus pectin that has been structurally modified to a specific molecular weight, which allows it to be absorbed into circulation and thereby exert therapeutic properties in the body. Regular (unmodified) citrus pectin, derived from the pith of citrus fruit, has a molecular weight of about 50–300 kilodaltons, and this characteristic renders regular pectin far too large to enter the bloodstream. Conversely, modified citrus pectin has a molecular weight of 3–13 kilodaltons and can easily enter the circulation.

Cancer

Galectin-3 is a lectin belonging to the *beta*-galactoside-binding protein family. Galectin-3 is present in most adult tissue types; however, it is overexpressed by cancer cells and is present in increased levels in the tumour microenvironment (TME). According to Wang: "galectins play an essential role in the origin and development of cancer, such as angiogenesis, cell adhesion, invasion, and migration." Furthermore, galectin-3 has been shown to exert immunosuppressive effects in the tumour microenvironment, thereby facilitating cancer growth.

Research on galectin-3 in various cancer types shows that galectin-3 is implicated in the following: helps breast cancer cells evade immune surveillance and destruction by T-cells; increases resistance of uterine cancer cells to chemotherapy; enhances gastric cell mobility and enhances metastasis; increases growth, progression, angiogenesis, and metastasis of melanoma cells; and increases progression of glioma (brain cancer).

Since galectin-3 is a *beta*-galactoside-binding protein, and MCP is rich in *beta*-galactose, MCP has the ability to bind galectin-3, blocking galectin-3's harmful effects. In experimental models, supplementation with MCP has been show to achieve the following:

- Sensitize prostate cancer cells to chemotherapy agents (cisplatin) in vitro.
- Induce apoptosis in androgen-dependent and independent prostate cancer cells in vitro.
- Activate T-cytotoxic cells, B-cells, and NK cells in chronic myeloid leukemia cells in vitro.
- Synergistic cytotoxic effects with paclitaxel (chemotherapy) in ovarian cancer cells.
- Induce apoptosis in lung cancer cell lines.

In a Phase II trial, MCP supplementation was shown to increase the PSA doubling time (PSADT) in 13 men with prostate cancer and who had biochemical prostate-specific antigen (PSA) failure after localized treatment—that is, radical prostatectomy, radiation, or cryosurgery. This means that despite surgery and radiation therapy, these men were experiencing rising PSA levels predictive of prostate-cancer recurrence. In these men, the time to a doubling of their PSA levels increased significantly in 70% of the men after taking MCP for 12 months, compared to before taking MCP. This means that MCP postpones the potential cancer recurrence.

Many naturopathic doctors trained in treating cancer also report using MCP before and after cancer surgery to reduce the risk of metastasis (cancer spread).

Chronic Inflammatory Disease

There is ample evidence for galectin-3 not only affecting cancer development, but also having a role in other chronic inflammatory disease. The role of galectin-3 in cardiovascular disease is probably the best-elucidated, where it has been implicated in cardiovascular remodeling and fibrosis. In fact, galectin-3 has been approved as a prognostic test in chronic heart failure, with elevated galectin-3 levels predicting increased risk of death. Since then, galectin-3 has been associated with several other cardiovascular conditions such as aneurysm, aortic stenosis, etc. In a paper by Martinez et al, researchers reported that "obesity upregulates Gal-3 production in the cardiovascular system," and that "Gal-3 inhibition with modified citrus pectin (100 mg/kg per day) reduced cardiovascular levels of Gal-3, total collagen, collagen I, transforming and connective growth factors, osteopontin, and monocyte chemoattractant protein-1 in the heart and aorta of obese animals without changes in body weight or blood pressure." In other words, supplementation of animals with MCP reduced markers of inflammation, cardiac remodeling, and fibrosis associated with obesity.

Heavy Metal Chelation

Finally, MCP has been shown to have activity as a gentle chelator of heavy metals. One pilot study of otherwise healthy patients demonstrated that ingestion of 5 g MCP three times daily for five days and 20 g on the sixth day resulted in an increase in heavy metal excretion through urine.

After MCP ingestion, urine testing demonstrated a 130% increased excretion of arsenic, 150% increased excretion of cadmium, and 560% increased excretion of lead. This was in patients with "normal" body stores of heavy metals, defined as being otherwise asymptomatic and without other evidence of increased body burden. These authors suggested that the "systemic chelation of toxic metals by MCP may in part be attributable to the presence of rhamnogalacturonan II, which has been shown previously to chelate metals."

Another report, by Zhou et al, described chelation of children with lead poisoning using MCP. In this study, seven hospitalized children with a blood lead level greater than 20 µg/dL and who had not received any form of chelating and/or detoxification medication for three months prior were given 15 g of MCP (PectaSol-C®) in three divided dosages a day. After 28 days, blood testing showed a "dramatic decrease in blood serum levels of lead," with a 161% average decrease, and a concomitant increase in 24-hour urine lead level, reflecting increased excretion.

In conclusion, MCP is a natural substance with a number of intriguing activities, including antimetastatic effects in cancer models; chelating effects with respect to lead, arsenic, and cadmium, and possibly other heavy metals; as well as potentially offsetting some of the cardiac remodelling and risk of heart disease induced by obesity.

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Magnificent Magnesium

by Guillaume Landry, MSc, Naturopath

Our farmers and grandmothers know this remedy very well, previously offered in the form of inexpensive and highly effective magnesium chloride, used topically or internally for both animals and their breeders as anti-infectious, antifatigue, and even antirickets.

Today, scientific research has revealed hundreds of properties of magnesium that rank it among the most indispensable minerals for our health and as an ally for treatment of cardiovascular, infectious, metabolic, nervous, rheumatological, and hormonal conditions.

Simply Indispensable!

The properties of magnesium are numerous, from a biochemical point of view: It balances calcium with neuromuscular transmission; it triggers the metabolism of carbohydrates and amino acids; it potentiates the bioavailability of potassium, vitamins B_6, E, and C, as well as silicon; it ensures the transformation of all B vitamins into coenzymes; and it allows the enzymatic functioning of the body as well as the synthesis of nucleic acids or hormones (for example, it is useful with zinc and B_6 for the synthesis of prostaglandins from omega-3s and -6s). From a functional point of view, it helps the acid-base balance and the regulation of body temperature, promotes the intestinal absorption of lipids, plays a role in the adaptation to stress of the heart and brain, stimulates the immune system, prevents arterial plaque formation, and maintains fluidity of the blood. In short, it ranks among the keystone minerals for metabolic function.

Supplementation and Dosage

Today, we have advanced formulas, combining synergistic magnesium molecules such as L-taurine and vitamin D that enhance absorption, and clinically proven ratios between calcium and magnesium to properly remineralize the skeletal system. Also available are highly absorbable forms such as magnesium bisglycinate, one of the best-tolerated and best-assimilated forms of magnesium, as the whole compound is transported through the intestinal wall, which decreases the risk of diarrhea and provides glycine, a calming amino acid often deficient in many people. The recommended daily dose is approximately 400 mg, noting that only 30–40% of the magnesium in food is absorbed in the small intestine. Athletes, pregnant and breast-feeding women, the elderly, and those who are ill have higher needs (500 to 600 mg).

Magnesium Deficiency: Causes and Consequences

The effectiveness of magnesium is negatively affected by alcohol, excess coffee and tea, and stress. Many medications—including birth-control pills, antibiotics, asthma products, and cortisone—soft-drink phosphates, and sweeteners like aspartame deplete magnesium. In addition, intensive farming, the treatment of running water, and especially the refining of food has drastically reduced the magnesium content of our food (for example, 80% is lost between wheat and refined white flour). Just like vitamin D, there are few who enjoy an optimal level of magnesium, as most of the population is deficient (as of 1997, the National Academy of Sciences had estimated that more than 70% of Americans had a magnesium deficiency). In parallel with this phenomenon, most diseases of our civilization are accompanied by a serious deficiency of magnesium, which is critical for the proper functioning of cells.

Magnesium also regulates the entry of calcium into cells. Among the clinical consequences of this unbalanced calcium/magnesium-induced cell dysfunction are:

- Hyperinsulinemia and insulin resistance for adipocytes, muscle, liver, and pancreatic cells;
- Heart problems due to the exacerbated enlargement and contractibility cells of the heart;
- Thrombosis with platelet aggregation;
- Hypertension due to cortisol release from the adrenal cells, sodium retention in renal cells, and stiffening of blood-vessel cells;
- Irritability, hyperactivity, etc., due to the overstimulation of nerve cells; and
- Muscle cramps and migraines.

Do not Panic: There Are Solutions!

At your local farmers' market this weekend, you can stock up on plant-based foods rich in magnesium such as seaweed, tofu, almonds, avocados, cereals rich in bran, bananas, dates, figs, wheat germ, dark green vegetables, legumes, squash and pumpkin seeds, hazelnuts, and walnuts. Magnesium is also found in shellfish and seafood, fish, dairy products, and meat—however, in much lesser quantities.

At your local health-food store, you'll be looking for a magnesium bisglycinate supplement to ensure optimal daily intake, possibly with magnesium chloride for a relaxing bath with some lavender or bitter orange essential oil.

Did You Know?

The central nucleus of chlorophyll is made up of magnesium, and it remains one of the best cellular oxygenating agents.

ND's Critic

Is there anything magnesium isn't good for? It seems like this mineral keeps coming up with new ways to promote health and wellness. This article did a good job outlining some of the dosing requirements and possible health applications of this versatile mineral.

Dr. Sandy Hyunh, ND

sandyhuynh.ca
1 St Clair Avenue E Suite #1001
Toronto, Ontario

Stress and Digestion

What's the Connection?

by Dr. Angeli Chitale, BSc, ND

What is Stress?

Stress is a threat to the internal balance (homeostasis) of the body. Stress-related conditions—including anxiety, depression, high blood pressure, indigestion, reflux, and peptic ulcer disease—can be interpreted as consequences of the body's inability to maintain internal balance in response to internal or external demands. Stress impairs digestion, decreases immune function, and alters mood (anxiety and depression). We will focus on digestion, since health and illness begin in the gut!

Gut-Brain Connection and Stress

The impact of stress on health is well studied and documented. A large nerve network in our stomach and intestines is constantly making chemicals in response to signals from the (internal and external) environment. Brain chemicals such as serotonin are made in the gut and travel to the brain. When our brains see serotonin, it means "feel good," and we feel "Ahh! All is well; I can relax!" The gut is called the "second brain" for this reason, and medical research is pointing to many ways stress interferes with digestive function.

Symptoms of Impaired Digestive Function

- Bloating, gas;
- IBS;
- Constipation and diarrhea;
- Abdominal pain/discomfort;
- Fatigue;
- Blood-sugar imbalances (seen as food cravings or emotional if delayed or missed meal); and
- Food sensitivities and "leaky gut," and even weight gain.

These symptoms interfere with the quality of daily life as the leading reason for visits to the doctor's office are for abdominal pain and digestive issues.

How Can All of the Previous Symptoms be Provoked by Stress?

One study of caregivers of brain-cancer patients found that even when there was no evidence of elevated stress hormones (adrenaline and cortisol made by the adrenal glands), there was another way to measure the stress response, this time in white blood (immune) cells. The study found white blood cells (monocytes) became resistant to another adrenal hormone, glucocorticoids, when the body was under stress. Glucocorticoids are your body's natural anti-inflammatories. Glucocorticoid resistance allows activation of chemicals which promote inflammation such as NfKB.

Another study found that key elements of intestinal function—digestion, absorption, and barrier function—are impaired during inflammation.

Chronic inflammation can lead to damage of the lining of the digestive tract, altering digestion, absorption, and barrier function.

Bottom line: Under stress, natural anti-inflammatories are suppressed, and inflammation-promoting chemicals are increased. Inflammation impairs digestive function by interfering with digestion (breaking down of food into molecules), absorption, and barrier function.

What You Can do to Alter the Stress Response

Slow Down Before Eating

Give thanks before eating your meal. Take a few minutes to appreciate the connection to life and sustenance with the food you are about to eat. Scientifically, this action brings you out of sympathetic dominance (the stress response) and prepares your body for parasympathetic mode (rest-and-digest).

Herbal Nerve Tonics

Gentle nervine (nerve tonic) herbs specifically address stress-related digestive impairment and can be safely taken daily as a medicinal infusion (strong tea) throughout the day.

- Catnip (*Nepeta cataria*): Mild antispasmodic for soothing pain from digestive cramping.
- Chamomile (*Matricaria recutita*): Soothes digestive colic and irritability.
- Peppermint (*Mentha piperita*): The aromatic oils help soothe symptoms of IBS and gas.

Herbal Anti-Inflammatories

Turmeric and ginger roots have been used in Ayurvedic Medicine for thousands of years.

Make a decoction (boiling the roots to make an extraction), and drink as a tea to break the cycle of inflammation.

Nutrients

Studies have shown specific nutrients to protect and/or repair the intestinal mucosa (lining) from the damage caused by inflammation.

Nutrient	Benefit	Food Sources
Quercetin, a plant pigment (flavonoid) which is an antioxidant	Cell protection from damage caused by inflammation	Blueberries, leafy vegetables, broccoli, red onions, peppers, apples, grapes, black tea, green tea, red wine
Amino acids, especially glutamine (GLN)	GI repair; stimulate the growth of small intestinal mucosa	Meat, fish, eggs, dairy, nuts, cabbage, beans

Visit our blog for the full article including references and to find three follow-up articles on this theme: newrootsherbal.com/en/blog

Angeli Chitale, BSc, ND

Dr. Angeli Chitale is a licensed naturopathic doctor, with additional training and qualification in treatment of both thyroid and endocrine conditions including fertility for men and women.

restorativemedicine.ca

ND's Critic

In this article, the author adapts very technical information and brings it down to the lay level, in order to explain the multifaceted role of the liver.

Dr. Heidi Fritz, MA, ND

boltonnaturopathic.ca
64 King Street West
Bolton, Ontario

Mindfulness

What Is It, and What Does It Do for You?

by Dr. Nicole Henry, ND

It seems that everyone is talking about mindfulness these days. Health columnists are writing about it. Teachers are introducing it in their classrooms. Even in the business world, many companies offer wellness workshops that talk about its merits. Mindfulness, some claim, can improve your mood, boost your sports and work performance, decrease your pain, and more.

But what are the actual benefits of mindfulness, and what do you need to do to realize the benefits?

Mindfulness "Defined"

Because "mindfulness" is a catchall term describing many different practices and interventions, it can be difficult to define, never mind assess.

One approach to thinking about mindfulness is offered by social psychology researcher Ellen Langer, who simply defines mindfulness as the opposite of "mindlessness." Langer writes about how the same information can be interpreted differently in different contexts, and how our states of mindfulness or mindlessness affect our decisions and actions.

Langer came to her study of mindfulness from the perspective of mindlessness, where we are stuck in specific ideas that may make us miss out on what is happening in front of us. For example, in the "chambermaid study," Langer and her colleagues told one group of nonexercising women whose work involved a lot of physical activity to think of their work as exercise. They told the other group of women nothing. At the end of the study, the women they had told to think of their work like exercise lost weight and had lowered blood pressure, while the other group did not experience these effects. The researchers attributed the change to the way the women thought about their work.

Jon Kabat-Zinn, on the other hand, writes that mindfulness is "the awareness that arises by paying attention on purpose, in the present moment, and nonjudgmentally." This comes from an Eastern perspective, and implies purposeful awareness of what we are engaged in at a particular moment.

Kabat-Zinn introduced mindfulness into health-care from a Buddhist perspective (including meditation and yoga), beginning what came to be

known as mindfulness-based stress reduction (MBSR). MBSR is usually offered over an eight-week period and involves weekly group sessions where participants learn meditation and its the benefits, and commit to regular practice between sessions (including seated meditations, body-awareness meditations, walking meditations, and mindful movement—similar to simple yoga postures). Usually, there is also a daylong silent meditation session at the end of the program.

The success of MBSR programs has given rise to other mindfulness-based interventions, such as mindfulness-based cognitive therapy (often used for people with depression and/or anxiety), mindfulness-based eating awareness therapy, and mindfulness-based childbirth and parenting, among others.

Over the last several years, the amount of research on mindfulness has grown, including research in the following areas, among others:

- Anxiety and depression;
- Eating disorders;
- Posttraumatic stress disorder (PTSD);
- Psychological stress;
- Burnout and fatigue in medical school students;
- Chronic pain;
- Sexual dysfunction;
- Neurological conditions such as Parkinson's disease; and
- Weight loss.

Mindfulness as a Personality Trait

There has also been speculation and research into whether mindlessness might be a personality trait. According to some researchers, people have varying levels of something called "dispositional mindfulness," a personality trait that exists in people without any previous meditation training or mindfulness practice. Dispositional mindfulness involves four parts: observing experience, describing experience, action with awareness, and nonjudgment of experience. Engaging in mindfulness practices may increase dispositional mindfulness.

What are the benefits of dispositional mindfulness? In a recent systematic review (a study that combines results of many studies to get a better idea of the effect), researchers found that higher dispositional mindfulness was associated with:

- Decreased depressive symptoms;
- Decreased associated negative thinking styles, procrastination, and avoidant coping strategies;
- Decreased anxiety;
- Decreased emotional distress;
- Decreased perceived stress; and
- Increased psychological wellbeing.

Mindfulness in Health

What if we don't have a high level of dispositional mindfulness to start with? Are there benefits we can experience through a mindfulness-based intervention or practice? I will review how mindfulness training or interventions affect some of today's common health issues, which includes chronic pain, obesity, and depression.

Chronic Pain

A 2017 systematic review found that, when compared with control (i.e. no active treatment), people with chronic pain who took part in mindfulness meditation interventions had lower levels of pain compared to those without the mindfulness interventions. However, some of the studies were of poor quality, limiting the strength of the results.

Obesity and Weight Loss

Another systematic review looked at the effect of mindfulness interventions in weight loss. Amounts of weight loss and changes in mindfulness were mixed, with some studies reporting weight loss and others not. In some studies, mindfulness increased, though at times this was in both the intervention and control groups. The authors of the review found no clear relationship between weight loss and the level of mindfulness of the participants.

Depression

One area where there seems to be a strong body of evidence for mindfulness-based interventions is in people with depressive symptoms. The positive effect on depressive symptoms (i.e. it reduces the symptoms) has been seen in studies assessing mindfulness-based interventions in different health issues, and in studies focused on depression.

Depression can be recurrent, with people experiencing multiple episodes throughout their lives. One way that patients with major depressive disorder are prevented from relapse is by taking medication. Some studies have indicated that mindfulness-based cognitive therapy (MBCT) may be a viable option for preventing relapse in these patients.

Cognitive behavioural therapy (CBT) is a psychotherapeutic process that helps people examine the ways their thoughts ("cognitive") and emotions impact their actions ("behaviour"). MBCT is an offshoot of CBT that integrates components of mindfulness meditation in similar ways to its integration into MBSR. A 2015 study analyzing the pooled results of several studies found that, in patients with depressive episodes who were followed for 60 weeks, MBCT decreased the risk of relapse compared to patients receiving active treatment (medication and/or cognitive psychological education).

Many of the people in the study had already experienced at least three or more depressive episodes, and a trend emerged where people who had worse depressive symptoms at the start of the MBCT intervention saw greater benefit from MBCT than those with milder symptoms. One thing to keep in mind is that the authors of the review have conducted many of the studies included in the review and are all supporters of MBCT. Another thing to note is that MBCT seems to be just as effective as psychotherapy or medication in preventing relapse, so it can be seen as another treatment option that patients and practitioners can consider in finding a treatment that may work for them.

Mindfulness Practices

As mindfulness involves awareness, many activities can be mindfulness practices. Some formal practices include yoga and tai chi, as well as sitting or walking meditation. One way people are commonly introduced to formal mindfulness practice is via an exercise where a raisin is eaten slowly, with heightened awareness using their senses of sight, touch, sound, smell, and taste. The most basic formal practice may be breath awareness, where one pays attention to breathing for a specific length of time, bringing one's attention back to the breath when attention wanders from it.

Informal mindfulness practices can include making and drinking a cup of tea, washing the dishes, or taking a shower. Almost any activity can be made an informal mindfulness practice, as the main thing to do is engage your senses and attention to the task at hand.

It is possible that deep states of concentration brought on when absorbed in an activity—whether it be play, work, or sport—sometimes described as being in a state of "flow" as described by Mihaly Csikszentmihalyi (world-

renowned psychologist), may also be mindfulness practices. Prayer, absorption in a subject or activity, spending quality time with friends and family, or time in nature may also generate mindful experiences and improve our quality of life.

Risks of Mindfulness Practice

Some investigation has been done on difficult physical and psychological changes in individuals doing specific forms of mindfulness meditation. The researchers interviewed thirty adult meditators and had discussions with experienced meditation teachers that revealed these difficult experiences. These difficulties may be described as rare, and it is too soon to know if these effects are specific to the type of meditation practice or whether they can be generalized to other forms of mindfulness practice. Meditation is described as generally safe, with a caveat that it may cause or worsen symptoms in those with anxiety and depression or other psychiatric concerns.

Conclusion

Mindfulness and mindfulness-based interventions are gaining popularity, and research in these areas is increasing. Currently, data suggests that depressive symptoms are positively affected by these interventions, while in chronic pain and obesity additional research is needed. There is some emerging research on the harms of mindfulness practices, though the harms seem to be rare. A variety of ways are available to bring more mindfulness into your life, most easily through informal mindfulness practices.

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Nicole Henry, BSc, ND

Dr. Henry is a licensed naturopathic doctor registered with the College of Naturopaths of Ontario and a graduate of the Canadian College of Naturopathic Medicine (CCNM). She offers a process-oriented approach that encompasses uncertainties inherent in life and health.

nicolehenrynd.com

ND's Critic

Mindfulness is something I often recommend to my patients because it is so effective. It takes time and practice but can yield great results. This article highlights some of the conditions where it is particularly beneficial.

Dr. Evan McCarvill, ND
choicenutrition.ca

105 Maclead Ave E.
Melfort, Saskatchewan

Aromatherapy

The Power of Nature in Just a Few Drops

by Guillaume Landry, MSc, Naturopath

While Tupperware parties were once popular gatherings, today aroma sessions, where methods and mixtures of essential oils (EO) are exchanged for health benefits or household cleaners, have become all the rage. The craze for these natural remedies with powerful properties is exponential, but as with any medicine, "precaution" is recommended.

Essential oils (EOs) are indeed to phytotherapy what antibiotic therapy can be to anti-infective medications—that is, real chemical bombs. However, the difference is that EOs—beyond their relative absence of side effects—are not affected by the resistance that germs have now developed, which is making the World Health Organization question the future effectiveness of antibiotic therapy.

Aromatic plants have proven their worth for 40,000 years. Sacred incense recipes discovered from ancient Egyptian excavations coupled with evidence of Chinese and Indian stone-age stills serve as a testament to the rich history of aromatic botanicals. French folklore further chronicles the synergistic action of cloves, cinnamon, mint, and lavender with the tale of "Four Thieves" vinegar sparing the lives of grave-robbing thieves during the bubonic plague of the seventeenth century.

Aromatherapy, thus named by the Lyon chemist Gattefossé in 1928, now boasts the status of EBM (evidence-based medicine), since there are indeed active molecules—and studies to prove it! Scientific aromatherapy, based on the properties of 16 biochemical families, helps provide specific, preventive, curative, and complementary care for a wide range of illnesses. For example, aromatic phenols (oregano, thyme, cinnamon, clove, and savory) are tonics and powerful, broad-spectrum anti-infective agents; coumarins (bergamot and lemon) are nerve sedatives, anticoagulants and hepatostimulants; terpene oxides (eucalyptus, ravintsara, laurel, and myrtle) are antiviral, immunomodulatory, and mucolytic. However, the properties of EOs (like those of plants in herbal medicine) are not limited to the major biochemical family; they are the result of a molecular synergy that gives EOs their effectiveness.

Hence their potential anti-infective capacity, unlike the sometimes random effects of crude compounds able to be synthesized by the pharmaceutical industry.

EOs, aromatic plant extracts subjected to steam distillation, have a molecular density that is at the top level of pharmacological activity. Vigilance is crucial, because they can, if misused, cause some toxicity. The golden rule is thus to never improvise! Infants, pregnant and lactating women, as well as the neurologically affected must be given special attention and systematically avoid EOs with ketones and terpene oxides (*Eucalyptus globulus*, menthol, rosemary cineol, etc.). That being said, with the guarantee that precautions are followed, these vegetable elixirs will be of great help to you in the case of accidents or acute affections which require the "atomic power of phytotherapy," according to Dr. Jean Valnet, French father of phytoaromatherapy.

The therapeutic use of EOs can be achieved by various means: atmospheric diffusion, dermal, buccal and sublingual, rectal, vaginal, aural, or olfactory and respiratory (only the eyes are not routinely recommended, because their mucous does not tolerate EOs). The classic application ratio is 1 drop of EO to 2 drops of vegetable oil (up to 5 drops of vegetable oil for certain EOs).

At home, lemon or grapefruit EO added to white vinegar and water will provide a multipurpose cleaning and disinfectant solution; a few drops of lavender EO on the pillow will help your sleep; clove EO dabbed on your teeth will spare you pain and abscesses, and a few drops of peppermint on the neck and temples will provide soothing headache relief. For analgesic use, combine peppermint with lemon eucalyptus to treat tendinitis. Finally, some geranium EO will delight your senses and your skin with its anti-infective, decongestant, tonic, and astringent effects. Lastly, an example to use in the kitchen: A few drops of ginger EO in your cookie recipe will have them bursting with flavour. EO and their applications are numerous, so explore these fantastic remedies, but experiment with the utmost caution. Also, to ensure their quality, choose 100% pure and natural essential oils that specify the active ingredients (chemotypes) and geographical origin of the plants.

Soothe the winter blues with this comforting and warming blend of essential oils! Mix 10 drops of orange, 10 drops of lavender, and 5 drops of rosemary, turn on your diffuser, relax, and enjoy!

ND's Critic

Excellent evidence exists for therapeutic use of aromatherapy, yet it appears to go largely underutilized. The article does a good job of brining much-deserved attention to this important area of study.

Dr. Philip Rouchotas, MSc, ND
boltonnaturopathic.ca
64 King Street West
Bolton, Ontario

The Greatest Gift!

by Theresa Nicassio, PhD, Psychologist

"I value you and honour and take the time, right this moment to pause long enough to truly notice you."

—Mary Anne Radmacher

Transitionning from fall to winter is probably the most evocative time of the year, reminding us of our core essence while also inviting us to reevaluate how we are choosing to live our lives.

Against the backdrop of the growing chill in the air and the emerging nakedness of the once abundantly lush and warm summer landscape, we are simultaneously inspired to look inside for our inner fire to find warmth to help carry us and our loved ones through the darkest of days.

Maybe that's why so many cultures and communities have created their most sacred of holiday celebrations during this unique time of year.

The truth is, there is something particularly soul-soothing about coming together in community to fill the winter with gaiety, song, food-sharing and the symbolic exchange of gifts—despite the inevitable losses and disappointments that are an inherent part of living. This ritual gathering is not about distracting or numbing ourselves in order to forget our hardships, but instead it's about remembering our humanity and the privilege it is to be alive and find comfort in knowing that we are not alone on our journey.

Despite the confusion that has led many to believe otherwise, the purpose of gift-giving actually has nothing to do with entitlement or materialism. Instead

it's really about finding a metaphoric way to acknowledge our gratitude for the shared opportunity to be present in another person's life and to show them that their presence matters to us.

When we know that we matter, even if to only one other being in the world, our vision of who we are is forever changed. Likewise, when we are able to communicate to another how their beingness has touched our heart in some meaningful way, their world is also transformed in ways that we will likely never know.

In my practice as a psychologist for over 30 years, I have had the privilege of witnessing firsthand the power of emotional footprints (and the lack thereof) on the human soul. And while it's impossible to get through this life without scars and bruises from tragedies and the thorns of misguided and harmful experiences, the power of connection and compassion can offer palpable respite and, at times, life-saving healing for even the most horrific of wounds.

Knowing this, the superficial notions about kindness evaporate, giving rise to a fierce form of love that knows no bounds, including (and especially) to those who need it most and are the hardest to generously offer such kindnesses to.

At the beginning of November 2018, Kathryn Kellogg was a guest on my radio show talking about zero-waste holidays. Since that interview, I've found myself steeping in her words, particularly her insights about what she calls "experience gifts." These musings have taken me not only through the expansive plethora of fun and exciting ecofriendly adventures possible to share with others, but also to that very quiet and solemn place that embodies the experience of unabashed authentic connection. While there are no ribbons or bows to tie on this sort of gift, the inner radiance that it can give rise to has a magic and a mystery that far exceeds any of our wildest imaginings.

Theresa Nicassio, PhD, Psychologist

Theresa is a wellness educator, radio host, and the award-winning author of *YUM: Plant-Based Recipes for a Gluten-Free Diet.*

TheresaNicassio.com

What's the Keto Diet and Should You Be Following It?

by Angela Wallace

Whether it's for weight loss or digestive health, or for reducing the risk of chronic disease, everyone seems to be trying the keto diet lately. As a registered dietitian and personal trainer, I often get asked about the keto diet. I always like to present the pros and cons to every eating style and what the evidence says. So, does the research support its use? Read more to find out!

What Is the Keto Diet Anyway?

The ketogenic (keto) diet is a high-fat (75–80%), extremely low–carb (5%), moderate-protein (15–20%) approach to eating. This approach to eating puts your body in a metabolic state known as ketosis, where your body is using fat as its primary source of energy instead of glucose. Our bodies normally use glucose from carbohydrates as our main source of energy, and in states of starvation or altered metabolism, we turn to fat.

Ketones are a natural source of energy made from fat that is used by the cells of both body and brain. Ketones are produced in the liver when fat is broken down and used as energy. So yes, our brains can function without carbs, but they prefer not to!

The keto diet has been used medically in the treatment of epilepsy for a long time. Due to its effectiveness, it has been tested in the treatment of other medical conditions such as Alzheimer's, multiple sclerosis, cancer, diabetes, and even heart health.

How Does the Keto Diet Impact Heart Health?

When it comes to heart health, we have typically thought of a diet rich in fats (especially saturated fats) as being detrimental to health. Some research is now suggesting that following a keto pattern of eating can improve HDL, LDL, and triglyceride markers. In addition, some studies have found improvements in hemoglobin A1c (blood sugars) and triglyceride markers when following a low-carb keto approach to eating.

However, the research is mixed. In fact, some research suggests it can increase the risk of hypercholesterolemia over time.

Bottom line: The diet can help improve blood-sugar markers and cholesterol levels; however, much more research is needed. Many other patterns of eating have also been proven to improve the same markers and reduce overall risk of heart disease, including a Mediterranean or vegetarian diet.

What About Weight Loss?

Many individuals following a keto diet tend to lose weight, and this is likely because they are almost entirely cutting out a food group (carbohydrates). Of course, when eliminating foods from the diet, weight will be lost. In addition, the increase in fat and protein consumption can promote satiety (feeling of fullness), which in turn can help support weight loss. Research has shown that ketosis can impact our appetite hormones, ultimately causing the suppression of appetite. This suppression is likely why people "dieting" enjoy the keto diet, as they are not feeling deprived or starved. Other research has shown significant reductions in body fat and weight in the short term (3–6 months), but long-term weight-loss research is lacking.

Bottom line: The keto diet might lead to weight loss in the short term, but is this approach to eating sustainable in the long term? In fact, many studies have shown weight losses to be unmaintainable at 12 months when following an extremely low–carb diet.

Although the keto diet has some positive impacts on health and weight loss, there are also a lot of risk and potential side effects. During the initial transition to the keto diet, there are side effects known as the "keto flu," which include nausea, dizziness, irritability, poor exercise performance, and fatigue. These feelings typically last for a few days. In addition, ketosis changes the water/mineral balance in your body, which often puts people are risk of mineral deficiencies and in need of supplements to compensate for their losses. This is particularly important when we think of bone health.

Other common side effects include bad breath (from the production of acetone), constipation (because the diet is lacking whole grains and fibre), and potential influence on cholesterol levels over time. In addition, the transition into and off a keto diet can be hard on the body, so it's important to ensure you are doing so in a safe manner. Be sure to connect with your trusted health-care provider during this transition phase.

What About My Muscle?

Carbs play an important role in exercise performance and muscle growth, especially when it comes to high-intensity exercise (for example in the case of elite athletes). Carbs help promote muscle recovery, produce insulin (which supports nutrient absorption), and reduce muscle breakdown. When it comes to supporting muscle growth and strength, a moderate-carb diet appears to be best.

Do the Benefits Outweigh the Risk?

This really depends on the person. I am personally not an advocate for almost completely cutting out a food group because:

1. Our bodies like using carbs for energy; and
2. It's very hard to sustain this eating pattern over time.

I believe that finding a diet that works for your lifestyle (that can be followed in the long term) is the true key to health (and even weight loss). I also believe in balance, which includes enjoying carbohydrates too! Although the keto diet may help you lose weight initially, can you sustain it—or do you want to?

Visit our blog for the full article including references: newrootsherbal.com/en/blog

Angela Wallace

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

Keto-Friendly Broccoli Cheddar Egg Muffins

Ingredients

- 10 eggs
- 1 tbsp. olive oil
- ½ yellow onion, minced
- 2 cups broccoli, minced
- 1 cup cheddar, shredded
- 2 garlic cloves, minced
- Sprinkle of salt and black pepper

Instructions

In a bowl, whisk together eggs, spices, onion, broccoli, and cheddar cheese.

Preheat the oven to 350 °F (175 ℃) and lightly grease a muffin tin, using olive oil.

Fill muffin tin with mixture and bake for 20–25 minutes.

Enjoy! Muffins keep well in the fridge for 3–4 days. They also freeze well and can be used as a make-ahead snack or meal.

Cheers to happy and healthy eating!

Makes 10–12 egg muffins.

Angela Wallace

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

Low-Carb Chocolate Almond Biscotti

Flourish Original Recipe

Ingredients

- 1½ cup almond flour
- ⅓ cup unsweetened cocoa powder
- 1 tsp. baking powder
- 3 tbsp. New Roots Herbal Pumpkin Protein Powder
- ½ tsp. guar gum or xanthan
- ½ tsp. salt
- ½ cup butter melted
- 2 eggs beaten
- 2 tsp. New Roots Herbal Stevia Sugar
- ⅓ cup almonds sliced
- 3 ounces sugar-free chocolate chips or chopped chocolate

Instructions

Preheat the oven to 325 °F (160 ℃).

In a stand mixer, add the first seven dry ingredients and blend on low to combine. Add in the remaining ingredients except almonds, and blend until well incorporated. Stir in the almonds and place the dough on a baking pan lined with parchment paper.

Form a rectangle about 25 cm (10″) in length and 15 cm (6″) in width. Bake for 30 minutes. Cool for 20 minutes, then slice. Gently lay the biscotti flat on the pan, cut side down, and continue to bake another 15 minutes.

Remove from oven and allow to cool before handling. Gently flip biscotti over and bake another 10 minutes.

If desired, you can dip one end of the biscotti in chocolate and even add additional almonds on it. In this case, let the biscotti cool completely before this step.

Yields 12–14 servings.

Caramel Apple Cream Tarts

Raw, Vegan, Paleo, Gluten-Free, and Refined Sugar-Free

These tarts are show-stoppers—they're perfect for entertaining, and you have the option of making the two-bite minitarts *or* the 4″ tarts. But at the same time, don't kid yourself. These are easier to make than you might think, and the ingredients are rather simple!

Crust

Ingredients

- ¾ cup raw almonds
- ¾ cup shredded coconut
- ½ cup raisins or pitted dates
- 1–2 tsp. water

Instructions

In a processor, finely grind the almonds and coconut. Add the raisins/dates, and process until they're ground. Add the water, starting with 1 teaspoon. The mixture should be moist and hold together when pressed. Press into 14–16 mini silicone muffin cups (about 1 tablespoon crust each) *or* four 4″ tart pans with removable bottoms.

Apple Cream Filling

Ingredients

- 1 cup peeled, diced apple
- 3 tbsp. melted coconut butter
- 3 tbsp. melted coconut oil
- 1 tbsp maple syrup
- ½ tsp. lemon juice

Instructions

Blend all ingredients in a blender until smooth and creamy. Pour into the crusts and place into the fridge for at least 8 hours to firm up.

Caramel Apples

Ingredients

- 1½–2 tbsp. maple syrup
- 2 tbsp. almond butter
- 1 tbsp. melted coconut oil
- ½ large apple, peeled and diced small
- Optional: ½ tbsp. lucuma powder

Instructions

Whisk the syrup, almond butter, and coconut oil together until smooth. Stir in the apples. Spoon over the chilled filling.

If you want something a little more decadent and you love chocolate, visit our blog for an alternate version!
newrootsherbal.com/en/blog

Heather Pace

A classically trained chef turned raw-dessert chef, she is a travel bug, a chocoholic, and a certified yoga instructor.

sweetlyraw.com

Flourish

Blog Preview

Visit our blog to subscribe to our newsletter!

For more articles on health, lifestyle, and wellness—add to that delicious recipes!—all in a more dynamic and accessible format, visit our blog in the upcoming weeks at flourishbodyandmind.com

What Does It Mean to be Adrenal-Fatigued?

These days, it is quite rare to meet someone who does not identify with fatigue or stress on some level. Adrenal insufficiency is a common diagnosis amongst naturopathic doctors and alternative practitioners, but few will fully investigate the extent of the insufficiency and determine the right herb for [. . .]

Green Vegetable Protein Soup

If your traditional cream of vegetable soup isn't enough to satisfy your hunger, this one will fill you right up! It features beef bone broth protein for a generous dose of proteins.

Mood-Food Connection

(Follow-Up on the Digestive Health Theme)

Research is now providing a growing body of evidence that the building blocks of neurotransmitters (chemicals in the brain responsible for mood) are manufactured in the gut. For example, 90% of the body's serotonin is made in the digestive tract. Dopamine the "reward" neurotransmitter is made by [. . .]

Pumpkin Seed: Hypoallergenic Vegan Protein Source

With more people choosing vegetarian and vegan diets, there is an increased need for a high-quality, plant-derived protein supplement. According to a 2015 survey of over 1500 Canadians aged 18 or older, approximately 8% reported being vegetarian or mostly vegetarian, while 25% reported [. . .]

Still Skeptical About Organics? Hang on to Your Hat!

Research conducted in France by Nutrinet Santé, the respected voice for nutrition and health, has reported encouraging decreases for cancer risk in general (25%), breast cancer (34%), and lymphoma (76%) associated with an organic diet. The study involved 70,000 people whose diet consisted primarily of organic products [. . .]

Chocolate Caramel Apple Cream Tarts

Do you love chocolate? If so, then this alternate version of the caramel apple cream tarts featured in this magazine is for you! It offers the same great dessert except with a chocolaty twist: a chewy chocolate crust and some chocolate drizzle!

DOES MY ALL-INCLUSIVE HAVE TO INCLUDE DIARRHEA?

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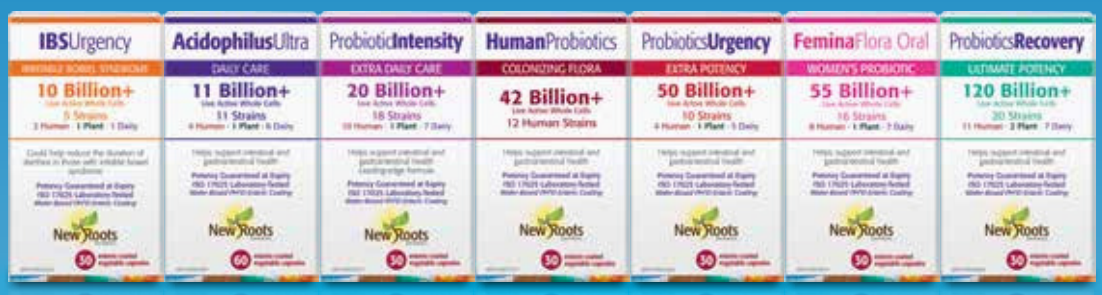

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