

# flourish

HEALTHY BODY, MIND, AND SPIRIT

Why Do We Get  
*Cancer?*

Arthritis

The Role of Natural  
Health Products

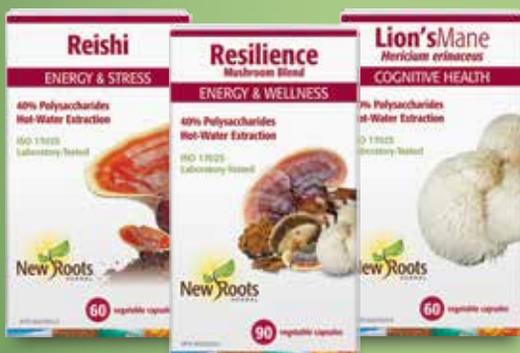
Top 3 Supplements to  
Restore Immune Function

*The Healing Power of Food*

Where Delicious and Healthy  
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Vol. 2, No. 3 · Free  
March/April 2018

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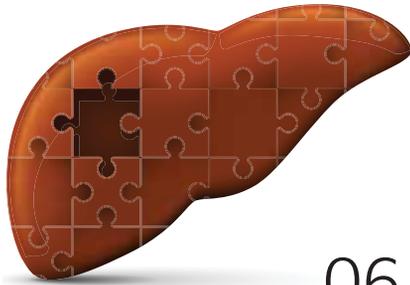
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PROUDLY



06



12



20



26



34



38

# Table of Contents

March/April 2018

05 My Aching Bones!

06 The Many Faces of Liver Health

08 Enhancing Recovery of Traumatic Brain Injury with Nutrition

10 Your Eyes: Window to Your Soul and Life

12 Why Do We Get Cancer? A Review of Causes

15 Phytoestrogens: Yes or No?

18 Five Medicinal Mushrooms: Health Benefits

20 Autoimmune Health: Top 3 Supplements to Restore Immune Function

23 Vaginal Health Begins in the Gut

24 Arthritis: The Role of Natural Health Products

26 Fish Oil for Physical Fitness: The Next Best Workout Partner

30 Osteoarthritis in Animals

32 Magnesium's Role in Your Health

34 10 Natural Ways to Alkalize Your Diet

36 The Healing Power of Food: Where Delicious and Healthy Delightfully Dance Together...

37 Culinary Corner

39 Blog Preview

# Editor's Letter



Today, cancer remains the leading cause of death in Canada. The past decade has seen new cases increase at an average rate of 2% annually. The increase is partly attributed to our aging population; in fact, for the first time in history, seniors outnumber our youth in Canada.

The question remains: Why do we develop cancer, and can we prevent it? Adopting healthy lifestyle habits can reduce some risk factors. Additionally, our naturopathic article on page 12 lists common carcinogens and how to reduce our exposure to them.

There are also two million Canadians with autoimmune diseases, 80% of whom are women. What can be done for those suffering from these diseases where the immune system attacks its host? We'll delve into natural strategies, diets, and supplements to reclaim immune performance. Look for some insight into these topics in the following pages.

Keeping pace with previous issues of *Flourish*, we're pleased to present articles contributed by a diverse group of natural health-care practitioners, psychologists, pharmacists, certified and holistic dieticians, and more. Our collaborators' expertise will surely provide you with the insight for better living. You can also visit the Culinary Corner, for some great healthy recipes!

Sonia Lamoureux  
Editor-in-Chief

*flourish*

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### Guillaume Landry, MSc, ND.A

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

# My Aching Bones!

by Gordon Raza, BSc



Yes indeed, it's a familiar phrase we tend to hear more often as we age. In reality, pain within bones is rare and, in a very small percentage of cases, is symptomatic of serious disease. Osteoporosis, the disease caused by the gradual loss of bone strength and density, is a silent disease not associated with aches and pains, and frequently only diagnosed following a fragility fracture. Wear and tear on attachment sites of bones and connective tissue—including cartilage (bone to bone), tendons (bone to bone), and ligaments (muscle to bone)—are the most common cause of soreness within joints that can derail an active lifestyle.

Bones are dynamic, with their highly specialized cells in a constant state of growth and resorption (decay or loss). Supplementation with calcium was once considered adequate for maintaining healthy bone mass; however, the bioavailability of calcium and the presence of nutrients that enhance its absorption are critical. There are several sources of calcium available in supplement form; however, bovine-sourced microcrystalline hydroxyapatite (MCHA) is recognized as the most bioavailable form to fuel bone density. Biologically active vitamin D<sub>3</sub> and magnesium are proven to lock down calcium within bones; make sure you're getting your recommended daily requirement. Many other nutrients have been shown to exert positive effects on bone-density dynamics, with vitamin K<sub>2</sub>, green tea extract, and grape seed stimulating osteoblast (bone-building cells) and inhibiting osteoclast (bone resorption) activity. Curcumin, lutein, zinc, manganese, and vitamins B<sub>1</sub> and B<sub>12</sub> are among the many other skeletal-friendly nutrients to look for in a comprehensive formula.

A novel nutrient, by the trade name NEM® (Natural Eggshell Membrane®) has also emerged as a critical component for healthy cartilage, connective tissue, and synovial fluid essential for pain-free articulation. Extracts of Devil's claw, curcumin, and boswellic acid are a trio of botanicals worthy of consideration for natural relief of joint pain and inflammation.

These vitamins, minerals, and nutraceuticals can be sourced à la carte or discovered within condition-specific formulas. Quenching your bones and connective tissue with the right nutrients will make your bones stronger to help alleviate joint pain and improve range of motion to keep you active.

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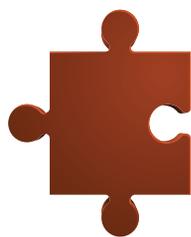
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PROUDLY 



# THE MANY FACES OF LIVER HEALTH

by Heidi Fritz, MA, ND



**LIVER HEALTH OR “LIVER DETOX”** is a term we hear a lot in the realm of complementary medicine. Our popular understanding of the liver, however, tends to oversimplify the multitude of roles that the liver plays, and hence, often overlooks the full array of factors that influence optimal liver function. This article examines several important roles of the liver with respect to human health, and how we may be able to beneficially impact this.

## METABOLISM OF FOREIGN CHEMICALS

The liver breaks internal and foreign chemicals down in a two-part process, called Phase I and Phase II detoxification, which are *catalyzed* by specific liver enzymes.

Phase I involves subjecting these fat-soluble toxins to *hydrolysis* or *oxidative* reactions, resulting in more polar metabolites. Ironically, the by-products of this step are actually more reactive and harmful than the original toxins. Therefore, upregulation of Phase I enzymes (P450 enzymes) is undesirable. Phase II enzymes absorb these polar metabolites and make them water-soluble through conjugation reactions. This results in a metabolite that is less reactive and can be more easily excreted through the kidneys. Exposure to certain toxins—such as alcohol, cigarette smoke, caffeine, saturated fats, and pesticide residues—upregulates Phase I detoxification systems. On the other hand, supplementation with certain nutritional factors, for example, *N*-acetylcysteine (NAC), B vitamins, and a wide spectrum of amino acids, can upregulate Phase II reactions. Certain herbs such as milk thistle (*Silybum marianum*) can also help protect the liver cells from damage during these reactions.

NAC is a precursor for glutathione, a powerful antioxidant that is used in conjugation reactions. Supplementing with NAC is the best way of increasing glutathione stores, short of intravenous glutathione therapy, since oral glutathione is not well absorbed.

NAC is used in hospital settings as the antidote to acetaminophen overdose, which if untreated results in acute liver failure. NAC “soaks up” the acetaminophen before it can result in such widespread damage.

Milk thistle protects the cell membrane of liver cells, which can be damaged by free radicals during detoxification reactions. Whey protein powder contains an array of essential amino acids that are required for amino acid conjugation reactions. Whey also contains cysteine, which like NAC increases glutathione levels. Lecithin, rich in choline, is a component of cell membranes and is also used to help protect liver cells from damage.

## ENERGY HOMEOSTASIS

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In addition to detoxification reactions, the liver is also responsible for maintaining energy and metabolic homeostasis. For instance, the liver serves as a reservoir for triglycerides (fats) and glycogen, a molecule that when broken down yields glucose to help provide energy to cells in the fasting state. These processes are called *gluconeogenesis* and *glycogenolysis*.

Alternately, within the first two hours following a meal (fed state), the hormone insulin signals the liver to take up fats and glucose for storage. Under conditions of being chronically overfed, insulin levels rise and conditions such as fatty liver, high cholesterol, and diabetes can result. Fatty liver and diabetes result in an insidious, slow progression of liver damage. Exercise and maintaining a healthy body weight is therefore critical in optimizing liver health. In addition, limiting processed foods including sugary foods and drinks, fast foods, fried foods, etc. are important for maintaining liver health. Supplements that help improve insulin activity, such as chromium or inositol, may also be helpful for liver health. Curcumin has also been shown to improve insulin resistance.

The liver is also responsible for maintaining adequate amounts of proteins in the body. The liver can synthesize proteins from the essential amino acids, which must be obtained in the diet. In addition, the liver is responsible for synthesizing the primary osmotic protein in the blood, albumin. The role of albumin is to maintain proper amounts of blood volume, and thereby prevent fluid retention such as edema in the legs or ascites in the abdomen. This is also essential in maintaining appropriate blood pressure. If albumin levels are low, blood pressure drops to abnormally low levels, compromising the delivery of oxygen and nutrients to other organs.

## HORMONE REGULATION

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Finally, the liver is intricately involved in the regulation of hormones including thyroid hormones and sex hormones.

Normal thyroid function involves production of thyroxine ( $T_4$ ) and triiodothyronine ( $T_3$ ), the two “thyroid hormones.” These hormones regulate the metabolism of virtually every cell in the body. However,  $T_3$  is the more active hormone, and is converted from  $T_4$ . Therefore, the body has developed several ways to regulate the activity of  $T_3$ . The liver, kidneys, and thyroid contain the enzyme deiodinase type 1 (D1), which converts  $T_4$  to  $T_3$ . According to Dr. Sandberg-Lewis, the liver is responsible for approximately 80% of  $T_3$  through this mechanism. It is interesting also to note that in reciprocal fashion, thyroid hormone status is conversely a powerful influence on liver function, such that low thyroid hormones may contribute to fatty liver disease.

Secondly, the liver is involved in the regulation of estrogen levels in the body. The liver is responsible for conjugation of estrogen and other hormones, and delivers them into the intestines for elimination from the body. Nutrients involved in conjugation reactions (see above) may improve the efficiency of this process; however, the body also relies on healthy gut function for proper elimination. This is the often-neglected Achilles’ heel of liver function.

There exists a specialized transport loop called *enterohepatic circulation* or recycling. Substances are absorbed from the intestines into blood vessels that feed directly into the portal vein of the liver. This gives the liver “first dibs” on processing nutrients. From the liver, biochemical by-products are dumped back into the intestines for elimination. So, if the intestines do not eliminate regularly, these by-products can be reabsorbed into the bloodstream and flow right back to the liver. Alternately, if there is an overgrowth of certain bacterial

species, such as *Clostridia* species, that express the  $\beta$ -glucuronidase enzyme and have the ability to deconjugate estrogens, liberating them to be reabsorbed, this may result in increased estrogen recycling from the gut back to the liver. Studies have also demonstrated that probiotic supplementation resulted in 2.4-fold greater elimination, more rapidly, of the xenoestrogen, bisphenol A (BPA). Therefore, ensuring healthy digestive function is also critical in optimizing liver function and hormone metabolism.



## IN CONCLUSION

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The liver is a key player in the detoxification and elimination of foreign chemicals as well as endogenous biochemical by-products. The liver is responsible for maintaining energy homeostasis, storing and creating energy in response to hormones such as insulin. Finally, the liver is also responsible in part for maintaining adequate levels of thyroid hormones, and for efficiently eliminating estrogens, so, to avoid excess estrogen stimulation of hormone sensitive tissues. Consult an ND to find out more about how to care for your liver!



# Enhancing Recovery of Traumatic Brain Injury with Nutrition

by Stephanie Bayliss, ND

Traumatic brain injury (TBI) is defined as an injury to the brain caused by external forces. Approximately 10 million people per year suffer from a TBI, and in high-income countries, TBI is a leading cause of mortality and disability. Contact sports, motor vehicle accidents, and falls are the most common causes of TBI within a lifespan, resulting in a host of cognitive, behavioural, physical, and psychological challenges.

Following TBI, many cellular and molecular pathways are activated, some of which are inflammatory in nature. Neuroinflammation is the activation of supportive neuronal cells that release inflammatory molecules throughout the brain, which can be both beneficial and detrimental to healing damaged tissues. Initial injury can involve contusion (bruising), laceration (cuts), swelling, and bleeding—all of which can result in the death of brain cells (neurons). Secondary effects that are caused when the brain attempts to heal itself can result in oxidative stress and in the blood-brain barrier breaking down, leading to further cell damage, as well as increased neuroinflammation. This neuroinflammation triggers the immune system to restore the damaged tissue, but this process is not well controlled and can exacerbate the injury, leading to additional cellular death.

Although most individuals suffering from TBI achieve substantial recovery within three to six months, some individuals continue to experience chronic symptoms and develop postconcussive syndrome (PCS). These individuals may continue to experience labile and dysregulated mood, as well as physical symptoms like dizziness and headaches. Given the complexity of TBI cases, treatment is best managed by an integrated health-care team. Metabolic support during rehabilitation is essential to maximize the efficacy of these rehabilitative efforts (e.g. occupational therapy). Two nutrients that are showing promise in potential treatment for TBI are omega-3 fatty acids and curcumin (i.e. turmeric).

## Omega-3 Fatty Acids

Our brain is 60% fat. Essential fatty acids contribute largely to this, which are only acquired through diet. Essential fatty acids include omega-3 and omega-6 fatty acids, and typical Western diets have far more omega-6 fatty acids than omega-3. Omega-6 fatty acids are found in grains and meat products (especially animals that are grain fed) and are proinflammatory, which may exacerbate neuroinflammation during recovery. In contrast, omega-3 fatty acids are neuroprotective, and they are critical for neurodevelopment and function. A nutritional foundation is essential to heal damage and minimize inflammation, and research has shown that patients who are not fed within five to seven days of a TBI have a two to four-fold increase of death. In a case study of an adult male who had just

experienced a TBI, 19 g of omega-3 fatty acids (from fish oil) were provided daily through a feeding tube and showed positive benefit. He remained on this dosage for one year with no side effects.

Omega-3 fatty acids are most concentrated in small-sized seafood such as anchovies. There are two types: eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Omega-3 fatty acids have been shown to decrease neuroinflammation and to provide the building blocks for repair of neural tissue. When purchasing fish, ensure it is wild-caught. When choosing a fish oil supplement, ensure the product has been third-party-tested for contaminants such as mercury. Fish oil is best consumed within 30 days of opening and should be kept in the fridge to prevent rancidity. Dosing in many studies demonstrating decreases in inflammation are above 6 g per day, meaning that supplementing would likely be required in cases of TBI to reach such levels. A typical fish oil supplement has around 1 g of omega-3 fatty acids per serving size.

## Curcumin

A common ingredient in curry, turmeric (*Curcuma longa*) is demonstrating powerful neuroprotective benefits. Recently, it has gained a lot of attention in treating chronic diseases, including Alzheimer's disease, given its potent anti-inflammatory properties. Because of these anti-inflammatory properties, research is currently focusing on the effectiveness of curcumin in decreasing inflammatory markers post-TBI in animal and cell studies.

In one animal study, the effects of supplementing with curcumin reduced oxidative damage and counteracted the cognitive impairment caused by TBI. A separate animal study showed a reduction in the size of TBI lesions, as well as improvement in neurological functioning. Importantly, the inevitable neuroinflammation following TBI has been shown to decrease with curcumin, as it reduces the acute inflammatory cascade that occurs after a TBI. Based on these studies, it can be inferred that curcumin has promising potential as an adjunctive treatment measure for individuals recovering from TBI.

Clinically, there are concerns with the absorption of curcumin, and traditional Ayurvedic medicine has added an oil (e.g. coconut oil) and pepper to enhance absorption. When choosing a curcumin product, adding it to food with fat is best, and when purchasing a supplement, choose one with enhanced absorption containing pepper or a fatty acid complex.



### Stephanie Bayliss, ND

Dr. Bayliss is a naturopathic physician practicing in Victoria, BC. Her practice has a focus on chronic disease, neurological conditions, and mental health.

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# Your Eyes

## Window to Your Soul and Life

by Guillaume Landry, MSc, ND.A.

I remember being partially blind for 48 hours after a laser operation about 15 years ago, when this technique wasn't developed like it is today. It's a shock to lose the use of one sense temporarily or—even worse—permanently. It is during such a moment that we realize the true importance of our senses. Today, there are nearly 38 million blind people in the world, and more than a billion people who are far-sighted! A 2017 study published in *The Lancet Global Health* states that people with moderate to severe visual impairment increased from 160 million in 1990 to 217 million today, and foresees 588 million in 2050, mainly in Asia and sub-Saharan Africa. A positive note from the WHO: 80% of visual impairments, particularly among adults over 50 and children under 15, are preventable or curable.

### The main causes of blindness and visual impairment are:

- Incurable refractive errors (myopia, hypermetropia, or astigmatism);
- Inoperable cataract;
- Age-related macular degeneration;
- Glaucoma; and
- Diabetic retinopathy.

*"Beauty is in the eyes of the beholder."*

—Oscar Wilde

### How Must You Take Care of Your Eyes?

Your eyes deserve care at any age, especially if you have risk factors such as heredity, diabetes, or certain medications. Therefore, regular medical checkups with your ophthalmologist are a must. During the day, when in high-reverberation environments such as the sea, high mountains, or snow, be sure to wear sunglasses that block UVA and UVB. Additionally, you should wear goggles to protect against exposure to chlorine at the pool. Ensure you wash your hands well, as we touch our eyes many times throughout the day. Did you know that we blink nearly 30,000 times a day in order to lubricate and clean the eyes? Our that modern lifestyles, with the excessive use of screens, has a strong impact on our eyes. Keep a good distance from screens, and be sure to adjust the contrast and blue colour (for the same reason, use LEDs in moderation). At work, take time to rest your eyes by looking away from the screen at some distant object for a few seconds. Use eye drops to help lubricate and soothe your eyes if they are dry or irritated. Finish your evenings with a good novel (or better: your partner) rather than in front of a screen, so that you can sleep like a baby. The cycle of melatonin, the hormone that keeps you asleep, is disrupted if you have too much screen exposure late in the evening.

Proper hygiene is fundamental, and there are many recommendations that deal with our eyes. At the nutritional level, nutrients are real protective treasures for eyes, and it has been clearly shown that proper nutrition prevents eye disorders and diseases. The most important factors for your eye health are antioxidants\*

\* Also called reactive oxygen species (ROS) and defined as "a substance that, when present at low concentrations compared to those of an oxidizable substrate, significantly delays or prevents oxidation of that substrate."

(trace elements, vitamins, or polyphenols) which trap infamous free radicals that have invaded our everyday environment and our plates (the so-called oxidative stress also produces free radicals).

The synergy of antioxidants is crucial, because it allows action on several cell sites at the same time, without saturation or excess. Their action is then optimized, as opposed to taking large doses of a single antioxidant, which can itself become oxidizing if the body is deficient in micronutrients needed for recycling. In other words, 1 + 1 = 3! So, eat multicoloured foods, especially blue (blueberries, plums, etc.), green (cabbage, spinach, etc.), red-orange (carrots, tomatoes), and white (garlic).

In addition, choose to supplement with a scientifically balanced antioxidant formula. In the arsenal of micronutrition, zinc, copper, selenium, or manganese promote anti-free-radical enzymatic activity. The antioxidant vitamins C, E (the most important in the body), A, B<sub>5</sub>, and B<sub>6</sub> are well-known, as are polyphenols, including proanthocyanidols, which partly explain the “French paradox” about the benefits of the reasonable consumption of wine (and blueberries in the mountains). Its tannins limit vascular hyperpermeability and are anti-inflammatory, especially with resveratrol (in the grapes’ skin, stalk, and seeds).

The preventive effects of various antioxidants are the subject of current research and will make your eyes shine when you hear pretty names such as zeaxanthin, astaxanthin, lycopene, or lutein. These are carotenoids capable of neutralizing, among other things, singlet oxygen, the extremely reactive form of oxygen formed under certain conditions by energy transfer from light radiation to the oxygen molecule. This singlet oxygen is especially harmful to the eyes and skin.

Colour	Antioxidants	Foods
Red	Anthocyanins, lycopene	Beetroot, cherry, red cabbage, strawberry, tomato, red onion, pepper, apple, and radish
Blue-Purple	Polyphenols, flavonoids	Eggplant, blackcurrant, raspberry, blackberry, plum, prune, grape
Green	Chlorophyll	Avocado, broccoli, spinach, kiwi, Brussels sprouts, beans, pear, green peppers
Yellow-Orange	β-Carotene, lutein, zeaxanthin, quercetin	Apricot, pineapple, carrot, lemon, mango, orange, papaya, peach, pepper
White	Sulfur compounds, selenium, other compounds	Garlic, apple



## April Is Daffodil Month

Throughout the month of April, which is Daffodil Month, the Canadian Cancer Society offers us the opportunity to make a difference in raising awareness and funds to this all-too-common disease. Every good deed counts, so let’s join the fight, one flower at a time. To learn how you can help, visit [www.cancer.ca/en/get-involved](http://www.cancer.ca/en/get-involved)



# Why Do We Get Cancer?

## A REVIEW OF CAUSES

by Ariel Jones, ND

The incidence of cancer has never been higher. We are seeing a steady increase in cases each year. It is estimated that in 2016 we saw 1.6 million new cases, with breast, lung, prostate, and colon cancers topping the list. Why are more people getting cancer? A carcinogen is a substance capable of causing cancer in living tissues. It's hard to conceptualize the numerous and varied forms of carcinogens we are exposed to daily. Carcinogens are found in food, the environment, household and body products, workplace, and pharmaceutical medications. What are these carcinogens, and how can we reduce our exposure?

### Pesticides

Pesticides have been used for centuries in agriculture. It was the rise of synthetic pesticides that began to have direct and indirect toxic effects. Indirect effects due to bioconcentration, the accumulation of molecules in fatty tissue, and increases in concentration of a substance as it moves up the food chain are known as biomagnification.

Pesticides and herbicides have been known to cause cancer for decades.

Examples of known carcinogenic pesticides are:

1. Organochlorine pesticides: DDT, DDE, chlordane, heptachlor, dieldrin, methoxane.
2. Organophosphate pesticides: diazinon, chlorpyrifos.
3. Triazine herbicides: atrazine, simazine, cyanazine.
4. Chlorophenoxy herbicides: 2,4 D, 2,4,5 T, Agent Orange.



Pesticides and herbicides are used on crops, lawns, gardens, and golf courses. They can be found on food, in the air, at home, and in our drinking water. The use of glyphosate, the active ingredient in Roundup, a herbicide produced by Monsanto, is up one-hundred-fold since it was first sold on the market in the 1970s. Glyphosate is one of the most commonly used herbicides in the world. It is sprayed on corn, soy, and wheat crops. It was found that 90% of soy crops have glyphosate residues. As a potent endocrine disruptor, even at subagricultural doses, glyphosate has been shown to cause cancer. Its carcinogenicity is related to its estrogenic effects; its ability to bind estrogen receptors and stimulate the growth of cancer.

## Parabens

Parabens are used in cosmetics and body products to increase the shelf life and stability, by killing pathogens like bacteria and fungus. They are preservatives. They have also been shown to be present in 100% of breast-cancer-tissue samples. Although they are normally excreted in the urine after absorption, a small amount (1%) stays in the body, acting as a weak estrogen. Parabens act on human breast cancer cells, causing them to grow.



## Processed and Red Meat

Nitrosamines are used in processed meat products as a preservative in the form of nitrates and nitrites. They are also generated through the incomplete combustion of meats during cooking. Some of the largest nitrosamine offenders are hot dogs, bacon, and deli meat. Nitrosamines have been used for decades to preserve the red colour of meat. Studies have now confirmed their ability to cause cancer. Red meat has also been shown to cause cancer, most notably colorectal and stomach cancers.

## Pollution

The most common airborne carcinogens today are polycyclic aromatic hydrocarbons (PAHs). PAHs enter the body through contaminated food, drinking water, cigarette smoke, vehicle exhausts, and contaminated air from occupational settings. PAHs damage DNA, leading to the development of cancer. Most of our environmental intake of PAHs happens through the contamination of food during food processing techniques (smoking, cooking, charcoal broiling, grilling) and methods used for analysis, as well as in unprocessed foods through soil and due to the bioaccumulation found in animal sources of food. Fish and shellfish contain PAHs, due to contamination of coastal waters.

## A Prescription for Health

So why do we have cancer? Because we eat, use, and absorb carcinogens. Avoiding our exposure to known carcinogens can greatly reduce our risk of developing cancer. There are six lifestyle changes we can make to greatly decrease our exposure to known carcinogens:

### 1. EAT ORGANIC

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Local farmers' markets in your community ensure that your food is pesticide- and herbicide-free, and grown with care. Organic grocery stores are found in all large and small cities in North America. Consciously grown food is more expensive than agrobusiness only when the cost to the environment and medical system is not taken into consideration. Disease is not only financially expensive, but also emotionally draining. Eating well is the best prevention of long-term disease.

### 2. USE ONLY NATURAL PRODUCTS ON YOUR SKIN AND IN YOUR HOME

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There are lots of effective natural cleaning products. Essential oils are antimicrobial and can be used in natural cleaners as a disinfectant. Clothing detergent can be a source of carcinogens and should be switched for a natural alternative. Avoiding dryer sheets and fabric softeners is an easy way to reduce toxin load. Natural body products are essential. Make sure your creams, make-up, cleansers, and toothpaste are toxin-free. Avoiding products with alkylphenols, parabens, phthalates, triclosan, polyethylene glycols (PE G), aluminium, and sodium laurth sulfate (SLS) will reduce your exposure to carcinogens. Mineral-based make-up is widely available now as well as natural, toxin-free deodorant, toothpaste, creams, and shaving products.



### 3. MAKE THE EFFORT TO SPEND TIME IN NATURE

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Clean air and exercise are important for reducing the risk of cancer and the cancer itself. Taking the time each week to leave the city will help to reduce exposure to environmental pollution. Exercise increases the number of natural killer cells, helping to protect us from cancer and other illnesses.

### 4. ADD ANTICANCER FOODS INTO YOUR DIET

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**Brassica**—These are a family of foods known to support liver detoxification: broccoli, mustard greens, kale, Brussels sprouts, and cabbage.

**Turmeric**, raw or dried, has anti-inflammatory and anticancer properties. It can be eaten in curries or made into golden milk. Turmeric can be added to many dishes to improve its taste and prevent cancer, as well as reduce inflammation and pain.

**Green tea** contains a powerful cancer-fighting compound called epigallocatechin gallate (EGCG). It's also a powerful antioxidant that acts to protect the cardiovascular system.

**Mushrooms**—specifically reishi, maitake, shiitake, and turkey tail—contain *beta*-glucans which boost our immune system to recognize and kill cancer and prevent its spread.

*Astragalus membranaceus* is a root mostly sold dried. It has antitumour capabilities related to its ability to restore T cell function, which is repressed in cancer patients.

### 5. REDUCE MEAT INTAKE

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Colon cancer was shown to have a 30–40% reduction in risk with higher intake of vegetables. There is a two-fold increased risk of ovarian cancer for a dietary pattern high in meat and fat. Meats contribute to cancer risk through provision of fat as well as a vehicle for carcinogenic products from cooking: heterocyclic amines and nitroso compounds. Smoked meats have recently been shown to be carcinogenic, due to the incomplete combustion of meat from barbecuing or smoking being highly mutagenic.

Fish are a good source of omega 3 fatty acids, which possess anticarcinogenic properties. A pescatarian diet (mostly vegetables and fish) has been shown to have a lower risk of ovarian cancer due to an inverse association between the intake of omega 3 fatty acids from fish and the development of ovarian cancer.

### 6. AVOID EXCESSIVE INTERACTION WITH ESTROGEN-LIKE COMPOUNDS

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Many substances in nature and man-made mimic estrogen activity in the body, like the herbicide Roundup discussed earlier. For plant-based estrogens, this effect is

weak and can actually be cancer-preventative. But for the man-made sources of exogenous estrogen, as well as excessive doses of a natural source, the outcome is harmful. Soy contains compounds called, isoflavones, which are weakly estrogenic. BPA is found in soft plastics and shown to be estrogenic. Eliminating BPA—in the form of plastic water bottles and certain canned goods—from your life, as well as limiting your intake of organic soy and soy products, can decrease the exposure to estrogenic substances.

## Summary

A diet of organic vegetables and fish, combined with a natural lifestyle, may be the key to reducing the incidence of cancer worldwide. Michael Pollan said it best in his book *The Omnivore's Dilemma*: "Eat food, not too much, mostly plants." To that I would add to make sure most of those vegetables are raw, and combine them daily with anticancer superfoods; an organic diet; and a natural, toxin-free lifestyle.

### NOTE:

For a complete list of carcinogens, you can visit the website of the National Toxicology Program at the US Department of Health and Human Services. They publish an ever-updated list of substances to be known carcinogens.

For references and other great articles, visit [NaturopathicCurrents.com](http://NaturopathicCurrents.com)



### Ariel Jones, ND

Dr. Ariel Jones' practice focuses on removing the physical, mental, and spiritual obstacles to cure, and on implementing a

toxin-free lifestyle to achieve radiant health!  
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# Phytoestrogens Yes or No?

by Jean-Yves Dionne, Pharmacist

In the field of nutrition, few subjects are more controversial than this one. Everyone has their own opinion: Some say it prevents certain types of cancers, others that they aggravate or even cause cancer. The purpose of this article is to reveal the truth about various claims and theories, based on current knowledge and research.

## What Are They?

Phytoestrogens are plant-sourced compounds having an affinity for estrogenic receptors in the human body. These molecules are ubiquitous in the world of plants. They have started becoming popular when women started looking for alternatives to synthetic hormones and, more importantly, since epidemiological evidence displayed soybean consumption to reduce or completely alleviate symptoms of menopause in Asian women, especially in Japan.

## Sources of Phytoestrogens

Although scientific studies focused mostly on soybeans, all legumes contain phytoestrogens. Here are some good food sources of phytoestrogens.

- Soybean (*Glycine max*)
- Red clover (*Trifolium pratense*)
- Flaxseed (*Linum usitatissimum*)
- Black cohosh (*Actea racemosa*)
- Hops (*Humulus lupulus*)
- Yarrow (*Achillea millefolium*)
- Carrot (*Daucus carota*)

Foods have an estrogen impact on our health, which depends on several factors:

- Estrogenic power of molecules;
- Concentration of molecules;
- Possible synergy between these molecules;
- Amount of food consumed;
- Possible synergy of several foods or medicinal plants; and
- Metabolism and intestinal flora of the person.

These factors explain the variability of estrogen's effects on a person. In fact, controversial research comes from in vitro studies (in an artificial environment like a test tube) carried out on an isolated molecule, not complete food.

## Indications

Soy has plenty of benefits. It is used to relieve symptoms of menopause, decrease risks of heart disease, prevent osteoporosis, and even prevent some types of cancer.

### Menopause

#### Soy

The most popular therapeutic use of soy is certainly the improvement of symptoms of menopause. However, menopause is not the best-documented indication. Soy's efficiency for alleviating the symptoms of menopause is still controversial.

We do know, however, that supplements rich in isoflavones (phytoestrogens found in soybeans, among others) are more effective for symptoms (hot flashes), while whole foods are more effective in preventing complications (osteoporosis and cardiovascular).

#### Red Clover

Red clover contains the same isoflavones as soybeans. Clinical studies show an improvement of menopausal symptoms, an improvement in vaginal health, and an improvement of symptoms of anxiety and depression. Furthermore, red clover is good for women with breast cancer.

#### Interaction Between Phytoestrogens and Estrogens?

Several authors mention a potential interaction between isoflavones and estrogens. According to them, isoflavones could cause an excessive increase in estrogenic effect. However, this suspicion does not seem founded, because the most powerful phytoestrogen (genistein) actually has 0.1% of the power of estradiol.

## Osteoporosis

Regular soy consumption seems to be associated with increased bone density in the hips and spine. However, this increase is only noted in postmenopausal and nonpremenopausal women. Soybeans also appear to prevent bone resorption.

## Cardiovascular

The most supported indication of soybeans and legumes is the prevention and control of risk factors of heart diseases. The majority of clinical data shows a reduction in total cholesterol and LDL cholesterol (bad cholesterol), and an increase in HDL cholesterol (good cholesterol). These results come from clinical studies performed on both men and women.



## Soybeans and Men

Looking at males is also necessary for a better understanding of the effects of soy consumption. Indeed, if phytoestrogens were estrogen like estradiol is, their effects on male hormones and fertility would be unquestionable. However, soy consumption does not appear to be harmful to men. In one study, no negative effects were found on hormone levels or on the quality of seminal fluid, despite high doses (up to 70 mg per day) of soy isoflavones.

At the epidemiological level, Japanese men suffer less from prostate cancer than North Americans. The prevalence per 100,000 men is 157.4 for Canadians, 149.5 for Americans, and only 90.0 for Japanese. Once again, soybeans are involved. They have a chemoprotective effect, and they partially inhibit the enzyme that converts testosterone into a more potent hormone (dihydrotestosterone or DHT) in prostate cells.

## Cancer

The controversy around phytoestrogens focuses on their safety in people with a history of cancer. One question keeps coming back: Can soybeans increase the risk of breast cancer?

Soybean and its isoflavones are not contraindicated in case of cancer. In fact, the consumption of 65 to 132 mg of soy isoflavones increases the concentration of a metabolite that actually protects against cancer (2-hydroxyestrone).



Until today, the majority of epidemiological and clinical studies have shown that soy consumption has a preventive effect on cancer, particularly breast and colon cancers. The preventive effect of soybeans occurs before menopause. No studies have shown a significant preventive effect after menopause.

Dietary soy consumption appears to reduce circulating hormone levels, which could explain why dietary soy would be more effective in preventing cancer in premenopausal women than in postmenopausal women. This is due to isoflavones and other soybean compounds, such as fibre and protein. Indeed, dietary soy is much more complex than the sum of its isolated isoflavones.

It should be noted that the average North American woman consumes about 3 mg per day of isoflavones, while Asian women consume 15–30 mg. The Bay Area Breast Cancer Study found no connection between soy consumption and an increase in breast cancer incidence among Californian women. In the same area, researchers have found a connection between soy consumption and a decreased risk of thyroid cancer.

Other researchers have focused their studies on urinary tract cancers. In these cases, soy seems to have a preventive effect by increasing apoptosis (programmed cell death) and altering angiogenesis (the process of blood-vessel formation).

## Isoflavones' Mechanisms of Action

Several possible mechanisms of action may explain the effects of isoflavones. It is important to know that many studies have focused on the consumption of soy foods rather than purified isoflavones.

Mechanisms of action include:

1. Inhibition of the protein tyrosine kinase (PTK) enzyme;
2. Binding with estrogen receptors;
3. Inhibition of production of reactive oxygen species;
4. Induction of apoptosis by breakage of DNA segments;
5. Inhibition of angiogenesis;
6. Modulation of steroid binding proteins;
7. Inhibition of the enzyme 5-alpha-reductase;
8. Inhibition of sulfation by P-form phenol-sulfotransferase (PST);
9. Inhibition of thrombin formation and platelet activation; and
10. Increased LDL receptor activity.

## Flaxseed

There is significantly less scientific literature about flax than about soy. Flaxseed does not contain the same phytoestrogens as soybeans. Its lignans have beneficial effects on hormonal metabolism and reduce the risk of hormone-dependent cancers. Flaxseed is also used to prevent cardiovascular diseases and metabolic syndrome (diabetes, etc.). In addition, flax provides omega-3 essential fatty acids and soluble fibre. Consumption of ground flaxseed also improves lipid profiles. It is also important to know that its beneficial effects do not disappear when cooked in foods such as bread. In short, flax is an interesting food used for preventing cancer and heart disease.

## Conclusion

Although studies have focused on soybeans and isoflavones, phytoestrogens are found in many foods. The benefits of foods containing these molecules are undeniable, and no risk to health has been demonstrated. In addition, a meta-analysis of many clinical studies concludes that phytoestrogens do not worsen hormone-dependent cancers.



### Jean-Yves Dionne

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# FIVE MEDICINAL MUSHROOMS

## Health Benefits

by Anne Hussain, ND

Mushrooms have been used medicinally for thousands of years, mainly due to the beneficial effects they confer on the immune system, nervous system, liver, and kidneys. Throughout China and Japan, mushrooms have long been a part of medicine, especially used as a tonic to support overall health. In recent years, medicinal mushrooms have gained popularity and are found as food, supplements, and beverages like tea and coffee.

The following is a list of five different medicinal mushrooms that have been used for hundreds of years to support health.

### Chaga Mushrooms Grow in Canada!

This increasingly popular mushroom grows on yellow and white birch trees, a species that you can find abundantly across the country. So, on your next hike, make sure to look up. You might be lucky enough to catch a glimpse of this powerful fungus in its natural habitat!

#### ◦ **Chaga:** A Mushroom for the Immune System

Chaga (*Inonotus obliquus*) has been used for its antioxidant, antitumour, and antiviral properties.

In the past few years, emerging research has shown chaga to reduce DNA damage due to inflammation in patients suffering from irritable bowel syndrome, decrease tumour size and metastasis in mice model lung carcinoma, protect the liver and decrease elevated liver enzymes, and protect from infection caused by the herpes simplex virus 1.

A word of caution about chaga mushrooms: There was one report of kidney issues due to high oxalate levels in the extract this person was taking and/or other confounding variables in their situation. The extraction methods can vary from company to company, and it's important to consult with a health-care practitioner before taking mushrooms.

So, chaga may be helpful for those who are prone to HSV 1 infections, to support the immune system, and for those whose liver may need support due to inflammation in the body.

#### ◦ **Cordyceps:** A Mushroom for Your Lungs and Everything Else

*Cordyceps sinensis*, which is not taxonomically a mushroom, has been traditionally used as a panacea tonic—to improve energy, endurance, appetite, libido, and sleeping patterns. It supports the immune system, kidneys, and liver; and it has strong antioxidant and antitumour properties.

In China, research has shown that cordyceps decreases asthma symptoms and inflammation while improving lung function and quality of life in patients suffering from moderate to severe asthma. In animal models, it has preserved pancreas cells in diabetics in addition to protecting the kidneys and liver, limited the amount of brain damage experienced after a stroke, and has been used as a treatment for tuberculosis in addition to conventional treatments.

So, cordyceps may be helpful for people with kidney disease, for those who have suffered or are at higher risk for hypoxia (altitude sickness, strokes, heart attack), and as a tonic for those who are suffering from chronic fatigue.



## Coriolus: A Mushroom for the Immune System and Cancer

*Coriolus versicolor*, known as *yun zhi* in China, like the other mushrooms discussed, has immune-boosting, antioxidant, and antitumour effects. It is approved in China and Japan for cancer patients as an adjunct to chemotherapy and/or radiation.

Studies on this mushroom have corroborated antitumour effects in the lab against esophageal cancer and leukaemia; the compound largely responsible for this property is a polysaccharopeptide that activates immune cells and enhances the communication between them. Other research is being conducted on its antibacterial effects against bacteria such as *Staphylococcus aureus* and *Salmonella enteritidis*, its suppression of irritable bowel disease, and its role as an antioxidant and anti-inflammatory in the nervous system.

So, coriolus may be helpful as a supportive therapy for those undergoing certain types of cancer treatments and/or antimicrobial regimens, for irritable bowel disease, and as general immune support.

## Lion's Mane: A Mushroom for Your Nerves, Digestion, and Immunity

Lion's mane (*Hericium erinaceus*) has traditionally been used to treat inflammation in the gut such as gastritis and ulcers, for its antitumour properties, as well as for its protective effect on the nervous system. Its traditional uses are now being corroborated by research in animal models: It contains extremely strong antioxidants, strengthens our immunity, has a protective effect on our gut lining, decreases the production of inflammatory markers in mice models of inflammatory bowel disease, can reduce lipid levels and induce weight loss after menopause, can decrease cholesterol and triglyceride levels in the blood, and protects the liver and enhances its role of detoxifying the body.

In the realm of the nervous system, lion's mane has been shown to have neuroprotective effects for treating and preventing Alzheimer's disease as well as Parkinson's disease. In fact, it has recently been shown to improve recognition memory in normal animal models, as well as decrease the amount of time it took Alzheimer's mice to fall asleep at night.

So, this mushroom may be helpful for those who have inflammation in their gut (IBD, gastritis, ulcers), for those suffering from Alzheimer's and Parkinson's, and for those who want some liver and immune support.

## Reishi: A Mushroom for the Liver and Cancer

Reishi (*Ganoderma lucidum*) has been used traditionally for its antitumour and antioxidant properties. In Japan, it has been used as a liver tonic and for a healthy stress response.

Reishi has been shown to decrease tumour markers associated with a few different cancer cell lines such as melanoma, breast, colorectal, prostate, and nasopharyngeal. Human studies have shown it to protect our nervous systems from the effects of stress, decrease inflammatory markers in the nervous system in Parkinson's disease, reverse a mildly fatty liver to its normal condition, boost a variety of different immune system cells, and have antidepressant and anti-anxiety effects.

So, reishi is a mushroom that may be helpful for those who have liver issues, Parkinson's disease, and prolonged stress with anxiety and/or depression.

## Conclusion

From these descriptions, one can gather that medicinal mushrooms have great potential in human health in regard to immunity and inflammation, especially since they can be used quite safely as an adjunct to conventional therapies in most cases. They all seem to confer great benefits to the nervous system and liver, possibly because these are areas of the body that are very easily affected by oxidative stress. However, different solvents extract different compounds in varying amounts from the mushrooms, and hence consulting with a health-care professional before taking any is important.



### Anne Hussain, ND

Dr. Anne is passionate about helping people live healthier and fuller lives, and loves helping women feel strong and vibrant about their bodies inside and out.

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# Autoimmune Health

## Top 3 Supplements to Restore Immune Function

by Angeli Chitale, BSc, ND



A healthy immune system is self-recognizing—it can recognize healthy cells as “self” and foreign cells as “nonself.” Bacteria, fungi, viruses, chemicals, particles, and damaged or diseased cells are examples of what a healthy system recognizes as nonself. Normally, exposure to a foreign cell triggers an immune reaction, and white blood cells (lymphocytes) and/or antibodies are produced. An autoimmune reaction (from Greek *αὐτός* [*autós*, “self, one’s own”]) is an immune reaction directed towards one’s own cells. In other words, in autoimmune conditions, the body fails to recognize self from nonself, and creates lymphocytes and antibodies against cells naturally present in the body (called autoantibodies).

To understand how autoimmune reactions happen, we need to take a closer look at how the immune system is created during early life.

The immune system is part-inherited: Newborns inherit a crucial part of their immune system (antibodies IgG, IgA, IgM, IgD, and IgE) from human milk. The most abundant antibody in human milk is IgA, specifically secretory IgA, found in large amounts throughout the digestive and respiratory systems.

IgA deficiency is associated with several autoimmune conditions:

- Graves disease (GD)
- Systemic lupus erythematosus (SLE)
- Type 1 diabetes (T1D)
- Celiac disease (CD)
- Myasthenia gravis (MG)
- Rheumatoid arthritis (RA)

Healthy IgA levels, established early in life from breast-feeding, also offer protection from developing digestive health issues (infections, SIBO, dysbiosis) and respiratory issues such as asthma later in life.

The immune system is part-created: Newborns inherit bacteria from their immediate environment, which enables other bacteria to colonize. Depending on the environment, these bacteria may be beneficial or pathogenic. An infant’s microbiome (or bacteria living inside and on the surface of the body) go through successive colonisations over time.

Vaginally delivered infants become populated with beneficial *Bifidobacteria* species in the gut and *Staphylococcus aureus* on the skin. Disruption of the normal progression (such as C-section delivery) may have developmental consequences with autoimmune and metabolic pathologies such as obesity.

## Hormonal Factors?

Autoimmune conditions are highly prevalent in women v. men—8:1 or 10:1, depending on the condition.

There are more than 80 different types of autoimmune diseases. The most common are:

- Graves' disease (hyperthyroid)
- Hashimoto's thyroiditis (hypothyroid with spells of hyperthyroid)
- Systemic lupus erythematosus (lupus)
- Type 1 diabetes (juvenile or early onset)
- Multiple sclerosis (MS)
- Rheumatoid arthritis (RA)

At least 85% of thyroiditis, systemic sclerosis, systemic lupus erythematosus, and Sjögren syndrome patients are female. This suggests a possible hormonal relationship to immune function.

**Testing:** Autoimmunity is detected and measured through blood autoantibody levels to determine immune activity levels. It is a good idea to track your antibody levels and get a copy of your results before, during, and after treatment to monitor your condition and response to therapy—whether natural or allopathic.

**Therapeutic Approach:** A multilevel, multisystem approach to reestablish and maintain functionality is the aim of comprehensive naturopathic treatment plans.

- Hormone Health: Identify imbalances and rebalance.
- Liver and Kidney: Support elimination of immune complexes through these channels
- Establish healthy digestive function and gastrointestinal mucosal function



## Top 3 Supplements to Restore Immune Function

### Selenium for Hashimoto's Thyroiditis

Hashimoto's thyroiditis is the most prevalent autoimmune disease and the most common cause of hypothyroidism (low thyroid function). Studies have shown a link between Hashimoto's thyroiditis occurrence and deficiency of the mineral selenium in the diet. The thyroid gland is responsible for metabolic regulation of the entire body, so slowing thyroid function affects each and every function in the body.

The thyroid is particularly vulnerable to autoimmune conditions for a few reasons:

- Increased susceptibility to oxidative stress
- Unique micronutrient requirements (iodine, selenium, zinc, vitamin D, vitamin A)
- Genetic factors

For autoimmune thyroid conditions, selenium supplementation (200 mcg per day) can:

- Protect thyroid from oxidative damage to prevent thyroid conditions in susceptible individuals (family history, exposure to stress, radiation, heavy metals, etc.)
- Act as an immune modulator by controlling T-cell function in autoimmune conditions
- Displace heavy metals mercury and cadmium, which play a role in the development of autoimmune thyroid disease

- Reduce antithyroid antibody levels (anti-TPO, anti-Tg)
- Reduces Grave's ophthalmopathy

**Note:** Individuals in populations with low iodine status should avoid selenium supplementation until iodine levels are normal.

## Vitamin E for Multiple Sclerosis (*alpha*-Tocopherol)

Vitamin E (*alpha*-tocopherol) is a fat-soluble antioxidant vitamin that regulates immune function.

Multiple sclerosis (MS) is a serious neurological autoimmune disease which commonly affects young adults and can be debilitating in later stages, with loss of neurological function due to demyelination of the spinal nerves. Studies done on adult female mice show promise of vitamin E as a potential future treatment for MS in humans.

At a dose of 100 mg/kg, vitamin E (*alpha*-tocopherol) suppressed the proliferation of T cells and the T<sub>h</sub>1 response, resulting in:

- Reduced severity of symptoms
- Delayed progression of condition
- Reduced inflammation and demyelination reaction in the spinal cord

## Vitamin A for Rheumatoid Arthritis (*All-Trans* Retinoic Acid, ATRA)

Vitamin A has three active forms: retinal, retinol, and retinoic acid. Retinoic acid has been shown to modulate immune-system activity by controlling:

- Gene expression of specific proteins related to immune function;
- Gastrointestinal balance between immunity and tolerance; and
- T-cell activity (migration to target sites, maturation, differentiation into T<sub>h</sub>1, T<sub>h</sub>2, T<sub>h</sub>17).

Studies done on mice show promising results for rheumatoid arthritis using *all-trans* retinoic acid (ATRA). One study reported lowered arthritis scores and a 34% reduction in joint damage at a dose of 0.5 mg of ATRA three times per week for 35 days.

## Other Supplements Beneficial for Treatment of Autoimmune Conditions to Consider

### B vitamins, Zinc, Magnesium, Vitamin D, EFAs, and Probiotics

Autoimmune diseases are complex conditions which can have serious health implications. Prevention, treatment, and management of the illness are possible with naturopathic medicine. Therapeutic goals include reducing the progression of the condition, minimizing the impact of symptoms on activities of daily living, and ultimately restore immune system balance. Most conditions do require a thorough case by case assessment, since autoimmune conditions vary widely in symptom progression from individual to individual.



**Angeli Chitale, BSc, ND**

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

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# Vaginal Health Begins in the Gut

by Gordon Raza, BSc

Alright, we've oversimplified this a little; however, there is definitely a correlation between the presence of healthy *Lactobacillus* species within the gut and the dominance of similar *Lactobacillus* species which populate a well-balanced vaginal microbiome.

The explanation for this relationship is that orally consumed probiotics upon excretion reside within the neighbouring skin surface, then ascend the vaginal tract. This rationale for transfer is similar to the inoculation of pioneer probiotics critical for immunity which are acquired by infants during vaginal childbirth. The intestinal tract is home to approximately 800 different probiotic species, with the vagina hosting about 50 resident probiotics, primarily belonging to the lactic acid-producing *Lactobacillus* genera.

Lactic acid-producing probiotic species serve many roles for intimate health. Primarily, they adhere to the epithelial surface of the vagina and urinary tract to crowd out harmful microorganisms. Once established, they thrive as they produce lactic acids to lower pH levels, along with the antimicrobial hydrogen peroxide which works synergistically to deter opportunistic *Candida* overgrowth and bacterial vaginosis.

Clinical trial results have shown the probiotic species *L. acidophilus*, *L. rhamnosus*, and *L. fermentum* to be beneficial to reduce recurrence rates of urinary tract infection. Oral consumption of *L. plantarum* and *L. fermentum*, and their ability to subsequently colonize the vaginal microbiome, have been further proven by microbiological analysis of specific strains.

The vaginal environment is dynamic yet fragile. Its delicate balance can be disrupted by many factors including menstrual cycle, antibiotic use, vaginal douches, systemic *Candida* overgrowth, and spermicidal lubricants, to name a few. Intervention with vaginal suppositories has definitely earned a therapeutic niche for acute vaginal infections.

The research validating probiotic supplementation for general and immune-system health is proven and has led to the emergence of condition- and gender-specific formulas. High-potency, enteric-protected probiotics containing primarily *Lactobacillus* strains deliver benefits within the gastrointestinal tract and contribute to healthy vaginal flora. They're definitely worthy of consideration for long-term general and intimate female health.





# Arthritis

## The Role of Natural Health Products

by 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 are 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. Many people depend on pain killers and other medications to function normally; however, there are a variety of natural therapies that offer relief from chronic pain.

Dietary factors can be a source of inflammatory triggers. Alterations in digestive function, specifically the development of “leaky gut,” have been identified in many chronic inflammatory conditions, including fibromyalgia, juvenile arthritis, lupus, and ankylosing spondylitis (AS). When gut-barrier function is impaired, food proteins that are not normally allowed to pass across into the blood may do so, triggering an immune reaction and the development of immune hyperreactivity. 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 include proteins from cow’s milk (*alpha*-lactalbumin, *beta*-lactoglobulin, casein), cereals, hen’s egg (ovalbumin), cod fish, and pork meat. Plants from the nightshade family (potatoes, tomatoes, peppers, eggplant) as well as other inflammatory foods have been implicated in osteoarthritis.

Although it may seem counterintuitive, exercise has been shown to improve the pain and stiffness associated with osteoarthritis. Exercise can help with achieving a healthy weight, and minimizing the weight-bearing stress on the joints. Exercise simultaneously improves the strength of the muscles supporting the joint, and improves the flexibility and range of motion of noncontractile tissues such as tendons and ligaments that are also involved in supporting joints. A recent study, for instance, found that the use of an exercise program for the hip significantly reduced pain among women with osteoarthritis of the hip. Results showed that pain declined over 30% from baseline, while joint function and health-related quality of life improved slightly. Leg extensor (a muscle group) strength increased by 20%, and hip extension range of motion increased by 30%.

## Fish Oils

Anti-inflammatory supplements also have a role to play in managing arthritis. The omega-3 fatty acids found in fish oil, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are powerful anti-inflammatory nutrients. EPA and DHA block the proinflammatory action of the cyclooxygenase (COX)-2 enzyme and the lipoxygenase (LOX) enzyme. These enzymes metabolize fats in the cell membrane to inflammatory chemicals in the body. COX-2 metabolizes arachidonic acid (AA) into proinflammatory prostaglandins (PGE<sub>2</sub>) and leukotrienes. However, when COX-2 uses EPA as its fuel, it produces anti-inflammatory chemicals such as PGE<sub>3</sub> and LTB<sub>5</sub>. In this way, fish oil has similar effects as nonsteroidal anti-inflammatories (NSAIDS, e.g. aspirin), but without the gastrointestinal side effects.

## NEM®

Natural eggshell membrane (NEM®) has been shown to improve joint pain and stiffness associated with osteoarthritis. NEM is a proprietary extract with pilot studies and a randomized controlled trial demonstrating sizeable improvements as early as seven days. Supplementation with 500 mg of NEM for eight weeks was shown to reduce knee pain and stiffness compared to placebo at all time points. After only 10 days, pain was reduced 15% compared to placebo.

## Boswellia

An Ayurvedic herb also known as frankincense, it has been shown to reduce inflammation associated with osteoarthritis of the knee. Boswellic acids inhibit 5-lipoxygenase (5-LOX), the enzyme responsible for the production of proinflammatory leukotrienes from arachidonic acid. In clinical trials, boswellia extract has repeatedly been shown to improve pain and functional ability as early as seven days.

## Curcumin

An extract of turmeric, it has been shown to decrease inflammatory chemicals in patients with osteoarthritis. Administration of curcumin to 100 patients with osteoarthritis resulted in significant decreases in a series of inflammatory markers including interleukin [IL]-1 $\beta$ , IL-6, soluble CD40 ligand [sCD40L], soluble vascular cell adhesion molecule (sVCAM)-1, and erythrocyte sedimentation rate [ESR]. There were also significant improvements in joint pain, stiffness, and range of motion, as well as improvements in the distance that patients were able to walk on a treadmill test.

## Probiotics

In patients with rheumatoid arthritis (RA), supplementation with probiotics may also be helpful. In a 2018 meta-analysis of four randomized controlled trials including 153 participants, results showed a small decrease in C-reactive protein (CRP), an inflammatory marker, as well as in ratings of disease activity. Other randomized trials have shown that probiotic supplementation was able to reduce the disease activity score of 28 joints as well as CRP protein, insulin levels, and measures of blood glucose control.

## Vitamin D

Since it is an immune modulator, vitamin D may be a helpful addition for patients with arthritis. This is especially the case in patients with rheumatoid arthritis who may be on steroidal immunosuppressant medications, since these can negatively affect bone health. A recent study found that supplementation with vitamin D alongside standard medications (glucocorticoids or steroids and methotrexate) resulted in significantly better overall health as reported by patients. Another study in patients with osteoarthritis (wear-and-tear arthritis) found that sufficient vitamin D status was associated with significantly less loss of tibial cartilage volume, less increase in effusion-synovitis volume, and less loss of Western Ontario and McMaster Universities Arthritis Index (WOMAC) physical function, compared with those patients who had insufficient vitamin D status.

*Natural therapies can help keep you healthy, pain-free, and active.*



# Fish Oil for *Physical Fitness*

## The Next Best Workout Partner

by Alison Chen, ND

What supplements do you take to support your fitness goals? Talk to any athlete or visit your favorite fitness website, and you'll get a long list of different capsules and powders that help to support the development of muscle strength, endurance, recovery, and general health. As a naturopathic doctor, I make it my job to know what supplements, backed by science and research, are best to help those looking to enhance their fitness efforts.

When making recommendations for my clients, I usually focus on a healthy diet and lifestyle, which is always the best place to start when it comes to improving and enhancing your athletic ability. In addition to this, I also recommend a variety of fitness-enhancing products, including protein powder, vitamins and minerals, individual amino acids, and electrolytes solutions. While these recommendations are not new to the world of fitness, there is one recommendation I often make that is not typically thought of when it comes to improving your athletic ability: fish oil.

Fish oil is an excellent source of the omega-3 essential fatty acids known as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), and is a wonderful addition to any fitness regime, due to its influential role in improving athletic performance as well as overall general health. Omega-3 fatty acids are known as "essential," because they are needed by the body for numerous physiological functions; however, the body can only make minimal amounts of these fats, making it essential that you get them from food or supplementation. Typically known for its positive

effect on cardiovascular health and mood balance, as well as for its potent anti-inflammatory action, fish oil is also a great way to boost your efforts at the gym, helping you reach your fitness aspirations faster than you can say "long chain polyunsaturated fatty acid."

So, next time you're at the health food store stocking up on your favorite protein powder or branched-chain amino acids, make sure you grab a bottle of high-quality fish oil if you're looking to make the most out of your gym membership. Here are my top 5 reasons why fish oil is the supplement you're missing from your athletic regime.





## 1. It Supports Muscle Growth

In order to build muscle, we need protein, as it provides the amino acids necessary for muscle protein synthesis. However, as important as protein is, if we lack the ability to incorporate these amino-acid building blocks into our muscle cells, all that protein powder you've stocked up will be for naught.

Fish oil's benefit in muscle building is found in its ability to support insulin's role in muscle protein synthesis. Insulin is a functional protein (similar to a hormone), released by the pancreas into the bloodstream in response to the carbohydrates and proteins we eat. Once released, insulin travels to various bodily tissues, including our muscles cells, which are lined with insulin receptors, allowing amino acids to enter. This signal then instigates the biochemical reactions that increase protein synthesis, and therefore muscle growth.

A recent study of participants aged 25–45 demonstrated that supplementing with 4 g/d of fish oil concentrate, providing a daily dose of 1.86 g EPA and 1.5 g DHA for eight weeks, had a significant increase in the anabolic (muscle-building) response to amino acids and insulin due to an increased activation of the mTOR/p70-S6K signalling pathway, considered integral for muscle protein anabolism and muscle-cell growth. This research suggests fish oil's supporting role in the relationship between insulin and muscle protein synthesis; it may just be your new best weight-lifting partner!

## 2. It Works to Prevent Muscle Breakdown

Increases in muscle mass are integral for any athlete looking to become stronger, faster, and more agile in their sport. Maintaining your gains, however, is just as important when it comes to reaching your fitness goals. Our muscles undergo a continuous process of anabolism (building up) and catabolism (breaking down), and if this becomes imbalanced, leaning towards a catabolic state, such as with certain health conditions or prolonged fasting, this can result in the loss of muscle mass and weakness.

According to the research, fish oil appears to decrease muscle protein catabolism, due to EPA's effect on the ubiquitin-proteasome system, which plays a role in the breakdown of muscle, helping to preserve the gains you've made by putting hours in at the gym.

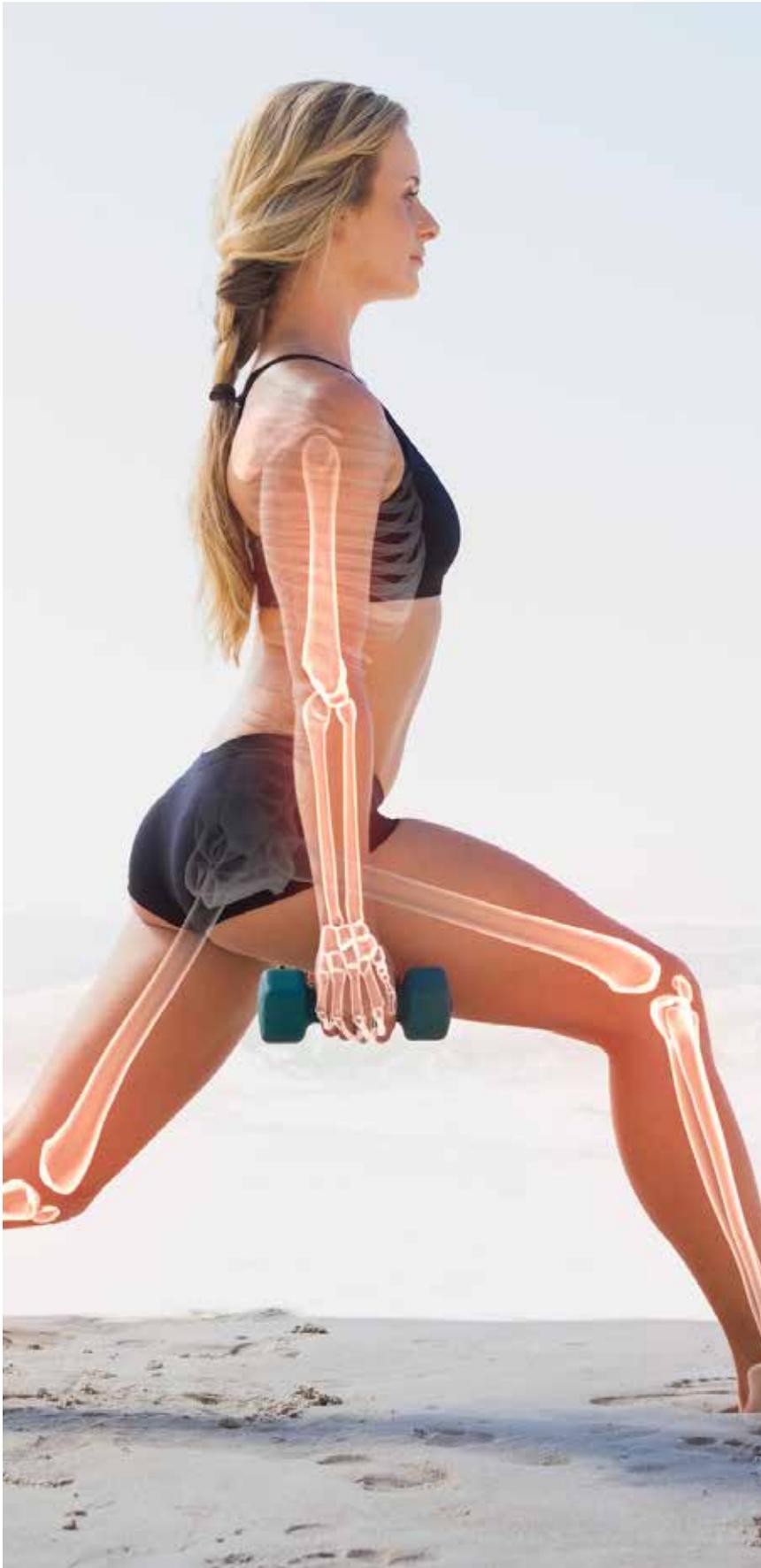
The anticatabolic effects of fish oil have also been shown to reduce cortisol levels. Cortisol is our stress hormone and, when chronically elevated, it can lead to a breakdown of muscle tissue as well as many other detrimental effects. Controlling our reactions to stress is integral for both our general health and our fitness.

## 3. It Increases Muscle Strength

What if I told you that you could get stronger just by taking your fish oil every day? While lifting heavier weights at the gym may not be that simple, a study of almost 3,000 adults (aged 59 to 73 years) showed that the consumption of fatty fish was highly associated with increased grip strength: 0.43 kg in men and 0.48 kg in women for each additional portion of fatty fish consumed per week. Along these same lines, a six-month randomized study reported that daily fish oil supplementation (1,200 mg EPA + DHA) significantly improved physical performance measured in walking speed.

Additionally, in a 90-day trial where women were randomly assigned to three groups (strength-training only; strength-training plus fish-oil supplementation [~400 mg EPA + 300 mg DHA]; or fish-oil supplementation for 60 days prior to training, then strength-training plus fish oil supplementation) found that while strength-training alone increased muscle strength, this effect was greater in the groups who were given the supplemental fish oil.





#### 4. It Reduces Exercise-Induced Muscle Damage

If you've ever had a hard workout and suffered muscle pain and soreness as a result, you know the agony of exercise-induced muscle damage. In order to have the gains that got you in the gym in the first place, you need to push your muscles beyond their normal boundaries; however, this also creates microscopic muscle fibre damage. While this is essential to create increases in size and strength, it can also produce soreness and loss of physical function, impairing performance and continuity when it comes to an athlete's training regime.

Typically, nonsteroidal anti-inflammatory drugs (NSAIDs) are prescribed to help alleviate these symptoms and exert their pain-reducing effects by inhibiting the conversion of arachidonic acid (an omega-6 fatty acid) to proinflammatory molecules, which contribute to our pain response.

When it comes to fish oil, research has shown that omega-3 fatty acid supplementation can actually decrease levels of arachidonic acid within our cell membranes, thus reducing the conversion of this fatty acid to proinflammatory molecules, helping to prevent the onset of exercise-induced muscle damage. So if muscle pain and soreness postworkout are leaving you on the couch more days than not, it might be time to incorporate some fish oil into your daily routine to have you hitting the gym even after your toughest workout.

#### 5. It Strengthens Bone

While muscles are critical for any athletic activity, it's literally our skeletal system that holds it all together, providing the structural framework by which our muscle can function and work towards our

athletic gains. Nutritional supplements, including calcium and magnesium, are often used for their bone-supporting abilities, but did you know that omega-3 fatty acids also play a role in bone health?

Research has shown that higher red-blood-cell omega-3 levels may reduce the risk of hip fractures and promote higher bone mineral density as well as positively affect calcium-regulating hormones, helping to keep bones healthy and strong. Mooove over, milk: There's a new healthy bone supplement in town!

We all know that it takes effort to get physically fit and achieve our athletic goals. While there is no substitute for putting in the time it takes to get into top physical shape, there are many products and supplements that can help you reach your goals by using science to enhance our own physiology. Protein smoothies, creatine powder, and other commonly known fitness-enhancing products may already be part of your fitness regime; however, you might want to make some room in your fridge for fish oil to further support your fitness and general health.

For references and other great articles, visit [NaturopathicCurrents.com](http://NaturopathicCurrents.com)



**Alison Chen, ND**

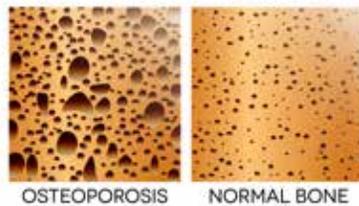
A Canadian board-certified and licensed Naturopathic Doctor from Toronto, Ontario, she believes invaluable health-care integrates Western science with traditional holistic energetic medicine.

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# Osteoarthritis in *Animals*

by Manon Choquette

**Osteoarthritis affects the entire musculoskeletal system, particularly the spine. It results in the irreversible degradation of articular cartilage and changes in joint structure.**

## Differences Between Arthritis and Osteoarthritis

Arthritis is an inflammatory condition of the joint, resulting in pain, swelling, and a local heat sensation, with or without redness. Its origin can be infectious, inflammatory, genetic, or result from an intolerance to food.

Osteoarthritis is a degenerative condition of cartilage wear, leading to progressive destruction, without inflammation, affecting all joints at the end of their growth. It is mainly due to two factors: Genetics and body mechanics.

Pain is the major clinical sign of osteoarthritis.

Lifestyle (diet, exercise), medications, physiotherapy, osteopathy, and surgery can slow its progression and bring about a better quality of life for the animal; however, prevention must be a priority.

## Articulation, Cartilage, Synovial Membrane: What Are They?

The joint is the juncture between two bones of the skeleton; it enables movement. At this level, the extremities of the bones are smooth, rounded, and covered with a layer of cartilage.

The joint is closed by a synovial membrane containing the synovial fluid, and maintained by ligaments and an articular capsule.

Cartilage is the white, slightly translucent, smooth, shiny surface that covers joint surfaces. It is an elastic and resilient tissue. With each movement, it allows the articular surfaces to slide on one another.

Synovial fluid, or synovia, is a clear, colourless, thick, viscous liquid secreted by the synovial membrane, which has three functions: to filter, lubricate, and absorb shocks.



## Construction and Destruction of Cartilage

The cartilage is made up of water, chondrocyte cells, and collagen fibres. It is this fibrous matrix that gives the cartilage its properties (elasticity, resistance, and shock absorption).

Cartilage is constantly renewed through the process of destruction and reconstruction of chondrocytes.

## What Happens During Osteoarthritis?

During osteoarthritis, there is a rupture in this fragile equilibrium:

- Increased destruction
- Disturbance of construction
- Production of poor-quality fibres

This results in pain, loss of function, and loss of mobility.

## Who is Affected by Osteoarthritis?

It is estimated that one in five dogs is affected by this condition. Cats are equally affected. Contrary to popular belief, young animals may also be affected by osteoarthritis, for example in the case of:

- Obesity (the return to a normal weight from obesity decreases risks by 30%);
- Trauma, repeated microtrauma (e.g. training ground being too hard);
- Bad alignment (check claws in small animals);
- Excessive physical activity or training too young;
- Rapid growth or being overweight during development;
- Poor diet; and
- Predisposition: Some large breeds, such as Labrador, German shepherd, Bernese mountain dog, great Dane, etc., are predisposed to this condition.

Osteoarthritis is not exclusively age-related: Many factors affect its manifestation!

## What Can I Do If My Pet Gets Osteoarthritis?

There is no cure for osteoarthritis. However, you can:

- Prevent its appearance;
- Slow down its evolution;
- Offer relief to your pet; and
- Improve your pet's comfort level.

## Managing the Condition Requires Multiple Actions and Aims to “Break” the Vicious Circle

### Maintain Movement and Preserve Muscle

- Moderate and regular exercise is essential
- Passive and active physiotherapy exercises may be necessary

### Diet

- Steer clear of processed and refined foods that acidify the body
- Avoid overfeeding (to prevent excess weight)
- Foster optimal growth
- Avoid transformed and refined foods that acidify the organism

### Anti-Inflammatories

- Explore the use of NSAIDs and corticosteroids during flare-ups. **Caution:** Their long-term use is contraindicated, especially in older animals.

### Natural Supplements

- Regular supplementation with glucosamine, collagen, Devil's claw, omega-3, antioxidants, and turmeric should be part of caring for the aging animal.

It is never too early or too late to start using a supplement to maintain good joint health. Dogs and cats of all breeds can benefit from supplementation starting from the age of 2 months, given one to two times a week for prevention.



### Manon Choquette

Phytotherapist graduate and President-Founder of the Zanim company; natural products designed for the health and wellbeing of pets since 1999.

zanim.com

# Magnesium's Role in Your Health

**Magnesium plays a role in countless body functions. In fact, the essential mineral is the second most prevalent electrolyte in the body after potassium, which should give an indication of its importance.**



As adults, we're home to about 25 g of magnesium, which is about as much as five cubes of sugar and is distributed throughout our entire body. Less than one per cent of that is kept dissolved in our blood, while most is stored in our bones.

According to the most recent information available from Statistics Canada, about 34% of Canadian adults fail to meet their body's magnesium needs through diet alone. This is a real concern when considering all the varied functions of this mineral in the body.

Traditional food sources of magnesium include leafy greens like spinach, legumes, nuts, seeds, and whole grains. Because of how common deficiency is, many Canadians turn to a magnesium supplement.

Magnesium's activity can be categorized into three broad categories: contributing to the structure of our bones, serving as a cofactor in over 300 important enzyme reactions, and contributing to nerve and muscle function.

This mineral is most heavily concentrated in the hardened structure of our bones, but its role there is primarily as storage to ensure our body has enough to keep our enzyme systems running smoothly. About 50% of our body's magnesium is found in our bones.

Magnesium is intimately involved in helping to control bone mineral density. It interacts with several hormones that help strengthen bones, including vitamin D and parathyroid hormone, and helps increase bone formation through influencing the proteins that build bones. Some population-based studies have found that osteoporosis, or low bone-mineral density, is associated with low magnesium levels in the blood. One study found that magnesium supplementation may help to prevent the breakdown of bone in older women with osteoporosis.

One of magnesium's primary roles is as a cofactor (or assistant) to over 300 enzyme reactions in the body. Magnesium is essential for helping to regulate blood-glucose levels; it's also involved in producing energy and is essential for building healthy DNA and RNA, the chemical basis of our genes. Maintaining adequate magnesium levels is also important for maintaining healthy blood pressure.

One of the reasons magnesium has been getting so much attention recently is its role in nerve and muscle function. Magnesium is an activator of various protein enzymes that are responsible for helping to reduce inflammation, but all eyes are on it now because of its apparent role in mental health. A recent high-quality, systematic review found that supplemental magnesium helped to reduce symptoms of anxiety in a range of populations. Other research found



an association between higher magnesium intake and decreased symptoms of depression. This is a growing area of research as scientists continue to unravel the many roles magnesium plays in the body.

Magnesium is a mineral that's only growing in popularity. The combination of low levels in our food and the higher requirements of our body make it a crucial supplement. Visit your local CHFA Member health-food store for tips, and speak with your health-care practitioner for any questions you have about supplementing with magnesium.

### *Tips for Supplementing*

As a supplement, magnesium comes in a variety of forms, including oxide, citrate, and chloride. Your body's absorption of each of these varies slightly: a citrate- or chloride-bound version has been shown to be more readily absorbed in the gut than the oxide form.

It's important to be aware of your intake if you're taking multiple mineral supplements. This is because they can compete for the same receptor in your gastrointestinal tract and inhibit absorption. For instance, spread out your intake of zinc, iron, and magnesium supplements to different parts of the day to avoid this competition. Read the instructions on the label of your capsule or other form of supplement, which are often found in 100 to 300 mg doses per day (used in research) and can be paired with vitamin B<sub>6</sub>.



#### **Michelle W. Book**

A graduate in holistic nutrition and spokesperson for the Canadian Health Food Association (CHFA), she focuses on living life and raising a family focused on holistic health and wellness.



## **Magnesium Can Help with Muscle Cramps After a Workout**

An extensive period of training, or simply having to use your muscles more than usual—like doing boxes when you move or when you're spring-cleaning—may deplete your magnesium levels and give you those unpleasant muscle cramps.

**TIP:** Try a high-quality magnesium bisglycinate supplement as soon as you feel that awful cramping sensation; this will help loosen your muscles and relax your entire nervous system. Always check with your health-care practitioner before taking any supplement.



# 10 Natural Ways TO ALKALIZE YOUR DIET

by Sharisse Dalby, RNC

**There are all kinds of diets out there for you to choose from, but when it comes to getting the most health benefits, none can even compare to the alkaline diet.**

The alkaline diet is based on eating alkaline foods to promote healthier cells, better nutrient absorption, and improved immunity, while reducing plaque buildup, bone deterioration, and inflammation. This in turn significantly reduces your risk of developing chronic and degenerative diseases, including cancer.

*Sounds too good to be true?*

*Actually, it makes a lot of sense when you think about it.*

Your body is naturally inclined to be slightly alkaline, at 7.35 on the pH scale—in fact, your body will do just about anything to keep you there. Your diet, lifestyle, and stress levels can all contribute to creating a more unnatural acidic environment, which promotes inflammation and diseases by affecting your kidneys, liver, bones, muscles, tissues... right down to your cells.

Creating a more alkaline environment increases your mineral intake, which is what makes it so helpful. Here are a few benefits:

- Stronger bones and a leaner muscle mass by increasing growth hormones and vitamin D production;
- Lower inflammation, which improves cardiovascular health, reduces chronic pain, and promotes a healthy weight;
- Boosted nutrient absorption, providing plenty of magnesium to help with hundreds of enzyme functions, and helping to prevent vitamin D deficiency; and
- Improved immunity to protect you from degenerative diseases like cancer, through waste removal and oxygenating the cells.

If you're worried about your pH levels and want to get them tested, you can purchase test strips at your local health-food store. It's a low-cost and simple urine test that will give you an idea of what your levels are.

If you're ready to hop on board and take action with an alkaline diet, here are my top 10 natural ways to alkalize your body.

### *Indulge in Organic*

The soil in which your foods grow play the largest factor on how alkaline your foods will be. Picking organic produce that has been grown in soil with a pH between 6 and 7 will provide the highest vitamin and mineral content.

### *Hydrate with Alkaline Water*

Water itself is important for your health, but ensuring that your water is alkaline will continuously add minerals back into your body, to keep you in balance regardless of life's daily stressors. Adding an alkaline stick in your water bottle keeps you hydrated and alkaline even on the go.

### *Say No to Sugar*

Sugar is a highly acidic food, which forces your body to deplete its mineral stores to ensure you remain in an alkaline state. By reducing or eliminating sugar, you will find it easier to keep your pH in balance and reap the health benefits of the alkaline diet.

### *Load Up on Fruits and Vegetables*

Fruits and vegetables are your best source of alkaline foods, because they are richest in vitamins and minerals. Eating a more plant-based diet will help to support your body's natural pH balance.

### *Include Mineral Supplements*

An acidic environment requires your body to pull minerals from your bones, muscles, and tissues. Adding New Roots Herbal's Calcium Magnesium Citrates to your supplement protocol can be supportive for keeping your body alkalized through regular mineral intake.

### *Reduce Your Dairy*

Dairy is also a highly acidic food, depleting your calcium stores. Though milk is marketed as being a great source of calcium, its acidic affect removes more calcium from the body than what it adds in. Try switching to a more alkaline source, like unsweetened almond milk.

### *Go Nuts for Almonds*

Almonds are alkaline-forming, due to their high calcium content (higher than any other nut!) and dense magnesium content, which makes for an easy alkaline snack.

### *Start Using Avocado Oil*

Avocado is one of the top alkaline foods that you should be consuming, making avocado oil a great addition to your cooking, baking, and salads.

### *Manage Your Stress*

Stress promotes a more acidic state by secreting stress hormones, which acidify the body. By learning to control your stress through breathing exercises, adequate sleep, and exercise, you create a more alkaline environment.

### *Go Green or Go Home*

Consuming more greens—like spinach, kale, and broccoli—will alkalize your body and promote the removal of toxins. Salads, smoothies, and stir-fries are great ways to incorporate more greens in your diet.

While any new "fad" diet won't stand the test of time, the alkaline diet has been around for years and recognized as one of the top diets for promoting longevity and disease prevention.

**Do your body a favour and go alkaline!**



#### **Sharisse Dalby, RNC**

Registered nutritional counselor; she helps families and children beat their health struggles, focusing on digestive and emotional issues.

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



# The Healing Power of Food

## Where Delicious and Healthy Delightfully Dance Together...

by Theresa Nicassio, PhD, Psychologist

As you may know, my personal health journey from debilitation to greater health was anything but a straight line. Unfortunately, in many ways my story is not that unique. The truth is, more and more people (maybe you too) are suffering with unexplained symptoms that later are discovered to be related to, or made worse by, an autoimmune disease or other inflammatory condition.

How might my life have been different if it hadn't taken me 12 years to figure out the role that food sensitivities had on my health? Twelve years is a very long time to lose the opportunities to create precious memories with my daughters, whether tubing with them on the ski slopes, walking them to school, or just dancing with them to Fred Penner in the living room. Whatever the ailment—whether cancer, autoimmune disease, a heart condition, or any other health challenge or disability that you or someone you love suffers from—that results in such losses, you know how big this grief can be.

While there is a poignancy to acknowledging these losses, surprisingly something else arose within me that was infused with hope. I came to realize that before me was a treasure that awaited to be unearthed by capturing the essence of this emotional experience and combining it with my professional knowledge as a psychologist. What felt like a lemon could be transformed into something delicious that could serve others. Finding meaning in your suffering is indeed a wonderful way to change the landscape of your life.

The subsequent cascade of events—that included, amongst many other things, attending culinary school and a nutrition education program with my daughter—resulted in taking my vision of possibilities around health to all new heights. In addition, I began to recognize the potential power of harnessing and redefining food as an agent for psychological and social transformation and healing, as well as for its inherent physical benefits.

In our society, “emotional eating” is both glorified and pathologized. What about the paradoxical space between the two? Might it be possible to strategically dance on the tip of that needle, embracing the delectable primitive associations we all have developed with familiar comfort foods, while simultaneously finding ways to make these delights in ways that promote health and help prevent cancer, heart disease, and inflammation?

Two of the most central agents of change in therapy are possibility-thinking and resourcefulness. They were also the life-blood that pulled me through my own darkest days. How great that these same two tools can similarly change your world, even if you find out that your health condition requires that you change what you eat, eliminating foods like sugar, gluten, dairy, and potatoes!

The following marinated mushroom recipe is one such example, bringing together the beautiful life-giving and anticancer benefits of mushrooms, garlic, olive oil, parsley, and cilantro.



# Culinary Corner



My dear friend Rho Tuttle wanted to contribute this recipe to my book so that readers could create this favourite authentic Italian classic in their own homes. At the time she shared the recipe with me, Rho and I were both navigating many dietary restrictions and were living examples of resourcefulness and possibility-thinking as we supported and shared ideas with each other.

“I didn’t think I would like it, but I really did!”

Making this irresistible classic recipe is even more special because it reminds me of my dad. These Italian delicacies are just like the marinated mushrooms he used to buy at Claro’s Italian Market in Upland, California, for special occasions.

Here’s what one test kitchen had to say about this insanely delicious recipe: “I didn’t think I would like it, but I really did! I made this once and everyone liked it so much that I made it two other times—including for the teenager’s slumber party (and her friends usually like meat, but ate vegan). I bought pizza crust from the store and rolled it out, and used it with the pesto sauce once and with a vegan alfredo sauce two other times. I was pleasantly surprised by how tasty it was on pizza. Recommend highly to friends.”

## Rho’s Marinated Mushrooms

### Ingredients

- 1½ cups apple cider vinegar or other favourite clear vinegar
- 3 cups water
- 5 cups small, or halved and quartered mushrooms (e.g. shitake, portabellini, crimini, oyster, etc.)
- 4–6 garlic cloves, finely minced or microplaned
- ¾ cup extra virgin olive oil
- 2 tablespoons finely chopped parsley or cilantro
- Himalayan salt and black pepper, to taste

### Instructions

In a large covered saucepan, bring the vinegar and water to a full boil. Add the mushrooms and boil for 20 minutes, or until the mushrooms are tender and the flavour is well absorbed.

Carefully scoop the cooked mushrooms out of the pot with a slotted spoon, and place in a strainer with a bowl under it. Allow to cool for about 5 minutes, then put mushrooms into a bowl, and stir the garlic and oils to completely saturate them.

Stir in the cilantro or parsley, and season with salt and black pepper to taste. Let the mushrooms marinate a couple of hours or more in the refrigerator to deepen the flavour. Garnish with more cilantro and/or parsley and serve.

These marinated mushrooms are a wonderful addition to salads or wraps, as a pizza topping, chopped and added to pasta, or as a topping to my garlic-infused polenta. They keep very well in the refrigerator for at least 2–3 weeks.

Makes about 2 cups.



### Theresa Nicassio, PhD, Psychologist

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

# Vegan Creton

Flourish Original Recipe



## Ingredients

- ¾ cup green or brown lentils
- 2 tbsp. olive oil (divided)
- 1 onion, finely chopped
- 2 medium garlic cloves, minced
- ¼ cup nutritional yeast
- ½ cup walnuts, chopped
- 1 tsp. tamari or soy sauce
- ⅛ tsp. ground cloves
- ¼ tsp. ground cinnamon
- ¼ tsp. ground nutmeg
- 2 cups of vegetable broth
- Salt and pepper to taste

## Instructions

In a saucepan, heat 1 tablespoon of olive oil over low heat and add the onion. Cook for a few minutes or until it becomes translucent. Add garlic and sauté for 1 to 2 minutes. Add lentils, walnuts, yeast, spices, salt, pepper, and tamari. Mix and let infuse the flavours for 2 to 3 minutes.

Add vegetable broth and remaining oil, then continue to cook on low for 25 minutes, uncovered. Stir often to make sure the mixture does not stick to the bottom (add water if needed) and simmer gently. Remove from the stove when lentils are soft. In a food processor or using a blender stand, reduce the preparation to a smooth and even purée. Correct the seasoning if needed.

Place the mixture in a mould and let cool.

# Kale Bean Salad

## Salad Ingredients

- 1 cup kale, chopped finely
- 1 cup chickpeas, cooked
- 1 cup red quinoa, cooked
- 1 cup edamame beans or any other bean
- ½ cup dried cranberries
- ½ cup roasted pumpkin seeds

## Dressing Ingredients

- 1 tbsp. extra-virgin olive oil
- 2 tbsp. apple cider vinegar
- 1 tsp. garlic powder
- Salt and black pepper to taste
- 1 tsp. maple syrup (optional)

## Instructions

Chop fresh kale finely and set aside.

Cook quinoa as per directions.

Mix together dressing ingredients (olive oil, vinegar, garlic powder, salt, black pepper, and maple syrup). Set aside.

Mix together chickpeas, quinoa, kale, edamame beans, cranberries, and pumpkin seeds. Coat with dressing and mix together well.

Serves 2-3. Enjoy!



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

# flourish

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## Blog Preview

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### Squalenes for Great Looking Skin from Within

We'll share how the potent antioxidant action of these complex olive oil sourced organic compounds benefit epidermal health. Squalenes are fat soluble compounds that function as a skin surface lipid layer which both protect and beautify skin. Supplementation is simple and easy with convenient softgels. [ . . . ]



### Treating Juvenile Idiopathic Arthritis

JIA is the most common childhood rheumatic illness. Its symptoms and severity can span from pain and swelling in ankles and knees to systemic reactions including skin rashes and fever. We'll delve into natural strategies both primary and adjunctive that will have a positive impact on a healthy and active [ . . . ]



### Vegan Peanut Butter Easter Eggs

With Easter quickly approaching, it's time to think about making some yummy treats to share with loved ones.

Visit our blog to discover Heather Pace's healthy version of this Easter classic.

## To Come in the Next Issue



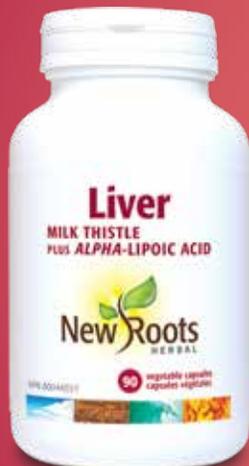
## Comparison of Probiotic Effectiveness on an Empty or Full Stomach

We will feature in the May/June issue of the *Flourish* magazine another study performed by N.H.P. Laboratories comparing the survival rate of non-enteric coated probiotics taken on an empty stomach or with food.

The protective effect of a meal on the two non-protected capsules was measurable; however there was still a devastating die-off rate for all strains, robust and delicate.

The survival rate for the two unprotected capsules varied from a 0.04% to 0.16% on an empty stomach to an upper limit of 8.3% on a full stomach.

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