

Flourish

HEALTHY BODY, MIND, AND SPIRIT

Essential Micronutrients
During Pregnancy

Children's Health
Setting the Foundation

Vol. 2, No. 5 • Free
July/August 2018

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Food Allergies & Sensitivities



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Editor's Letter



I cannot imagine my life without children...

When we decided to start a family, we knew parenthood would change our life. We did everything possible to ensure that the pregnancy went according to plan.

Better nutrition, supplementing when necessary, and adopting a healthier lifestyle were all in order!

For some people—as was the case for me—pregnancy took longer than anticipated. In this case, preparation made even more sense.

Once our little bundle of joy was born, everything revolved around her. When blessed with parenthood, priorities naturally change. For some, this results in a new dwelling to provide the space needed for family comfort; for others, it's a more convenient car, contributing to an educational fund, or turning to organic food to reduce exposure to toxic substances that could end up on their plate.

While we have invested everything within our power for our children's development during their infancy, starting school demands different support. Concentration, immunity, and ensuring that vitamin and mineral needs are met, amongst others, are some factors that make a big difference.

Summer just started, and school is the last thing on our minds, but we are already exposed to school items flooding store shelves. So, why not take advantage of the summer to begin introducing some essential supplements that, when time comes, will be part of a successful school year?

As you may have guessed, this issue features perinatal topics and children's health. It also highlights summer themes such as travel and natural cosmetics.

Pregnancy is an exceptional moment in life; however, the most extraordinary part during my maternity years was to get to know my three children and develop a unique and indescribable bond that only a parent can understand. They have made—and continue to make—me a better person, ready to excel and to lead by example, to instill important values in them, and above all to make them conscious of how beautiful life can be.

Sonia Lamoureux
Editor-in-Chief

Flourish

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Essential Micronutrients During Pregnancy

by Gordon Raza, BSc



Pregnancy naturally induces a moderate but exponential increase in nutrient demand. Ideally, an adapted diet should be able to meet the specific needs of the different periods of pregnancy, but it is often difficult for a pregnant or nursing mother to obtain every essential nutrient. Increased caloric demand remains minimal during the first trimester; however, it increases by 300 to 500 calories per day, respectively, during the second and third trimesters. So, instead of wondering whether you are satisfying this additional demand essential to your child's development, ease your mind and fill those needs with a properly balanced, comprehensive prenatal formula that will guarantee micronutrition for the mother and fetus.

The Cochrane and systematic studies the World Health Organization (WHO) refers to show that taking a multivitamin and mineral (MVM) during pregnancy significantly reduces the risk of low birth weight and small gestational-age size, notably by covering common deficiencies of vitamin A, iodine, iron, zinc, or folic acid. Therefore, for periods prior to conception and pregnancy, Health Canada recommends that women take a daily MVM containing at least 400 µg of folic acid and 16–20 mg of iron. The other important micronutrient is vitamin D. Now, let's get into more detail with each of these three essential micronutrients.

First, folic acid (vitamin B₉) is the most important supplement worth considering, namely to prevent neural-tube defects, with a daily recommended dose of 400 µg (micrograms), starting before conception and extended through the first trimester. In fact, most health-care professionals suggest a dose of 1000 µg per day. Note that combination with vitamin B₁₂ (preferably in its active form, methylcobalamin) and vitamin C potentiates the action of B₉, and that supplementing with B₉ can mask a deficiency in vitamin B₁₂. In special cases of high-risk

pregnancies, where there is a family history of neural-tube defects, a discussion with a doctor or health-care practitioner for higher doses of B₉ should be considered. The same goes for the prevention of preeclampsia, a form of hypertension occurring as early as the twentieth week of pregnancy and whose risk decreases with vitamins B₉ and D. Moreover, in its natural, biologically active form of cholecalciferol, vitamin D is recommended for all women, before and during pregnancy, for promoting the development of the fetus' skeleton. According to the National Academy of Medicine, to which the Canadian government refers, the nutritional intake reference for pregnant or lactating women is 600 IU per day of vitamin D, with a tolerable upper intake level estimated at 4,000 IU. Health-care professionals often recommend more than 1,000 IU for the entire breast-feeding period, to boost vitamin D in breast milk.

Iron completes this core trio essential for pregnancy, because the mother's iron reserves are called upon to ensure additional hemoglobin formation, which is crucial to the placenta's oxygen supply. A preferred option is to supplement with the heme form of iron, whose bioavailability is higher than in nonheme iron (you'll need less for similar effects), and it doesn't carry the risk of nausea and other side effects.

There Is Something for Everyone

Either a prenatal multi, which conveniently covers a wide range of beneficial micronutrients; or, for women who wish to take only the bare minimum, a synergistic formula combining heme iron, B₉, B₁₂, and vitamin C; with a daily drop of vitamin D. All the excitement, enthusiasm, and implications of pregnancy already create enough natural stress; there is no need for more, when various natural solutions exist for meeting micronutrient needs during this magical life experience!



Periodontal Changes in Pregnancy and Oil Pulling

Naturopathic Perspectives

by Dr. Sarah King, ND

Sure, dental cleaning is great for our oral health, but did you know that it can also improve the wellness of your whole body? Daily toothbrushing and flossing is crucial to maintain the health of our gums and teeth; however, this might actually be more important in pregnant women and those looking to conceive.

Consider this: The mouth isn't just the cavity (no pun intended) that leads to our stomach and gastrointestinal tract, but for some substances, it is also a gateway to the bloodstream. Ever wonder why you need antibiotics while having dental work done? Or why it is so important to be on antibiotics for a strep throat (pharyngeal streptococcal) infection? It's not for your oral health, but for your heart! A simple oral or throat infection can easily move into your bloodstream and affect the valves of the heart, causing rheumatic disease, heart inflammation, and chest pain.

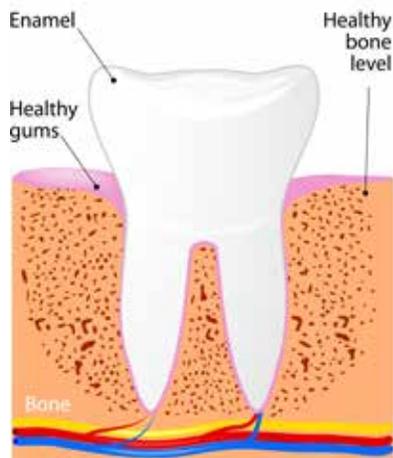
With recurrent infections, this can lead to damaged heart valves. This is just one example of where oral health affects systemic health. Studies have linked chronic oral infections and inflammation to diabetes, lung diseases, risk of stroke, low birth weight, and premature births. For women especially, poor oral health has been linked to cardiovascular disease, infertility, and osteoporosis.

Periodontal Disease and Inflammation

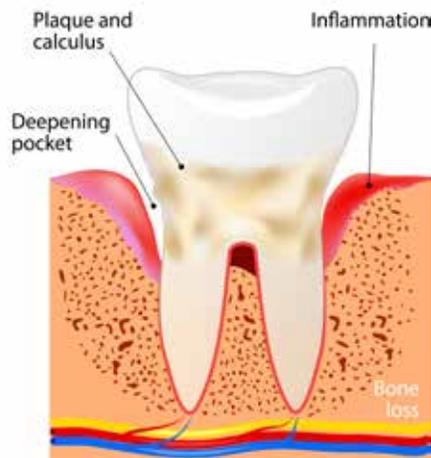
Periodontal diseases are inflammatory disorders that cause the destruction of connective tissue and bone tissue that supports a tooth. These include gingivitis, which is associated with gum inflammation and/or bleeding gums, as well as periodontitis, an inflammatory disease of the structures and tissues around the teeth.

Periodontal diseases are most commonly caused by the presence and proliferation of specific microorganisms. The presence of plaque, containing these groups of microorganisms, elicits an immune response and the production of inflammatory cytokines as well as reactive oxygen species (ROS). The resulting inflammation leads to damage of the supporting tissues. This can

Normal tooth



Periodontitis



manifest as receding gum lines and the actual loss of teeth. Therefore, the risk of developing these conditions increases when oral hygiene is neglected and plaque remains around teeth and the gum line.

Oral Health and Pregnancy

Oral microorganisms are often responsible for many of the inflammatory processes in the oral cavity. Certain bacterial species can initiate inflammatory cascades in the surrounding periodontal tissue, leading to an increased risk for gingivitis and periodontitis.

Although the mechanism of action isn't clearly understood, it seems that oral-health status changes throughout the course of pregnancy. Studies have shown a gradual increase in the incidence of gingivitis from the first trimester to the third. About 50–75% of pregnant women are found to have gingivitis; therefore education and oral hygiene practices need attention in prenatal health—for both mom and baby.

One theory on why this occurs is that the changes and increases in sex hormones throughout pregnancy have an effect on immune-system responses. The link is thought to exist because gingival tissues contain estrogen and progesterone receptors, and there is an increased gingival response to plaque during pregnancy. As far as the immune system is concerned, research has shown that, during pregnancy, there is a reduction in T-cell activity and phagocytosis of neutrophils, as well as altered lymphocytes responses and reduced antibody production. It is currently understood that these immune-system alterations may be a factor in the change in gum and oral health, as the tissues are affected by changes in circulating estrogen and progesterone.



Inflamed periodontal tissue, such as in gingivitis, has been shown to exhibit markers for increased amounts of oxidative stress. Not only was this shown in gingival tissue, but also systemically in plasma and red blood cells. One study showed that markers of oxidative stress in saliva samples are more elevated in pregnancy than in nonpregnant controls. Therefore, pregnancy may put a higher burden of oxidative stress on the body in general, but concurrent periodontal disease and inflammation would create an even higher demand for antioxidant support.

Keep in mind that the body is constantly working to “neutralize” ROS with antioxidants. If left unaddressed, tissue damage—whether local or systemic—may occur, but the degree of damage is uncertain.

One way to assist the body in this balance of ROS and antioxidant activity is to include antioxidants in the diet in the form of vitamin C and vitamin E. Berries, in particular, are a great source of antioxidants and should be encouraged in the diet. Additionally, decreasing sugar, especially refined sugar, in the diet can help prevent the proliferation of microorganism colonies and reduce plaque buildup.

Improving Periodontal Health

One of the best ways to prevent inflammatory factors and ROS from destroying periodontal tissues is to prevent the formation of plaque and to remove plaque via flossing, from the surface and crevices between teeth.

Apart from dental flossing, positive outcomes in gingival health have been seen from a practice known as “oil pulling.” Oil pulling is a traditional Indian folk remedy consisting of swishing coconut, sesame, or sunflower oil around the oral cavity as a means to strengthen the teeth and gums.

Additionally, its benefits extend to improving halitosis (bad breath) as well as treating and preventing bleeding gums and mouth dryness.

So how exactly does it work? Some say that the oils themselves have properties that help eliminate bacteria and are good for overall health. Lignans in sesame oil have a degree of antioxidant properties, but one of best theories of how oil pulling works is via saponification and emulsification: It mechanically cleans teeth by surrounding and trapping bacteria and toxins, holding them captive so you can easily spit out these mini oil “packages” of microorganisms.

Studies have shown that oil-pulling therapy significantly decreases plaque scores and plaque-induced gingivitis. This practice has also been shown to be as effective as chlorhexidine oral rinses in the prevention of plaque-induced gingivitis, but without the risk of staining the teeth and oral surfaces, which is common with chronic and continual use of chlorhexidine rinses. Chlorhexidine also carries a potential side effect of changing the user’s perception of taste. Oil pulling therefore is an appropriate and effective alternative for individuals who have experienced side effects of chlorhexidine rinses, or who have a sensitivity to ethanol alcohol or artificial food dyes.

How to Do Oil Pulling

Oil pulling is best done first thing in the morning, before eating or brushing the teeth. Start by scooping a tablespoon of oil into the mouth and holding it there. Swish it all around the mouth for about 10–15 minutes, but do not swallow it! Since the oil is used to clean the mouth—it does a great job of holding onto toxins and bacteria—it’s important not to swallow it back into the body. The oil will thin and turn a milky colour, so don’t worry if it keeps mixing with saliva; this is normal. Once the time is up, spit out the oil and the contents of the mouth, and follow with normal toothbrushing.



ND’s Critic

I had heard about this briefly in school, but didn’t really know the details. This is a really cool and exciting way to promote health that you can easily do from the comfort of your home.



Conclusions

Oral and periodontal health are essentially linked to overall health. Though we might associate a visit to the dentist with the fear of finding cavities, getting fillings, or other painful procedures, the importance of oral hygiene should not be neglected. This is especially true during pregnancy, as changes in immune responses from increased estrogen and progesterone can alter gingival responses to plaque, thus increasing the incidence of gingivitis and periodontal disease. Don’t hesitate to ask a dental hygienist to go over proper flossing techniques with you, and keep up with regular dental cleaning during pregnancy. In the meantime, it’s worth trying oil pulling as part of your daily oral hygiene routine for healthier gums and teeth.

Article including references on newrootsherbal.com/blog



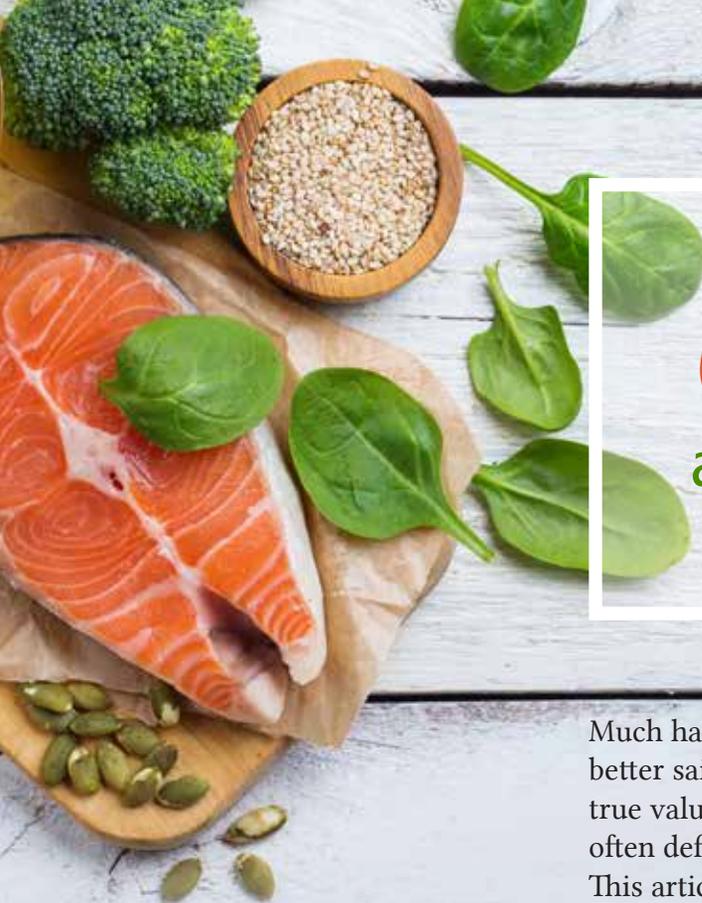
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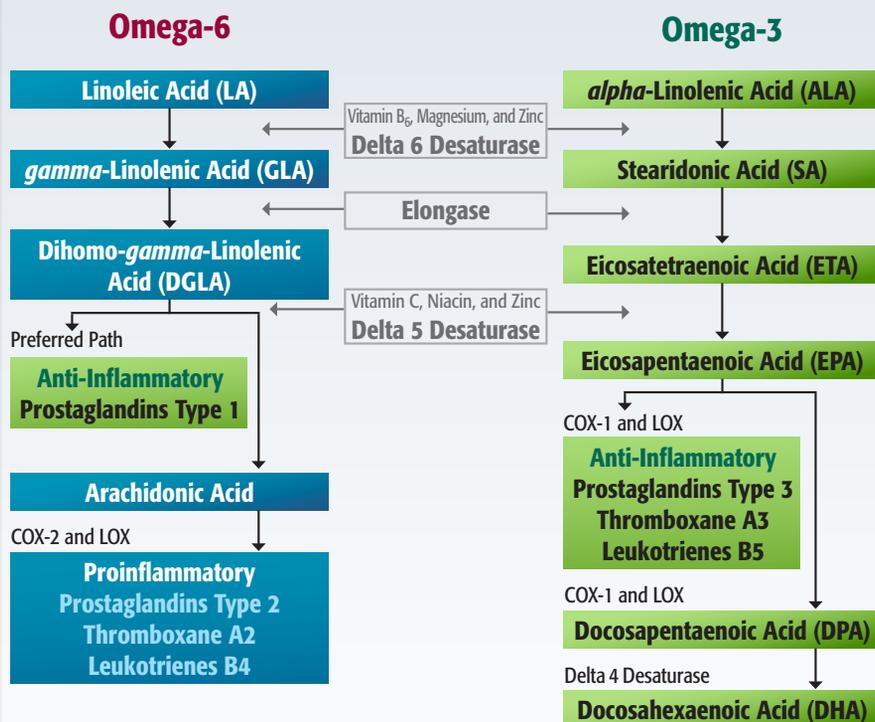


Getting the Right Balance of Omega Fatty Acids and Their Benefits for Pregnancy

by Guillaume Landry, MSc, Naturopath

Much has been said about the saga of omega-3 fatty acids, but better said twice than just once. Uncertainty persists regarding the true value of omega-3 and -6 fatty acids, but also because we're often deficient in essential polyunsaturated fatty acids (PUFAs). This article outlines the metabolism of PUFAs and, keeping in step with the theme of this magazine, some of the beneficial aspects of omega-3 for conception and mothers.

Figure 1
Omega-6 / Omega-3 Metabolic Pathways



Metabolic Pathways of Omega Fatty Acids

PUFAs are called “unsaturated” because they can capture electrons, giving them antioxidant properties. Components of cell membranes and energy sources, PUFAs also contribute to proper gene regulation. Therefore, to stay healthy, our bodies need to take in two essential PUFAs (which the body is unable to produce): linoleic acid (LA) omega-6 and alpha-linolenic acid (ALA) omega-3. Once in the cell membranes, these precursors are transformed into about twenty PUFA derivatives, having longer chains and being necessary for our vehicle’s proper functioning. Let’s talk a little more about metabolism to better understand these omega fatty acids.

Linoleic acid, the leading omega-6, is beneficial when it comes from sunflower, safflower, corn, and sesame oils, as well as from quality eggs and dairy or wild-game meat

(which contain five times more PUFAs than farm-raised animals). Linoleic acid mainly generates *gamma*-linoleic acid (GLA, also found in evening primrose and borage oils), which in turn produces dihomogamma-linolenic acid (DGLA, for which the sole food source is breast milk) and prostaglandins of types 1 (PG₁) and 2 (PG₂). These compounds are beneficial for the nervous system, cell membranes, and intestinal and respiratory mucous membranes.

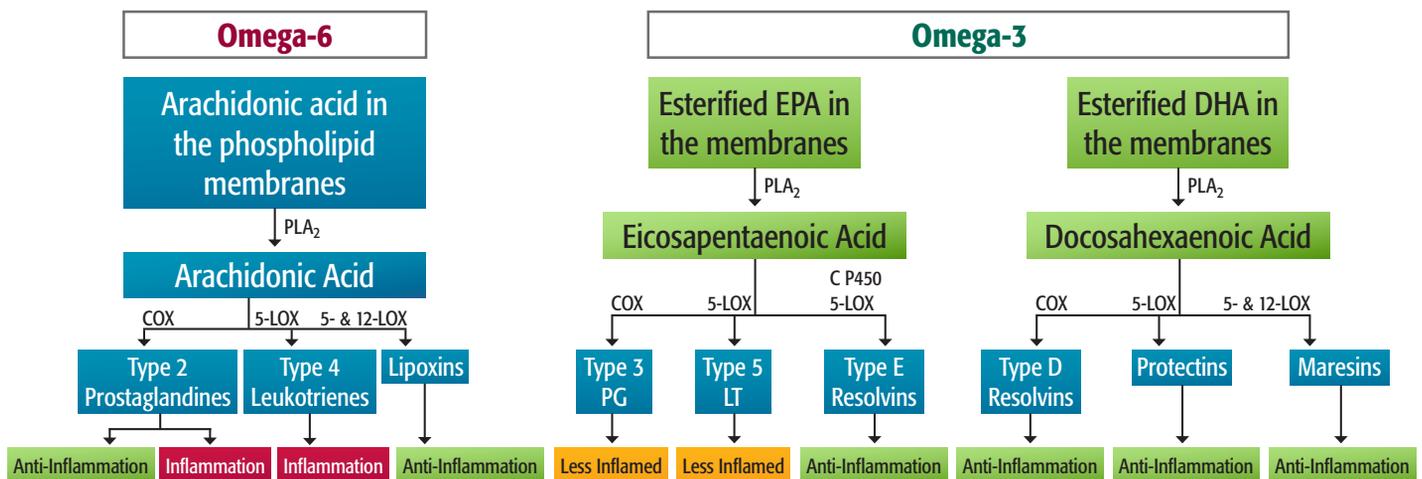
Only 15% of this “quality” linoleic acid is converted into arachidonic acid. On the other hand, the omega-6 found in common meats, dairy products, and cold cuts (of which average consumption exceeds our needs) provides an almost exclusive supply of arachidonic acid, responsible for the overproduction of type 2 prostaglandins (PG₂), which cause inflammation. But relax, prostaglandins do have their benefits! In small amounts, type 2 prostaglandins are useful (Fig. 2), for example for healing open wounds, for mediating allergic reactions, and for dilating the cervix during childbirth. Excessive intake of arachidonic acid, though, causes and maintains long-term inflammatory and allergic reactions, notably by way of the proinflammatory catalytic enzyme COX-2, which is involved in pathological states of the nervous system or bones, rheumatoid arthritis, colon cancer, angiogenesis, and kidney failure. Omega-6s are not to be demonized; you should just keep in mind that their origin and quantity define their dangerousness.

alpha-Linolenic acid (ALA) is the other essential PUFA, and is found in walnut, soy, canola and flaxseed oils, chia seeds, as well as—in small amounts—in cold-water fish (mackerel, sardines, anchovies, halibut, salmon), which contain more eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) omega-3s. The body, if healthy and being supplied with cofactors (vitamins B₆, B₃, and C; zinc; magnesium; and manganese), knows how to transform ALA into EPA and DHA, which are omega-3s with longer carbon chains and precursors of anti-inflammatory PG₃. Nevertheless, this bioconversion of ALA is often neither very effective nor significant. Age, diet, hygiene, stress, pollution, diseases, etc. change the body’s ability to properly metabolize omega fatty acids, especially by affecting the delta 6 desaturase enzyme (Fig. 1). It should be noted that *trans* fats derived from modified PUFAs (margarine, shortening, hydrogenated oils, etc.) strongly affect this enzyme, whose function is to transform LA and ALA fatty acid derivatives first, and then to regulate the enzymatic kinetics of their respective metabolic pathways.



Delta 6 desaturase naturally begins decreasing around age 45, hence the need for seniors to directly supplement with EPA and DHA omega-3s, as well as borage or evening primrose oil, which is rich in GLA. Furthermore, the delta 5 desaturase enzyme prefers the metabolic omega-3 pathway rather than the conversion of arachidonic acid into DGLA on the omega-6 side. Therefore, prioritizing food sources or supplements of ALA, GLA, and EPA and DHA omega-3s increases the production of type 1 (from omega-6 fatty acids) and type 3 (from omega-3 fatty acids) prostaglandins, both particularly beneficial (Fig. 1). These act

Figure 2



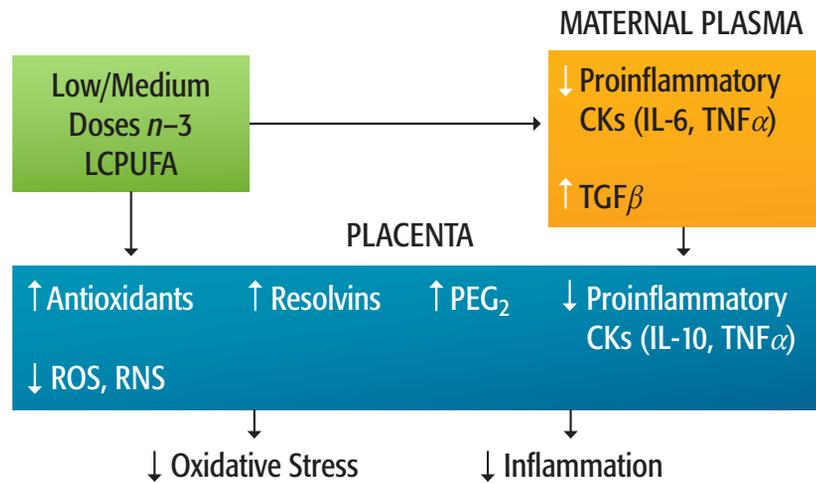
against cellular degeneration and inflammation; modulate the action of immune-system macrophages against allergies, asthma, eczema, and autoimmune diseases; inhibit platelet aggregation, thus preventing thrombosis, myocardial infarction, or pulmonary embolism; or relax smooth, vascular, uterine, and lung muscles.

It's All About Balance

It's recommended that half of all dietary fats should come from monounsaturated fats (omega-9 in olive oil or produced by the body from saturated fat), a quarter from polyunsaturated fats (omega-6 and omega-3), and the last quarter from saturated fats. In fact, we consume between 10 and 30 times more omega-6 than omega-3, according to sources, while the ratio should not exceed 5 or 6 to 1. This imbalance does not necessarily come from a diet rich in plant-based omega-6, but rather from the excess of animal-based omega-6 that competes with our own use of omega-3 and disrupts the ideal PG_2/PG_1 physiological ratio.



Figure 3



PG_1 deficiency, which is very common, is part of the clinical picture of various diseases (CVD, PMS, skin diseases, inflammatory diseases, multiple sclerosis, schizophrenia, etc.) listed in 1983 by Judy Graham, who made evening primrose oil famous as a natural anti-inflammatory. It's therefore important to provide the body with a proper balance of fatty acids; for example, cardiovascular balance requires a precise ratio of PG_2 to PG_3 . Omega-6-based PG_2 s are vasoconstrictor and promote platelet aggregation to stop hemorrhaging, and PG_3 s are vasodilatory and fluidifying. Homeostasis, in this case, cannot save any one of these complementary compounds. You will understand that privileging an omega at the expense of another would also be a mistake, because they need the same enzymes; so, an excess of one prevents optimal use of the other.

Therefore, to optimize your omega-6:omega-3 ratio—and consequently improve the metabolism of prostaglandins to fight inflammation and oxidative stress—you should reduce the intake of animal-sourced saturated fatty acid and PUFA (in particular arachidonic acid), in favour of omega-3s (ALA, EPA, and DHA) and GLA omega-6. For example, reducing the omega-6:omega-3 ratio from 10:1 to 4:1 in patients with cardiovascular disorders brings a 70% reduction in mortality rate. On another level, men whose sperm quality is impaired have an omega-6:omega-3 ratio that is too high. Also, the motility, concentration, and normal morphology of spermatozoids depend heavily on DHA.

Benefits of Omega-3 Fatty Acids in Pregnancy

Science and nature are not always accurate, and the efficiency of physiological processes of the body never reaches 100%. As we have seen, about 25% of ALA is catabolized as CO_2 to produce energy, and therefore will not be available for producing EPA and DHA omega-3s. Also, in women, only 20% of ALA is converted into EPA, and 9% into DHA. Although these figures vary according to each person's biochemical individuality, they show the importance of supplementing with EPA and DHA omega-3s. For fertility, pregnancy, and breast-feeding, omega-3 fatty acids are great nutrients, as are probiotics and vitamin D_3 , which promote vascular development of the endometrium and intrauterine blood flow; and they reduce the risk of miscarriage, premature delivery, and complications. Indeed, omega-3 decreases placenta PG_2 through EPA and ADH omega-3 derivatives including, among others, recently discovered resolvins and protectins anti-inflammatories (Figs. 2 and 3).

In addition, optimizing the omega-6:omega-3 ratio reduces the effects of T_H17 , a type of the mother's immune cells which are essential for fighting bacterial

and fungal infections, but which are potentially dangerous for fetal brain development. In case of infection or immune-system activation in the mother, these T_{H17} are activated by interleukin 6 (IL-6, a proinflammatory cytokine) from the macrophages and T killer cells. T_{H17} then generates IL-17 that travels through the placenta to the fetus' brain, where they increase the number of IL-17 receptors, which are correlated with birth defects, autoimmune diseases, and autism symptoms. Omega-3s, especially EPA, can also get rid of postpartum blues naturally.

Clearly, omega-3 fatty acids are beneficial to health in general, and specially to pregnancy. This assertion may nevertheless lead to excessive supplementation, which may have undesirable effects on the fetus and the baby's future development. Too much is not necessarily better, and to avoid this potential food toxicity of saturated fatty acids—of both omega-6 and omega-3—eating and supplementing need to be well-considered and balanced.

Conclusions

So, for the sake of taste and health, don't abandon your buttered bread (too unfairly discredited), but diversify your unrefined oils and cook with them intelligently (and be careful, because they don't all tolerate cooking). Be sure to eat various sources of fat (e.g. fish, avocados, nuts), and supplement as needed and preventatively with omega-3 or high-quality GLA, at a reasonable dose. Do seek the recommendations of an authorized health-care practitioner or naturopath. Health tips in this article do not in any way substitute a prescription.

Article including references on newrootsherbal.com/blog



ND's Critic

I thought I knew everything there was to know about fish oil! This article did a great job reinforcing my knowledge on the biological pathways involved with omega-3s. A must-read!

Dr. Sandy Huynh, ND
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Toronto, Ontario



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Maternal Milk

Our Universal Cornucopia

by Guillaume Landry, MSc, Naturopath

Whether she breast-feeds or not, any mother can confirm the world has more than just seven wonders. Each family has their little treasures at home, and breast-feeding has—thankfully!—once again become women’s preferred method of nourishing their infants. Breast milk not only naturally provides nutrients but also antibodies, lactoferrin, hormones, growth stimulators, colostrum, and more, all essential for the growth and development of a baby’s strong and resilient immune system.

In Australia, the number of breast-feeding mothers increased from 48% in 1975 to almost 90% in the 2000s. It is the nutritional method recognized by health authorities (including the World Health Organization) as most suitable for babies until at least six months of age. Nevertheless, it remains a potential challenge in many cases. The causes of terminating breast-feeding are multiple, and depend not only upon psychophysiological factors (insufficient lactation, fatigue or depression, physical complications, beliefs, behaviours, etc.), but also socioeconomic ones (academic or professional obligations, financial stress, etc.). So, how to resolve this?

Milk production is favoured by a balance of the right breast-feeding frequency, the child’s closeness to the mother, the desire to breast-feed, and the family circle’s lifestyle. Hormonal health is essential for the pituitary gland to create prolactin (which stimulates milk production) and oxytocin (which promotes milk ejection). If milk production starts to decline, it is important to correct the frequency of feeding as well as the baby’s and mother’s positioning. Try a supportive method such as breast compression to help the flow of milk, or rest and hydrate enough. Breast-feeding support services are now highly accessible, so use them liberally, and keep in mind that solutions exist to wipe away discouragement or guilt, as one of the surest guarantees of successful breast-feeding is confidence.

Other natural tools include galactagogues, which are plants whose traditional use gives lactating mothers a reassuring and positive effect. Fenugreek, blessed thistle, and fennel are among the plants that promote better milk flow. What is known in herbal medicine is that many plants of the Apiaceae family act on the pituitary gland, and consequently on prolactin, but also on dopamine, which reduces secretion. For example, the anethole molecule, found in fennel and anise and structurally resembling catecholamines such as dopamine, may compete for its receptors, thus disinhibiting prolactin secretion and its galactagogue effects.

To promote lactation, one simple and effective way will consist of taking a tincture formula or capsules of a galactagogue plant (fenugreek, blessed thistle, or fennel), along with plants that balance the hormonal system, such as raspberry or clover. You can also drink two or three cups a day of herbal tea with caraway seed (60 g); fennel, green anise, angelica (30 g each); and hop cones (20 g), dosed at one teaspoon per cup. In your cooking, use cumin, basil, verbena, barley malt, and miso; conversely, avoid parsley, sage, mint, sorrel, and artichoke, which tend to reduce milk production. Reflexology and acupuncture are also useful complementary techniques worth considering.

As with all cases of medicinal-plant use, carefully respect dosage and recommendations, and seek advice from a health-care practitioner, naturopath, or other authorized specialist. The health advice in this article does not in any way substitute a medical prescription.

[Article including references on newrootsherbal.com/blog](https://newrootsherbal.com/blog)



Children's Health Setting the Foundation

by Dr. Philip Rouchotas, MSc, ND

New and experienced parents alike fret about their children's health. Children seem to get sick more often than adults, especially when they are in frequent contact with other young children, and they are often fussy eaters. Since young children can't always communicate how they feel, it's hard for parents to know what they should be doing to help support their kids' health.

Diet

As a bird's-eye view, try to ensure that your children's diet contains some of each of the following: Colourful fruits and vegetables, good-quality protein, and healthy fats. Fruits and vegetables may consist of peeled cucumbers; carrot sticks; soups or stews with cooked (therefore easy to chew and digest) carrots, sweet potatoes, zucchini, and other veggies; berries; apples with cinnamon; homemade applesauce; or other fruits. This helps ensure that your child is getting important vitamins and plant-based antioxidants, as well as fibre. It also helps them develop a palate for these types of foods in general, as they get older.

Protein is vital in supporting healthy growth—muscles, bones, hair, skin, nails, etc.—as well as immune function. The highest-quality protein sources tend to be animal-derived; these include eggs, chicken, ground beef, and other softer types of meats. An omelette with some finely chopped veggies and a bit of olive oil can be a nice way to get protein, veggies, and some healthy fats. Kids also seem to like soft and easy-to-chew types of meat, so oven-roasted chicken cut up in small pieces or ground beef (organic if possible) are great ways to serve up some protein. If there are no issues with allergies, nuts such as walnuts or almonds—either as a snack or added to other foods—are a good source of proteins and healthy fats.

Healthy fats are important for brain development as well as growth in general. These could include avocado, coconut, extra-virgin olive oil, nuts and nut butters (no sugars added!), as well as fat-containing dairy products such as no-sugar-added yogurts or nonprocessed cheese.

Restricting foods with added sugar, processed foods (anything from a bag or a box), candy, pop and sugary drinks is also an important part of a healthy diet. Maintaining enough outdoor play and exercise is also critical to healthy physical and psychological development. Current recommendations are for a minimum of at least one hour of physical activity per day.



There is a vast body of evidence evaluating the effects of diet on children's health. With respect to the Mediterranean dietary pattern (increased fruit and vegetables, healthy fats including olive oil and nuts, moderate animal protein, and minimal processed foods), this has been shown to reduce obesity and improve metabolic parameters such as blood glucose and cholesterol in children. In addition, an important part of promoting healthy eating behaviours amongst children is for parents to model this behaviour and to normalize this type of eating pattern.

Supplements

In addition to obtaining vitamins from the diet, supplementation with a handful of important supplements has been shown to yield additional benefits. A good-quality multivitamin can help provide what may not be obtained through the diet, especially in fussier children. B vitamins and folic acid are important in metabolizing brain neurotransmitters, in producing red blood cells, and in maintaining good energy levels. Vitamin C is important in helping fight infection. Trace minerals such as iron and zinc are essential for proper growth and immune function.

In Canada, there is a high prevalence of vitamin D deficiency, due to low exposure to ultraviolet B sunlight in the winter months. Even in the summer months, many Canadian children spend much of their time indoors. Vitamin D is critical for healthy muscle and bone formation as well as for healthy immune function. Vitamin D supplementation has been shown to reduce the incidence of upper respiratory infections. Conversely, low vitamin D levels are associated with insulin resistance, a precursor to developing diabetes, as well as with anxiety. Moreover, vitamin D has been shown to benefit a number of conditions that commonly affect children, including asthma, enuresis (bed-wetting), as well as more severe respiratory infections.

Probiotics, or "beneficial bacteria," are also an important intervention to help support healthy immune development in children. More evidence emerges daily on the plethora of health effects associated with the microbiome in general and with probiotics in particular. Bacterial species inhabiting the gastrointestinal tract and mucous membranes play a role in "training" immune cells how to react to certain food proteins and other allergens that the body may be exposed to.

Probiotics also help fight infection and reduce the side effects of antibiotics. Studies show that probiotic supplementation can reduce upper respiratory infection such as ear infection, reduce eczema severity, and reduce risk of antibiotic-associated diarrhea.

Finally, fish-derived omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are critical nutrients in supporting healthy neurological and immune development. A 2018 study in Canadian toddlers aged 2 to 3 years found that only 5% of toddlers were meeting recommendations for EPA and DHA intake. Similar data has been produced in relation to children aged 4 to 8 years. This gap can be made up either through an increased intake of oily fish such as salmon, or, more likely in children, supplementation with a good-quality fish-oil supplement that provides a therapeutic dose of EPA and DHA.



DHA is a structural component of cell membranes, which is of particular importance for brain cells and cells of the nervous system, where the cell membrane constitutes a large part of the cell. DHA is also important for similar types of cells in the retina of the eye and in the sensory organ of the ear. DHA intake is particularly important during infancy and early childhood. Fish intake has been shown to improve cognitive development in toddlers. EPA is an anti-inflammatory component that has been shown to improve immune tolerance, decreasing the risk of allergy, as well as to improve mood and behavioural problems in children. In conditions such as depression, pediatric bipolar disorder, and ADHD, a fish oil high in EPA has overwhelmingly been shown to be most effective.

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Antioxidants, *Homocysteine,* and Degenerative Diseases

by Jean-Yves Dionne, Pharmacist



Interesting Results

A new study shows that the consumption of a beverage rich in antioxidants (from apple, lemon, or green tea) and containing B and C vitamins helps reduce the concentration of homocysteine (a toxic amino acid) in the blood of people with Alzheimer's disease (in contrast to a placebo having no effect). This small, eight-month-long study was conducted with 48 people, 24 of whom used the juice, and 24 others who used a placebo.

The usefulness of this study is twofold. First, circulating homocysteine is an aggravating factor for Alzheimer's disease. Lowering it through a nutritional technique suggests we may be able to delay the development of the disease. (The study did not venture to assert or even imply this.) That being said, the use of an antioxidant drink containing three B vitamins that are useful against homocysteine is a much more interesting approach than that currently used to treat heart disease (for which one is simply given three B-vitamin supplements without antioxidants).

What Is Homocysteine?

To pursue this reflection, we must understand what homocysteine is and its toxic and aggravating role in many diseases, but above all, its origin.

Historically, interest in homocysteine as a cardiovascular risk factor dates to the publication of a finding back in 1969: K.S. McCully then reported that people with a rare genetic disease, homocystinuria, died of thrombotic vascular complications. Later, it was found that homocysteine is toxic to many systems, and is present (therefore potentially as a risk factor, or at least as a marker) in patients suffering from many diseases: heart disease, Alzheimer's, Parkinson's, pregnancy complications, osteoporosis, etc.

Where Does Homocysteine Come From?

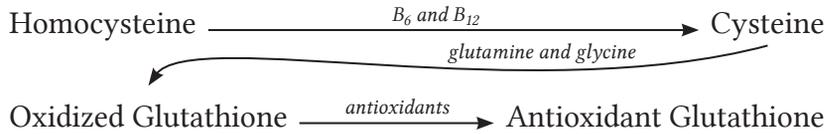
Several factors may explain an increase in homocysteine blood levels:

- The typical, North American diet rich in meat and processed foods, and low in fresh fruits and vegetables;
- A genetic variant;
- Environmental factors such as Parkinson's disease;
- Etc.

Homocysteine Metabolism

Homocysteine comes from protein metabolism. The more protein (especially animal protein) the body must metabolize, the more homocysteine production increases. Homocysteine is a toxic, prooxidant amino acid the body normally seeks to eliminate. It can simply be broken down and removed using vitamin B₉ (folic acid), or it can be recycled into cysteine (by adding a methyl function from vitamins B₆ and B₁₂), and then into oxidized glutathione (with the addition of glutamine and glycine). For this oxidized glutathione antioxidant to find its main driving force for the body, it must then be reduced by using antioxidants.

(Simplified) Homocysteine Metabolism



Take B Vitamins...

Much of the research on homocysteine has focused on the effect of three B vitamins (B₆, B₁₂, and folic acid), which are also known as methyl donors, as they allow the body to recycle or dispose of the toxic amino acid by providing a methyl function. Yet, clinical studies on these three vitamins have produced disappointing results, despite their effectiveness in significantly reducing homocysteine levels in the blood.

...and Add Antioxidants

What's important to understand—and what could explain the poor results of studies on methyl boosters—is that increased homocysteine levels are not just a reflection of a metabolism saturated with proteins, but they're also the result of an exhausted antioxidant system. When we grasp the role glutathione plays between homocysteine and saturation of the antioxidant protection system, it becomes easier to understand why the effects of vitamins B₆, B₉, and B₁₂ are disappointing. Indeed, when antioxidant reserves are emptied, using these vitamins allows the recycling and degradation of homocysteine, but does little to prevent the depletion of glutathione.

Homocysteine decreases, cysteine (and probably oxidized glutathione) production increases, but the amount of effective (unoxidized) glutathione remains unchanged. It is very likely that higher levels of homocysteine are not responsible for the clinical condition of patients, but rather a marker of their condition. To improve health, we must probably also restore the antioxidant capacity of the body. Thus, the recent study on the effect of antioxidant drinks containing three vitamins on homocysteine levels in Alzheimer's patients presents an interesting pathway. It uses a product that improves the antioxidant state (protection from free radicals) and reduces homocysteine levels already present by adding methyl functions. It remains to be determined, beyond theory, whether this cocktail is effective on the patients' oxidative status.

Potentially useful antioxidants include polyphenols (flavonoids from fruits, catechins from tea), carotenes, selenium and other trace-mineral antioxidants, *alpha*-lipoic acid, curcumin, resveratrol, etc. It may also seem logical to take a whey isolate or another supplement containing the three amino-acid building blocks of glutathione (glutamine, cysteine, and glycine). On the flip side, since we are talking about an organism with spent and saturated glutathione, I doubt that these supplements are effective without a significant intake of antioxidants.

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Jean-Yves Dionne

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Jump Around for Better Bones

Research by Dr. Andrew Marino, of the Department of Orthopaedic Surgery of Louisiana State University, titled "Direct Current and Bone Growth," sheds some light on a shortcut for increased bone mineral density. His research explored the positive effects of electrical stimulation for bone growth and remodeling. The good news is this process, called electrical osteogenesis, can also be triggered as you land from a jump.

Need some proof? Research published in the *Journal of Bone and Mineral Research* tracked elite-level gymnasts 14 years after retirement. It revealed higher bone mineral density of 7% for the lumbar region of the back, and 11% where the femoral neck connects to the hip. These residual benefits are attributed to the impact force of landing jumps.

Good news is it's never too late to start. Looking for a beat to train with? Try cuing up "Jump Around."



Inositol: The Great Communicator

2018 Update

by Dr. Heidi Fritz, MA, ND

Last year, we discussed the role of inositol as a second messenger participating in multiple hormone-signaling pathways, mediating the ability of hormones to communicate with their target cells. Our aim here is to review the effect of inositol on the functioning of the ovaries and thyroid as well as the state of pregnancy, and to draw attention to new findings.

Inositol is a nutrient related to the family of B vitamins, and it has been extensively studied for its role in conditions related to fertility, such as polycystic ovary syndrome, and diabetes. Inositol is a “second messenger,” a critical component of intracellular signaling cascades. This means that it participates in the sequence of events that occurs within the cell after a hormone binds to its receptor on the surface of the cell. This sequence of events then transmits the signal into the cell through a series of reactions, of which inositol is part. For this reason, we say that inositol augments hormonal signaling, or communication, throughout the body.

Inositol is known to function as a second messenger in two important hormone systems: the insulin signaling cascade and the thyroid signaling cascade. *myo*-Inositol is also involved in follicle-stimulating hormone (FSH)-signaling, which is important in stimulating follicle development in preparation for ovulation.

Insulin resistance is a critical factor in the cause of polycystic ovary syndrome (PCOS). This syndrome affects up to 10% of women, and involves impaired ovulation or lack thereof, elevated male-like hormones including testosterone or DHEA S, and polycystic ovaries seen on ultrasound. Insulin resistance leads to elevated insulin levels, and this in turn impairs ovulation. Studies have shown that patients with PCOS have decreased levels of inositol, particularly in the theca cells of the ovary, and altered inositol metabolism. When *myo*-inositol is supplemented in these patients, ovulation normalizes; sex hormones including estrogen, progesterone, and testosterone improve; and insulin resistance improves. Other metabolic benefits associated with *myo*-inositol supplementation include reduction of elevated blood pressure and cholesterol. A number of studies show restoration of normal ovulatory function in up to 65% of treated patients.

Studies show that inositol may be equally as effective as metformin, an insulin-sensitizing medication often prescribed for PCOS, in regulating ovulation. One study found that inositol supplementation restored normal ovulation in 65% of women, compared to 50% of women in the metformin group. One study found that compared to metformin, inositol was superior in reducing elevated testosterone levels and measures of inflammation (C reactive protein). Another study found that when metformin and *myo*-inositol were compared, both yielded comparable results as far as the percent of patients with restored ovulation, improvements in insulin sensitivity, and a reduction in body mass index (BMI), a measure of obesity.

Inositol has also been investigated for its effects among patients undergoing fertility treatment. In patients with PCOS undergoing ovulation induction and

intrauterine insemination (IUI), supplementation with *myo*-inositol resulted in higher rates of pregnancy and lowered the doses of medication required. In patients undergoing IVF, inositol supplementation for three months beforehand has been shown to improve sperm and egg quality, improving follicle development, and reducing the amount of hormonal medication required. Inositol also reduced the number of degenerated and immature eggs. In another study among women classified as “poor responders” to IVF, the addition of *myo*-inositol supplementation resulted in a greater number of oocytes (eggs) retrieved and an improvement in egg quality. This may be due to inositol’s role in augmenting FSH signaling. Indeed, researchers concluded that *myo*-inositol seemed to improve the ovarian response to gonadotropins (hormones FSH and LH) and the Ovarian Sensitivity Index (OSI), and thus may be helpful for women not responding well to fertility drugs.

Interestingly, a new study has now suggested that inositol in combination with herbs including *Tribulus* may also improve male fertility. A total of 60 patients with male infertility were randomized to either combination treatment with *myo*-inositol (1000 mg), *Tribulus terrestris* (300 mg), alga *Ecklonia bicyclis* (200 mg), and Biovis (one tablet a day for 90 days). At the end of this treatment period, results showed that sperm concentration and progressive motility significantly improved (3.82 million/ml v. 1.71 million/ml, and 4.86% v. 1.00%). DNA fragmentation was also significantly reduced compared to placebo (-1.64% v. -0.39%, $p < 0.001$).

Patients with PCOS are at higher risk of developing gestational diabetes (GDM) upon achieving pregnancy. Several studies suggest that supplementation with *myo*-inositol may reduce this risk. In one study, of 220 women with a family history of type 2 diabetes, supplementation with 4 g *myo*-inositol beginning at the end of the first trimester resulted in a significant decrease in the rate of GDM (6% v. 15% in the placebo group), and a decrease in macrosomia, giving birth to a large baby over 8.8 lb. Another study showed that among obese pregnant women, supplementation with *myo*-inositol beginning in the first trimester reduced the development of GDM to 14% of women, compared to 34% of women in the control group. Another study, of 75 pregnant women who were not obese but had an elevated fasting glucose in their first trimesters, found that *myo*-inositol supplementation resulted in a lower incidence of GDM diagnosed in the second trimester, as well as having generally smaller babies and delivering at a later gestational age (less premature delivery). A fourth study, of 69 pregnant women with GDM, found that supplementation with *myo*-inositol resulted in improved insulin sensitivity in 50% of treated women, compared to 29% of women treated with diet alone. A fifth study showed no effect in preventing GDM.



Finally, many studies suggest that inositol may help to normalize thyroid function. A 2013 study of patients with Hashimoto’s thyroiditis, a chronic autoimmune thyroiditis that ultimately causes low thyroid function, found that supplementation with a combination of selenium and *myo*-inositol could improve laboratory measures of subclinical hypothyroidism, including lowering TSH and thyroid antibodies. A more recent study found that, among 86 patients with Hashimoto’s and TSH between 3 and 6, treatment with selenium and *myo* inositol for six months resulted in significant increases in free T₃ and free T₄ thyroid hormones, and a reduction in symptoms associated with subclinical hypothyroidism. Supplementation was also associated with a decrease in TPO and antithyroglobulin antibodies.

A new study suggests that supplementation with inositol and selenium in patients with subclinical hypothyroidism may result in a reduction in the size and number of thyroid nodules.

In conclusion, we see the evidence for inositol being the second messenger par excellence: Inositol is a critical component of hormone-signaling cascades including insulin, gonadotropins such as FSH, and the thyroid-stimulating hormone TSH. Inositol has been shown to improve ovulatory function, insulin resistance, and Hashimoto’s thyroiditis.

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A Discussion of Male Fertility

by Gordon Raza, BSc

There's a common misconception regarding fertility: That women have a finite number of eggs at birth which degrade over time, yet men produce millions of fresh sperm cells per day.

Stem cell research has proven women can generate new eggs during their lifespan; however, the theory that eggs have a "shelf life" seems to be supported by lower fertility rates, higher incidence of chromosomal abnormalities, and risk of miscarriage associated with pregnancies later in life.

Men do indeed produce sperm by the millions, which subsequently have their personal "gestation period" of approximately 74 days prior to maturation. During this period, they develop mitochondria and morph into an oval shape with a flagella (tail), which equips them for their journey to conception. This phase occurs within the epididymis, a duct-like reservoir behind the testes.

Even though sperm cells take on a life of their own, they're still cells of the body, subject to exposure with the same nutrients, free radicals, and environmental toxins as cells throughout the body.

Men on the brink of fatherhood should consider tweaking their lifestyle for at least a few months to improve their chances for conception. Fertility experts start with recommending a "heart-healthy" lifestyle as being synonymous with a "sperm-friendly" lifestyle. Good nutrition, exercising on a regular basis, shunning tobacco, and consuming caffeine and alcohol in moderation are a great start.

There are also many vitamins, minerals, and special nutrients that elevate sperm count, protect their delicate DNA, and improve their shape and motility (ability to reach their destination). Let's discuss them.

L-Carnitine is an amino acid that serves a dual role for male fertility, as it transports fatty acids into mitochondria (cellular powerplants) of cells throughout the body. This increases energy and sexual stamina, along with making individual sperm cells more vigorous and resistant to free radicals.

Coenzyme Q₁₀, long considered a potent antioxidant and cofactor for energy production at the cellular level, is a must for heart health and for being the driving force for sperm motility. N-Acetylcysteine is another clinically proven antioxidant supportive of sperm production and motility.

Astaxanthin, a potent biologically active carotenoid produced by the microalgae *Haematococcus pluvialis*, ranks among the leading antioxidants to preserve sperm health and motility. It can also be found in salmon and shellfish, that rely on *H. pluvialis* as a food source. Astaxanthin is also featured in many formulas that focus on the preservation of vision and cardiovascular status. Lycopene is another robust carotenoid which protects sperm cells from free radicals.

A pilot study conducted in India has shown ashwagandha root to improve testosterone status in men, with the consequential benefit of increased sperm count and motility.

Avoiding vitamin deficiency is a great place to start for health in general. For future fathers, vitamins C and E are critical cofactors for sperm growth and motility. Zinc and selenium are an additional tandem of motility minerals that have an impact on the ability of sperm to reach its destination. Oysters and Brazil nuts are excellent dietary sources of both; they're also common elements of male-fertility formulas.

When it comes to male fertility, leading a healthy lifestyle and loading up on reproductive-friendly nutrients will ensure you're putting your best "genetic" foot forward. Embracing fatherhood, with all its wonders, is where the true challenge lies. Enjoy!



Traveller's Diarrhea

Prevention and Treatment

by Dr. Sarah King, ND

When travelling to tropical and subtropical regions, there is always a chance of contracting a bacterial infection that turns into traveller's diarrhea. It is estimated that about 30–50% of travellers develop traveller's diarrhea in the first two weeks abroad.

This particular illness is self-limiting, often lasting one to three days with treatment, but up to seven days for those who let it run its course (sometimes longer depending on the type of infection). Those who have experienced it can attest that it's enough to ruin a vacation or limit the ability to get back to work after you've arrived back home.

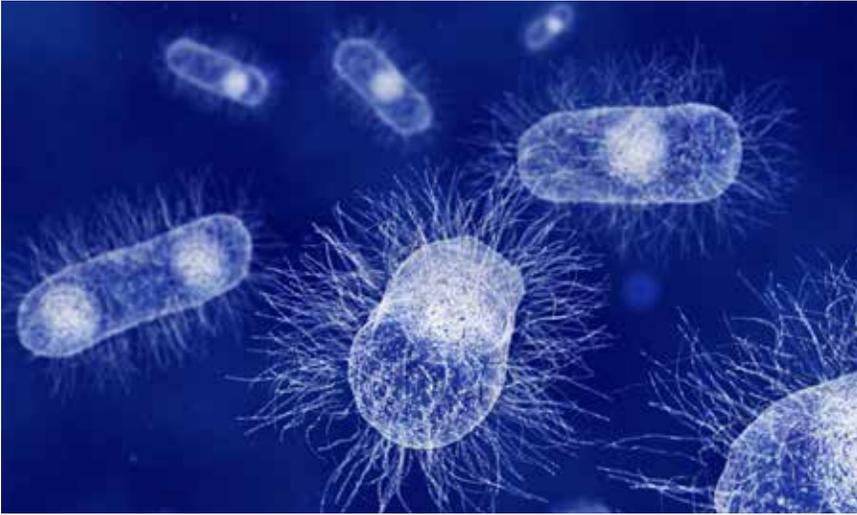
The culprit of these infections varies from bacterial to viral, and even protozoan, like *Giardia* (aka "beaver fever"). Most commonly, though, it's the consumption of a pathogenic strain of *Escherichia coli*, from either contaminated food or water, that sends the gastrointestinal tract into turmoil.

Those who have experienced traveller's diarrhea will tell you that, unlike a typical stomach ache, this type of infection can keep you glued to the toilet (figuratively speaking) with several watery bowel movements per day, accompanied by nausea, vomiting, abdominal cramping, and sometimes even fever. Travellers seem to take a higher risk when consuming street-vendor food, unrefrigerated foods and salads, and undercooked foods. Nonbottled and tap water are also sources of concern for those who are new to certain geographical areas.

Of greater concern is the increasing prevalence of antimicrobial resistance. This means that certain bacterial species are becoming resistant to the antibiotic treatments we have available. This is the reason why more often we discourage prophylactic antibiotic use for traveller's diarrhea: The risk of becoming resistant to future treatment is just too high. One study of Dutch travellers to Africa, Asia, and Latin America (including the Caribbean) revealed that 32% of participants acquired a ciprofloxacin-resistant strain. Ciprofloxacin is an antibiotic commonly prescribed to travellers in the case that they become sick while on vacation.

We have also seen widespread resistance against another antibiotic, trimethoprim/sulfamethoxazole, and resistance rates seem to be increasing among many regions around the world.

Researchers are suggesting that antibiotic use during travel may contribute to this resistance, and therefore treatment guidelines recommend that doctors refrain from routinely prescribing antibiotics to those who are travelling to the regions listed above. However, probiotics, taken before and during travel, may be recommended: One meta-analysis of randomized controlled trials suggested that certain probiotic strains have an 85% efficacy in preventing traveller's diarrhea.



Pathogenic Bacteria and Causes of Traveller's Diarrhea

When we discuss *E. coli*, it's important to remember that there are dozens of strains of the species *E. coli*, each that affect the host body in different ways. A healthy gastrointestinal tract contains a vast amount of commensal *E. coli*, but there are several strains that can be problematic for our health. These include:

- **Enteropathogenic *E. coli* (EPEC):** Can cause serious and prolonged diarrhea, especially in children.
- **Enterohemorrhagic *E. coli* (EHEC):** Can cause diarrhea and colitis. This type of infection can lead to many other complications.
- **Enterotoxigenic *E. coli* (ETEC):** Responsible for hundreds of millions of gastrointestinal infections each year, it is globally the most common bacterial infection causing traveller's diarrhea.
- **Enteroaggregative *E. coli* (EAEC):** A common cause of acute diarrhea, especially in children in developing countries and for travellers visiting tropical and subtropical areas.

Traveller's diarrhea can also be caused by viruses, such as norovirus and rotavirus, as well as protozoan infections like *Giardia* and *Cryptosporidium*. Each different type of infection may present differently. For example, in cases of viral infections, vomiting tends to be a prominent symptom. Protozoan infections differ from typical traveller's diarrhea in that they can last for weeks.

Prophylaxis and Treatment with Probiotics

Saccharomyces boulardii is a strain of probiotic yeast of the species *Saccharomyces cerevisiae* that has been used historically for infectious and inflammatory gastrointestinal disorders. Researchers have found that *S. boulardii* reduces bacterial virulence by binding to toxins and pathogens, and interfering in their ability to move and translocate.

In the case of EPEC infections, *S. boulardii* has been shown to effectively clear the bacteria from the bloodstream, leading to an increased resistance to these bacterial infections. But this superyeast does even more than that! *S. boulardii* can stop human colon cells from being destroyed by EHEC by interfering in enzymatic processes, and other studies are showing that pre-exposing the gut to *S. boulardii* can help in fighting subsequent infections. The yeast essentially promotes the release of anti-inflammatory cytokines at earlier stages of infection, controlling and supporting anti-inflammatory processes.

The strain *Lactobacillus rhamnosus* GG is also showing promising results for the treatment of diarrhea, for the treatment of viral and protozoan gastrointestinal infections, as well as for the treatment of acute diarrhea. One study that followed travellers to North Africa showed a 12–45% protection against traveller's diarrhea.

Other studies have looked at the effects of *Lactobacillus acidophilus* strains, and although *acidophilus* can be beneficial for digestive health, it appears that this particular species doesn't offer any protection from traveller's diarrhea. Another study looked at *L. acidophilus* treatment when challenged with ingestion of ETEC, and found no better outcome than those who took placebo.

So, how much is enough? When we package probiotics into capsules containing millions and billions of colony-forming units (CFU), it can be difficult to understand which dose will be effective. Most studies of *S. boulardii* have used doses between 40 and 200 billion CFUs, and treatment started days or even a week before travel, continuing throughout the span of the travelling.



To be able to maintain these doses, it's important to use products that contain lyophilized preparations of *S. boulardii*, versus heat-dried preparations. The lyophilized version of *S. boulardii* is shelf-stable, meaning that the product maintains its potency when kept at room temperature, and do not require refrigeration to remain viable.

Other Treatments

Dukoral is a pharmaceutical preparation available behind the pharmacy counter (without a prescription) in Canada. It's a killed, whole-cell vaccine that protects against cholera and, to a smaller extent, ETEC infections. One report showed that Dukoral provided 28% protection against traveller's diarrhea.

Bismuth, known to most as the "pink liquid," has been shown to positively affect those with traveller's diarrhea; however, it is much less effective than other treatments, with a 16–18% reduction in symptoms. As well, it can take much longer for diarrhea sufferers to feel the relief from bismuth.

Loperamide (brand name Imodium) is a popular over-the-counter drug used for diarrhea, and it may provide relief in mild cases of diarrhea. However, in cases of bloody diarrhea or fever, both loperamide and bismuth should be avoided.

Ginger has been shown to help reduce symptoms associated with motion sickness, but it also contains anti-inflammatory components in addition to antiulcer, analgesic, and antimicrobial effects.

Antibiotics most definitely have their place, and many have been effective for shortening the duration of traveller's diarrhea, but determining their use requires proper assessment by a licensed health-care practitioner. Not all antibiotics are equal, and therefore multiple factors will drive the decision on which is best for an individual.



Most important is to maintain adequate hydration: Traveller's diarrhea can lead to severe dehydration, especially if water oral intake is impossible. In cases of children and the elderly, rehydrating with fluids via an IV may be necessary.

Contrary to popular belief, beverages such as Gatorade and juices are not adequate solutions for hydration and electrolyte replacement. The high sugar content and insufficient salt content of these beverages serve as a poor option for diarrhea-caused dehydration.

Another recommendation is the avoidance of dairy after the start of symptoms, as the infection itself can prompt a transient deficiency in the enzyme lactase, thus causing temporary or permanent lactose intolerance.

Although most cases are self-limiting, there are certain situations in which medical care should be obtained. Warning signs for more serious infections include persistent fever, chills, and bloody diarrhea if oral fluid intake isn't able to be maintained.

With the combination of stress, jet lag, and ingesting unfamiliar food and water, there's a relatively high likelihood of contracting a pathogenic microbial strain while travelling. This is especially true if starting with an already unbalanced or unhealthy gut microbiota. Taking probiotic strains such as *S. boulardii* before and during travel can help to increase host resistance to pathogenic *E. coli* infections, and seems an appropriate and safe prophylactic treatment for traveller's diarrhea.

Maintaining adequate hydration is crucial during illness, as these infections cause a relatively large amount of water loss over a very short amount of time. Although most cases will resolve on their own within two to seven days, it's important to keep an eye out for more concerning symptoms that would prompt a visit to a doctor or emergency room.

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Dr. Sarah King, ND

Dr. King believes in a holistic health approach; looking at both physical and mental causes of imbalance.

upperbeachhealth.com

ND's Critic

This article provides actionable advice for anyone planning to travel. My patients often ask me what they should do before travelling. Now, I'm going to make sure they read this first!

Dr. Michelle Lo, ND
drmichellend.com
139 Main Street Unionville,
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Human Probiotics: Sowing the Seeds of Health



by Gordon Raza, BSc

Have you ever tried introducing a nonnative grass seed or an exotic variety of flower to your lawn or garden, only to have the same old vegetation naturally rejuvenate itself year after year? The reason is these species are deep-rooted and suited to thrive in their environment.

When it comes to your intestinal microbiota, supplementation with probiotic strains of dairy, plant, and human origin all deliver their own unique health benefits. The trait that differentiates human-sourced strains is they are validated as resident probiotics isolated from healthy individuals. This means they populate the mucosal lining of the intestines, where they multiply in numbers; this process is referred to as “colony-forming.” Probiotics are consequently expressed as CFUs (colony-forming units) on product labels and literature.

A healthy balance of human-origin *Lactobacillus* strains to primarily populate the small intestine and *Bifidobacterium* species within the large intestine (colon) can support a strong foundation for digestive and immune-system health. Among the *Lactobacillus* species to look for are *L. casei*, *L. paracasei*, *L. rhamnosus*, *L. reuteri*, *L. salivarius*, and *L. acidophilus*. For the *Bifidobacterium* genus, *B. infantis*, *B. bifidum*, *B. breve*, and *B. longum* are among the pioneer probiotics essential for good health.

We’re still exploring the vast therapeutic potential for probiotics; when it comes to strain selection, a little human touch delivers.

Do Probiotic Potency Claims Need a Gut Check?

The science of probiotics owes a great debt to a long list of ancient functional foods, which include kimchi, kombucha, sauerkraut, yoghurt, miso, and more. It seems like every culture has their own go-to “gut-friendly” functional food associated with great health and longevity.

The multibillion dollar global probiotic industry markets’ multistrain formulas feature many of these time-honoured species, numbering in the billions. The problem with these label claims is that, unless an enteric coating is employed to protect probiotics capsules from exposure to harsh stomach acids, the actual amount that survive and thrive within the intestines is as little as 10% or even less. Imagine paying \$50 for non-enteric-coated capsules and getting less than \$5 worth of probiotics.

This leaves the consumer on the short end of an unfilled promise.

Delayed-release capsules only protect from 15 to 30 minutes, regular capsules from 5 to 10 minutes, and any claims you read of extra-strong strains surviving the stomach acids and arriving alive to the small intestine is not true.

Label claims for probiotics’ potency should be the amount that survive stomach acids and deliver that label claim of probiotics safely to the intestines.

Enteric coating costs a lot of money, and very few companies are willing to invest in it; which is why marketers are trying to market their way around the truth. They invest in marketing, not your health.

Travelling Safely With Food Allergies and Sensitivities

by Theresa Nicassio, PhD, Psychologist



School is out and summer is in! This is the time of lazy days, family fun, and—of course—travel.

Whether you love to camp, visit family, go on road trips, or perhaps even fly or cruise to new lands around the world, if you are like me or have any loved ones who live with food allergies, celiac disease, or any other food sensitivity, you know that these simple pleasures are anything but simple.

Sadly, many who live with dietary restrictions feel tremendous loss of the freedom to travel “like a normal person,” and often feel their days of adventure are over because of the lack of safe food options available for them, that they can feel confident do not contain ingredients that would put their health at serious risk.

I know first-hand this limiting fear, but I have been able to find how it can be surmountable with proper preparation and information.

Sharing What I’ve Learned

Between the tips and tricks that I have personally learned and have heard from others whose lives have also been touched by food sensitivities, I’d like to give you some useful information and resources that will make it safer and easier for you to enjoy galivanting around the world, even if you live with food allergies, celiac disease, or other dietary restrictions.

Don’t Be Shy! Communication Is Crucial

Let People Know What You Need: No one can or will accommodate you if they don’t know that you have special dietary needs. Most people want to help you and don’t want you to be sick, though they will need to fully understand what to do to ensure your safety.

Be Patient and Clear: Be patient with those you seek help from. While more people are becoming aware of food allergies and other dietary challenges, most don’t understand the critical nuances and degree of risks associated with cross-contamination. They also often are not aware of the hidden sources of triggering foods, especially those found in many condiments, teas, and as additives.

“The life you have led doesn’t need to be the only life you have.”

—Anna Quindlen

Give Lots of Lead Time: When you request accommodations—whether from restaurants, the airline, hotels, friend, or family who are hosting you—be sure to give them ample time to prepare for your use of their services.

Print Out Chef Cards: FARE’s Chef Cards (<https://www.foodallergy.org/life-food-allergies/managing-lifes-milestones/dining-out/food-allergy-chef-cards>) are now available in over 10 languages, making it easier to communicate with your hosts, at restaurants, with the airlines, etc. about your dietary restrictions. Print out extra copies, so that you can give them freely to those who serve you.

Air Travel

Before heading to the airport, eat a satisfying meal and bring food to eat in the airport, and bringing food that will be allowed on the plane.

Bring your own food to eat while on the plane, ensuring you bring extra in case of any long delays, layovers, or accident. Nonperishable travel snacks and meals can be easy food options. I didn’t realize until after my trip to China that you are allowed to bring with you on the flight most prepared food items (even homemade foods) through security that you might like to enjoy on the flight, as long as they don’t contain more than 100 ml (3.4 oz.) of liquids. Some examples would be hummus, sandwiches, salad, nuts, cut-up fruits and vegetables, pizza, etc., even though you still need to claim them and may be required to go through more screening.



Be courteous with the crew, and help them understand the nature of your special travel needs, expressing appreciation for their efforts to accommodate.

Food Tips and Considerations—Wherever You Travel

Make Your Own Food

Plan and pack safe snacks and meals for your trip, so that you can have quick and easy meals wherever you are.

Collapsible bowls, utensils, and other kitchen supplies can be wonderful space-saving and easy-to-pack options to travel with.

Plan to pack at least one extra checked bag of food for your trip—at least enough to get you through the first bit of your trip, until you have an opportunity to go to the local produce stands and grocery stores in the area where you will be travelling.

Plan a trip to the grocery store right after arriving at your destination, where you can pick up fresh fruits and veggies to enjoy while travelling.

Know that, wherever you travel, it’s unlikely to find the same nonperishable food options as you are accustomed to having where you live. It may be harder for you to find safe food for you and your family to eat. Even the same manufacturers often use different ingredients when they produce food in different countries. **Be sure to read the labels**, even if you think they are the same as those of food items you buy back home. Typically, fresh produce is readily accessible.

Even when you read the food labels, know that food-labelling laws vary from country to country. When travelling, it becomes even more important to buy as much local, whole organic food as possible.

Dining Out

When living with food allergies and sensitivities, finding places to dine out is challenging, even in the best of times. When travelling, especially in places where you don’t speak the language, it is especially risky. However, if you do your research and take appropriate precautions, you may be able to find safe dining alternatives.

Research online about known allergy-friendly establishments and chain restaurants that have menus and policies for creating allergy-friendly menu items that are free from cross-contamination.



DOES MY ALL-INCLUSIVE HAVE TO INCLUDE DIARRHEA?



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Contact potential restaurants and inquire about their food-handling practices around special dietary requests, including the use of special utensils, prep boards, cleaning methods, etc., letting them know the nature of your food sensitivities.

Upon arrival, ask that they give your Chef Card to the Chef. In my experience, chefs actually enjoy the opportunity to talk about the dietary restrictions with patrons, and they can get excited about the opportunity and the challenge of creating something special for you.

Avoid buffets, salad bars, desserts, and fryer-fried foods, because the risk of exposure to common allergens and cross-contamination is so high.

If you get an uneasy feeling and don't feel confident that proper precautions will be taken, or if you sense that the establishment doesn't fully understand the seriousness of your dietary restriction, you are wise to listen to the wisdom of your intuition and find somewhere else to eat or get ingredients to make food yourself. **Trust your gut!**

Always have backup "safe" food with you in case there is no food that is available for you to eat with confidence.

Be sure to express gratitude for thoughtful accommodation to those establishments that demonstrate care and concern for your dietary needs.

It's All Worth It

No one ever said that travelling with food sensitivities is convenient or offers a light way to travel: It does require a mental shift and an increased sense of diligence. However, if you can mentally prepare yourself for the trip so that you can enjoy the freedom of being able to travel, even with food restrictions, it will all be worth it. Once you can move beyond the overwhelming feelings about the safety considerations, I hope you can feel confident about travelling again, especially if you had previously given up hope.



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*.

A Grapefruit League of its *Own*

by Gordon Raza, BSc

The sunshine state of Florida is famous for many things, being the birthplace of the Apollo space program, Disneyworld, Grapefruit-League baseball, and, last but not least, grapefruit seed extract (GSE) ranks among them in the realm of natural health products.

The journey of discovery prompting the development of GSE began for the Yugoslavian-born Dr. Jacob Harish when he bit into his first grapefruit seed some seventy years ago. The intense, bitter flavour fascinated him, which led to decades of research exploring the bactericidal, antifungal, and antiparasitic potential of grapefruit seed and pulp. His research eventually led him deep in the heart of grapefruit country in Florida. There, he collaborated with scientists at the University of Florida Institute of Food and Agricultural Sciences, which culminated in the development of GSE.

This plant-based germicidal has broad-spectrum effectiveness for bacteria, fungi, parasites, and viruses. Clinical research has proven GSE to exert bactericidal activity at concentrations as low as 1:152. Its extended disinfectant action is due to the synergy between naturally occurring ascorbic acid, citrus bioflavonoids, and a mosaic of organic acids. The combination of safety for humans, plants, and animals and its broad-spectrum, side effect-free disinfectant properties make GSE a must for every household medicine chest and travel kit.

Its therapeutic applications include treating dysbiosis (e.g. intestinal disturbances), use as a disinfectant for cuts and abrasions, relief from fungal-related infection such as athlete's foot and ringworm, and for drinking-water safety. A minimum of five drops of GSE per litre is recommended for safe water quality; the same amount in a sink of water also makes an excellent rinse for fruits and vegetables.

In fact, a GSE solution in a spray bottle, kept below the kitchen sink, may quickly eclipse many of your potentially toxic household sprays for popularity and effectiveness. This in turn leaves it truly in a league of its own as an all-natural disinfectant.



Marathons and *Green Thumbs?*

Next time you drive by a community garden and witness the quaint scene of people in broad brimmed straw hats and floral-designed billy boots socializing, picture a pack of fierce marathoners sprinting to the finish line. According to a study published in *The Daily Mail*, a newspaper in London, England, common gardening tasks of 100 gardeners monitored for four weeks revealed some amazing results. Over a six-month period, they burned the calories equivalent to running almost seven marathons.

Pass the pitchfork!



What Is in Your Cosmetics?

The Hidden Cost of Beauty

by Dr. Angeli Chitale, BSc, ND

Your skin, aside from being one of your main organs of detoxification, is also the largest organ in your body. The skin has millions of pores which release oil, water, and gases. However, pores also absorb what is on top of the skin, which means that what you wear on your skin becomes part of your body. Once absorbed, chemicals enter the blood and lymph, and they have to be processed by the kidneys and liver, so take extra care this summer when choosing sunscreens, moisturizers, after-sun care, and cosmetics.

We All Want to Look Beautiful... *But at What Price?*

Scientifically proven to be cancer-causing and hormone-disrupting, many commercial cosmetic ingredients pose a real threat to human health. Known to have hormone-disrupting effects, which have been documented since the 1960s, these chemicals pose an increased risk to reproductive health as they can impact fertility, ageing, thyroid, and hormone health.

Worse yet, most of the ingredients are permitted for use by Health Canada. The following list of ingredients merely covers a few of the main culprits permitted in body care and beauty products today.

Coal-Tar Dyes

Coal-tar dyes are used as colours for eye cosmetics. Some colours are not approved as food additives, yet they are used in cosmetics that may be ingested, like lipstick.

Health and Environmental Hazards

Coal tar is a mixture of many chemicals, derived from petroleum. Coal tar is recognized as a human carcinogen, and the main concern with individual coal tar colours is their potential to cause cancer. As well, these colours may be contaminated with low levels of heavy metals, and some are combined with an aluminum substrate. Aluminum compounds and many heavy metals are toxic to the brain.

Several coal-tar dyes are prohibited on Health Canada's Cosmetic Ingredient Hotlist and Canada's Cosmetic Regulations prohibit all but seven of these colours in eye makeup and other products used in the area of the eye. However, dozens of coal-tar-derived colours are still widely used in other cosmetics.



DEA-Related Ingredients in Cosmetics as Foaming Agents

Diethanolamine (DEA) and its compounds are used to make cosmetics creamy or sudsy. DEA is mainly found in moisturizers and sunscreens, while cocamide and lauramide DEA are found in soaps, cleansers, and shampoos. DEA also acts as a pH adjuster, counteracting the acidity of other ingredients.

Health and Environmental Hazards

DEA can react to form nitrosamines, which may cause cancer and are harmful to fish and other wildlife. In laboratory experiments, exposure to high doses of these chemicals has been shown to cause liver cancers and precancerous changes in skin as well as thyroid hormone disruption.

BHA and BHT in Cosmetics as Preservatives

Butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) are synthetic antioxidants used in lipsticks, moisturizers, and makeup as preservatives.

Health and Environmental Hazards

BHA and BHT interfere with hormone function and may cause cancer. Long-term exposure to high doses of BHT is toxic in mice and rats, causing liver, thyroid, and kidney problems, and affecting lung function and blood-clotting time. BHT can encourage tumour growth in certain situations as well.

Regulatory Status in Canada

While banned in Europe, in Canada, both chemicals continue to be used in cosmetics and foods.

DBP in Cosmetics as Solvents and Plasticizers

Dibutyl phthalate (pronounced thal ate), or DBP, is used mainly in nail products as a solvent for dyes and as a plasticizer that prevents nail polishes from becoming brittle. DBP is also commonly used in polyvinyl chloride plastic (PVC) to render it flexible.

Health and Environmental Hazards

DBP is a suspected endocrine disruptor and reproductive toxicant. It is harmful to fish and other wildlife. DBP is absorbed through the skin. It can enhance the capacity of other chemicals to cause genetic mutations, although it has not been shown to be a mutagen itself.

In laboratory experiments, it has been shown to cause developmental defects, changes in the testes and prostate, and reduced sperm counts.

Health Canada Regulatory Status

Use in cosmetics is not restricted.

Health Canada recently announced regulations banning six phthalates (including DBP) in soft-vinyl children's toys and child-care articles. The European Union classifies DBP as a suspected endocrine disruptor, based on evidence that it interferes with hormone function, and as toxic to reproduction, on the basis that it may cause harm to the unborn child and impair fertility. The European Union bans DBP in cosmetics, as well as in child-care articles and toys.

What You Can Do

1. Get familiar with the list of chemicals to look out for while purchasing cosmetics.
2. Stop using commercial cosmetics and switch to natural.
3. Remove the chemicals from your body through a detox.
4. Write to Health Canada to urge the removal of harmful chemicals from health and beauty products.
5. Tell a friend, coworker, or relative—help others become informed and proactive!

For a more comprehensive list of commercial cosmetics and evidence-based information on their hormone-disrupting effects, refer to the chart on the next page.



Chemical Agent	Use in Cosmetics	Health and Environmental Hazards	Regulatory Status
Parabens Methylparaben, butylparaben, and propylparaben are some of the most common parabens in cosmetics.	Parabens easily penetrate the skin and are the most-widely used preservative in cosmetics (75 to 90 percent of cosmetics contain parabens).	The European Commission on Endocrine Disruption has listed parabens as a hormone disruptor. Parabens can mimic estrogen, the primary female sex hormone. They have been detected in human breast-cancer tissues, suggesting a possible association between parabens in cosmetics and cancer.	There are no restrictions on the use of parabens in cosmetics in Canada. International regulations are stronger. The European Union restricts the concentration of parabens in cosmetics.
Parfum (a.k.a. fragrance)	3,000 chemicals are used as fragrances in almost all personal-care products.	Trigger allergies and asthma, rhinitis. Some fragrances are linked to cancer and neurotoxicity. Some are harmful to fish and other wildlife.	There are no restrictions on the use of fragrance in cosmetics in Canada. Fragrance recipes are considered trade secrets, so manufacturers are not required to disclose fragrance chemicals in the list of ingredients.
Diethyl phthalate (DEP; pronounced thal ate)	DEP is phthalate—a fragrance enhancer to make the scent linger.	DEP is a known endocrine (hormone disruptor). Phthalate metabolites are also associated with obesity and insulin resistance in men.	Health Canada recently announced regulations banning six phthalates (including DEP) in children’s toys, but the use of DEP in cosmetics is unrestricted.
Polyethylene glycols (PEGs) and their contaminant ethylene oxide and 1,4 dioxane.	PEGs are petroleum-based compounds that are widely used in cosmetics as thickeners, solvents, softeners, and moisture carriers. PEGs are commonly used as cosmetic cream bases to enhance penetration of the product in the skin. They are also used as laxatives.	PEG compounds themselves show some evidence of genotoxicity (damaging to DNA within a cell, causing mutations which may lead to cancer). The International Agency for Research on Cancer classifies ethylene oxide as a known human carcinogen, and 1,4 dioxane as a possible human carcinogen.	There are no restrictions on the use of parabens in cosmetics in Canada. Ethylene oxide and 1,4 dioxane are prohibited on Health Canada’s Cosmetic Ingredient Hotlist.
Sodium laureth sulfate (sometimes referred to as SLES) and its contaminants ethylene oxide and 1,4 dioxane	SLS is used as a foaming agent in cosmetics as a detergent. It is common in shampoos, shower gels, and facial cleansers as well as household cleaning products, like dish soap. Siloxanes can also be found in medical implants, water-repelling windshield coatings, building sealants, and lubricants.	Ethylene oxide is a known human carcinogen, and 1,4 dioxane is a possible human carcinogen. Ethylene oxide can also harm the nervous system.	Health Canada has categorized sodium laureth sulfate as a “moderate human health priority” and flagged it for future assessment under the government’s Chemicals Management Plan. Ethylene oxide and 1,4 dioxane are prohibited on Health Canada’s Cosmetic Ingredient Hotlist.



Angeli Chitale, BSc, ND

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

ND’s Critic

Wow! Who knew there was so much more to cosmetics than meets the eye? Clearly, there is a lot to watch out for, and this article does a great job providing key summaries of the important items.

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How to Protect Your Skin This Summer From the Inside Out

by Dr. Elli Reilander, ND



Summer has arrived and with it, the big topic of sun protection! For most people, that means slathering on the sunscreen (and let's face it, forgetting to reapply). What you might not realize is that our summer skin-care protection should start before you begin working on your tan. Let's talk about how to naturally (or close to it) protect your skin, from the inside out.

First, it's important to remember that sun exposure is important. We need it as a source of vitamin D, which is critical for healthy bones and immune function; it's also helpful for coping with many chronic conditions such as seasonal affective disorder (SAD), eczema, or autoimmune conditions; and digestive disorders like Crohn's disease and ulcerative colitis.

What's the problem, then? Getting too much sun can be destructive to skin cells, especially for people with fair skin, advanced age, or those

taking medications which leave them more susceptible to burns and skin damage. The issue is that the ultraviolet (UV) radiation from the sun can damage skin-cell DNA, which can result in skin cancer. This leads to a delicate balance of allowing yourself some exposure, but preventing overexposure and burning. So, when you are exposed to the sun, make sure you are prepared (inside and out) to protect your skin and heal your skin cells!

Natural Ways to Protect and Heal Your Skin from the Inside

Antioxidants are a great way to protect your body from the negative and inflammatory effects of sun damage. They work by scavenging oxidative radical species to neutralize their damaging cellular impacts. Examples of antioxidants are vitamin A, C, and E; selenium; zinc; flavonoids; and polyphenols (we talk more about green tea as a powerful polyphenol in the next paragraph). Making sure your diet is rich in colourful fruits and vegetables is a great way to optimize your antioxidant intake, but you can also assimilate these nutrients with oral supplementation, injection, and intravenous therapies. To give your body a helping hand, you can also reduce your intake of highly oxidative and proinflammatory foods (such as sugar, alcohol, and processed foods).



Green tea contains a powerful polyphenol, epigallocatechin-3 gallate (EGCG), that is anti-inflammatory, immunomodulating, and a potent antioxidant. It can prevent and repair damage to your DNA inflicted by the sun to help heal the cells, and it may help prevent skin cancer. Other sources of polyphenols are red wine and milk thistle.

Healthy fats are another powerful way of controlling inflammation and reducing oxidative damage in the body. Research shows that diets rich in olive oil (containing oleic acid, a monounsaturated fatty acid), such as the Mediterranean diet may protect against skin cancer and aging. Another tactic is restoring balance to the omega-3 / omega-6 ratio. Modern diets in North America tend to be high in omega-6 polyunsaturated fatty acids since we eat a significant amount of meat, eggs, nuts, seeds, and plant-based oils. What we tend to be deficient in is omega-3 polyunsaturated fatty acids. These omega-3s are more anti-inflammatory and often need to be increased to balance their counterpart, omega-6. You can also improve your omega-3 intake by including grass-fed, grass-finished beef, as well as fish and seafood. If you are having difficulties increasing your omega-3 fatty acid intake, supplementing is an option.



Natural Ways to Protect and Heal Your Skin from the Outside

Clothing is a frequently overlooked consideration when it comes to sun protection. Did you know that a regular T-shirt has a relative SPF of 15? That's the same as many commercial sunscreens. Keep in mind it doesn't count if you get wet, so you need a backup if you're in pool. So, if you're looking to skip the chemicals and stay protected, think about covering up!

Shade is a no-brainer. If you can avoid being out in the sun between 11 a.m. and 3 p.m., then you can reduce your risk of being exposed to the most potent UV rays. If you're going to get out and about, wear a hat and consider spending some time under a shady tree.



Aloe vera is usually the go-to after-sun skin-care routine, but it's also great for prevention. *Aloe vera* protects against both UVA and UVB rays, and it also keeps the moisture in the skin. Next time you're looking at your bottle of *Aloe vera*, consider applying some before the burn!

Shea butter is a luxurious product widely used in the cosmetic industry. It's rich in antioxidants such as vitamin A and E, which improves skin-cell regeneration. It also contains cinnamic acid, which is protective against UV rays.

Zinc oxide is the "not-completely-natural-but-pretty-darn-close" sun protectant. It's a naturally occurring mineral which has been bonded to an oxide molecule to create a key ingredient in many commercial sunscreens. To broaden UV protection, many of these sunscreens will be paired with titanium dioxide. So, when you're looking for a mineral-based (nonchemical) sunscreen, this is a main ingredient to look for.

In Conclusion

As you gear up this summer, remember that skin protection starts before you even step into the sun. It may mean revamping your seasonal supplement regime, but don't forget the importance of a healthy diet rich in antioxidants and omega-3 fatty acids. Then, when you're ready to hit the beach, aim for the early hours or later in the afternoon, hang out in the shade, and don't forget to cover up. Take care of your skin so that it can take care of you!

[Article including references on newrootsherbal.com/blog](https://newrootsherbal.com/blog)



Dr. Elli Reilander, ND

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ND's Critic

Skin is one of the most important areas of health that often gets overlooked. The amount of misinformation in the media is excessive, and this article sets the record straight. It's very helpful.

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Fresh Herbs Vegan Spread

Flourish Original Recipe

Ingredients:

- 1 cup raw cashews
- 1 clove garlic
- 2 tablespoons coconut oil
- 1 tablespoon lemon juice
- 1 tablespoon apple cider vinegar
- 1 tablespoon of nutritional yeast
- ½ teaspoon salt (or to taste)

Fresh Herb Mix:

- 1 teaspoon fresh oregano finely chopped
- 1 teaspoon fresh parsley
- 1 teaspoon fresh basil
- 1 teaspoon of chives

Instructions:

Soak cashews in water for 4 h or place, covered with water, in a small pot and boil for 10–15 min. Drain the cashews and add to a food processor with the other ingredients (except the fresh herb mix). Mix until completely smooth. Add fresh herb mix and pulse to incorporate. Pour into a glass container and refrigerate for 1 h or until ready to serve. Spread on gluten-free whole-grain bread or your favourite crackers. Enjoy!

Raspberry Beet Ice Cream

Ingredients:

- 1 cup full-fat coconut milk
- 1 cup raspberries
- 2 small beets, boiled and peeled (about 1 cup)
- ¼ cup beet cook water
- 4 tablespoons coconut nectar
- 1 teaspoon vanilla
- ¼ teaspoon salt

Instructions:

Blend all ingredients together until smooth in a blender. Chill in the fridge for at least 6 hours, then churn in an ice-cream maker and transfer to the freezer for a few hours before serving, or just freeze the whole mixture in a pan. Enjoy with toppings of your choice!



Heather Pace

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

sweetlyraw.com



Spring Rolls

Flourish Original Recipe

Here is a versatile and delicious recipe idea! What's great about spring rolls is that you can use the vegetables you have in your fridge and make different versions depending on personal taste. Above all, you can take them for a picnic, eat them on the go, or make a refreshing summer appetizer.

You'll need rice sheets, fresh vegetables, one creamy sauce, and a dipping sauce.

Fresh Vegetables and Herbs to Choose From:

- Lettuce sheets
- Red, orange, or yellow bell pepper, sliced lengthwise
- Red cabbage, shredded
- Cucumbers, sliced lengthwise
- Carrots, grated
- Avocado, sliced
- Sprouted beans
- Green onions or chives
- Cilantro
- Basil
- Mint
- Optional protein: tofu, tempeh, or shrimp

Creamy Sauce:

- $\frac{1}{3}$ cup tahini
- 3 tablespoons lemon juice
- $\frac{1}{4}$ cup water
- $\frac{1}{4}$ teaspoon onion powder
- $\frac{1}{4}$ teaspoon Himalaya salt
- 1–2 teaspoons sriracha sauce (depending on how hot you want it)
- 1–2 cloves garlic, finely chopped (add 2 cloves if you love garlic)

Dipping Sauce:

- 2 tablespoons of soy sauce
- 1 tablespoon of water
- $\frac{1}{2}$ teaspoon of maple syrup
- $\frac{1}{2}$ teaspoon rice vinegar
- $\frac{1}{4}$ teaspoon of pepper flakes
- Cilantro, chopped (optional)
- Peanuts (optional)

Instructions:

Mix all the ingredients for the creamy sauce until it forms a smooth texture. Add water if too thick. Set aside. Mix all the ingredients for the dipping sauce. Set aside. You are now ready to assemble your rolls.

Soak your rice paper in lukewarm water according to package instructions. Add a lettuce sheet (it helps to hold everything in). Add 1 tablespoon of creamy sauce, and stack veggies of your choice on top. Roll and set aside. Try not to place them too close to each other so they don't stick together. Continue until you have no veggies left. Enjoy!

Flourish

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Tamanu and Argan Oils for a Sizzling Summer

Cuts, scrapes, burns, and abrasions seem to happen more often when the heat is on. We'll explore the benefits of tamanu oil for accelerating skin healing and argan oil for radiant hair and split-end repair.



Vegetarian Diets - Thoughts from an American Blue Zone

Explorer and National Geographic Fellow Dan Buettner met Dr. Ellsworth Wareham to study the man's lifestyle habits. In his book, *The Blue Zones Solution*, Dan Buettner described the man's diet in the following words: "Spread out on the kitchen table [...]"



Watermelon Mint Salad

Summer food is all about freshness. This simple salad is as satisfying as it is fresh; give it a try!

Dear Readers

In 2004, we created a simple newsletter to keep our health-food-store partners up to date on emerging science, and introducing exciting new ingredients and formulas. It quickly grew to become a high-quality natural medicine and science-based content magazine on preventing, treating, and curing disease in the world.

Flourish has 6–8 highly researched, quality articles written by naturopathic physicians with many years of clinical experience, and all with BScs, MScs, or PhDs from major universities in Canada or the United States. In addition to those written by naturopathic physicians, we also provide our readers with several other articles written by professionals, such as a PhD psychologist, a pharmacist, a nutritional counselor, fitness and yoga instructors, and more.

Our delicious recipes are either contributed by leading trained chefs, dietitians, or nutritional counselors, or by our passionate staff which has home-tested and family-approved them!

Thank you for your support, and rest assured that we will continue to share our knowledge of the natural medicine world for prevention, treatment, and cure.

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