Boosting Immunity Through Nutrition

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The idea of boosting your immunity is enticing, but the ability to do so has proved elusive for several reasons. The immune system is precisely that — a system, not a single entity. To function well, it requires balance and harmony. There is still much that researchers don't know about the intricacies and interconnectedness of the immune response.

Quite a number of researchers are exploring the effects of diet, exercise, age, psychological stress, herbal supplements, and other factors on the immune response, both in animals and in humans. Although interesting results are emerging, thus far they can only be considered preliminary. That's because researchers are still trying to understand how the immune system works and how to interpret measurements of immune function. In the meantime, general healthy-living strategies are a good way to start giving your immune system the upper hand. A good start:

Don't smoke.

Eat a diet high in fruits, vegetables, and whole grains, and low in saturated fat. (The Rainbow Diet)

Exercise regularly.

Maintain a healthy weight.

Control your blood pressure.

If you drink alcohol, drink only in moderation.

Get adequate sleep. Get your nightly eight hours and you'll be boosting your health while you sleep. Not only important for repairing muscles and aiding growth hormone it can also improve the efficiency of your immune system. So dream on...

Immune System

The immune system consists of many different components, including many types of specialized cells. Phagocytes engulf and break apart invading bacteria. B-cells produce antibodies that recognize and tag invading organisms and infected cells. T-cells destroy cells that have been tagged by antibodies. Special proteins called complement, which help destroy viruses, bacteria and infected cells, are another immune system component.

T-Cell Activation

A study by University of Copenhagen researchers in March 2010 identified vitamin D as a crucial component to T-cell activation. The researchers found that these cells need vitamin D

in order to convert from an inactive form travelling through the bloodstream into an active form that could react to cell fragments of invaders, which are presented to T cells by other immune cells called dendritic cells and macrophages, so that the T cells can identify and attack them. If there is not enough vitamin D in the bloodstream, the T cells do not mobilize to produce more T cells and to transform into pathogen-killing cells.

The Leading medical expert in the UK on vitamin D deficiency stated last year on Radio 4 that EVERYONE in Scotland should be supplementing with Vitamin D as Scotland has the highest level of cloud cover IN THE WORLD. It isn't the hours of daylight that matter – it's the amount of clear blue skies!!!

Vitamin D

The skin creates vitamin D when exposed to UV rays from the sun. Individuals who don't get enough sunlight, due to either limited time spent outdoors or living at northern latitudes where sun exposure is minimal in the winter months, can obtain vitamin D through food sources, including oily fish and fortified dairy, juices or cereals. Supplements containing vitamin D are also available to make up any lack in the diet. Vitamin D has many functions in the body, including bone growth and remodelling, cell growth and differentiation, neuromuscular activity and immune function.

Other Immune Effects

The role of vitamin D in immune system health is not relegated only to T cell activity. Other aspects of immunity might also be affected by vitamin D status. According to the Linus Pauling Institute, most cells of the immune system, including macrophages and dendritic cells, have a vitamin D receptor on their surface, indicating that these cells also respond to vitamin D. Under some conditions, macrophages produce their own vitamin D. In addition, a study published in the June 2011 issue of "Infection and Immunity" found that treating gum cells from the human mouth with vitamin D caused them to produce an antibacterial protein that kills the bacteria that causes tooth decay.

I recommend to my patients a maintenance dose of 2000 iu per day but higher than this if suffering from a chronic degenerative illness. Multivitamins contain a minimal amount of Vitamin D, usually about 400 iu which really is not adequate.

Vitamin C. Vitamin C tops the list of immune boosters for many reasons. There has been more research about the immune-boosting effects of Vitamin C than perhaps any other nutrient. Vitamin C supplements are inexpensive to produce, and it's available naturally in many fruits and vegetables. Also, you can buy a vitamin-C-fortified version of just about anything. Here's what the research shows about how this mighty vitamin protects your body.

Vitamin C increases the production of infection-fighting white blood cells and antibodies and increases levels of interferon, the antibody that coats cell surfaces, preventing the entry of viruses. Vitamin C reduces the risk of cardiovascular disease by raising levels of HDL (good) cholesterol while lowering blood pressure and interfering with the process by which fat is converted to plaque in the arteries. As an added perk, persons whose diets are higher in vitamin C have lower rates of colon, prostate, and breast cancer.

I would recommend at least 1gm (1000mg) of vitamin C as a maintenance dose, however if fighting infection increase this to 2000 to 4000 mg a day. It is very difficult to overdose on vitamin C as it is water soluble therefore any excess is excreted in the urine. If you take vitamin C supplements, it's best to space them throughout the day rather than take one large dose. Be careful where you buy C as a lot of the cheap supermarket soluble versions contain high levels of aspartame (a neurotoxin).

Vitamin E. This important antioxidant and immune booster doesn't get as much press as vitamin C, yet it's important to a healthy immune system.

Vitamin E stimulates the production of natural killer cells, those that seek out and destroy germs and cancer cells. Vitamin E enhances the production of B-cells, the immune cells that produce antibodies that destroy bacteria. Vitamin E supplementation may also reverse some of the decline in immune response commonly seen in aging. Vitamin E has been implicated in lowering the risk of cardiovascular disease. In the Harvard School of Public Health study of 87,000 nurses, Vitamin E supplementation was shown to cut the risk of heart attacks by fifty percent.

It's not difficult to get 30 to 60 milligrams every day of Vitamin E from a diet rich in seeds, vegetable oils, and grains, but it's difficult for most people to consume more than 60 milligrams a day consistently through diet alone. Supplements may be necessary to get enough vitamin E to boost your immune system.

You need 100-400 milligrams per day, depending on your general lifestyle. People who don't exercise, who smoke, and who consume high amounts of alcoholic beverages will need the higher dosage. Those with a more moderate lifestyle can get by with lower levels of supplementation.

Carotenoids. Beta carotene increases the number of infection-fighting cells, natural killer cells, and helper T-cells, as well as being a powerful antioxidant that mops up excess free radicals that accelerate aging. Like the other "big three" antioxidants, vitamins C and E, it reduces the risk of cardiovascular disease by interfering with how the fats and cholesterol in the bloodstream oxidize to form arterial plaques. Studies have shown that beta carotene can lower the risk of cardiovascular disease, especially strokes and heart attacks, giving scientific credence to the belief that a carrot a day can keep the heart surgeon away. Beta carotene also protects against cancer by stimulating the immune cells called macrophages to produce *tumour necrosis factor*, which kills cancer cells. It has also been shown that beta carotene supplements can increase the production of T-cell lymphocytes and natural killer cells and can enhance the ability of the natural killer cells to attack cancer cells.

Beta carotene is the most familiar carotenoid, but it is only one member of a large family. Researchers believe that it is not just beta carotene that produces all these good effects, but all the carotenoids working together. This is why getting carotenoids in food may be more cancer-protective than taking beta carotene supplements.

The body converts beta carotene to vitamin A, which itself has anticancer properties and immune-boosting functions. But too much vitamin A can be toxic to the body, so it's better to get extra beta carotene from foods and let the body naturally regulate how much of this precursor is converted to the immune-fighting vitamin A. It's highly unlikely that a person

could take in enough beta carotene to produce a toxic amount of vitamin A, because when the body has enough vitamin A, it stops making it.

Food sources are carrots, tomatoes, sweet potato, pumpkin, broccoli, cantaloupe, apricots

Zinc. This valuable mineral increases the production of white blood cells that fight infection and helps them fight more aggressively. It also increases killer cells that fight against cancer and helps white cells release more antibodies. Zinc supplements have been shown to slow the growth of cancer.

Zinc increases the number of infection-fighting T-cells, especially in elderly people who are often deficient in zinc, and whose immune system often weakens with age. For infants and children, there is some evidence that dietary zinc supplements may reduce the incidence of acute respiratory infections, but this is controversial. The best source of zinc for infants and young children is zinc-fortified cereals. Top zinc-rich foods include whole grains, nuts, seeds, poultry, yogurt and shellfish.

RICH SOURCES OF ZINC		
Food Source of Zinc	Serving Size	Zinc (in milligrams)
Oysters	6 medium	76
Zinc-fortified cereals	1 ounce	0-15
Crab	3 ounces	7
Beef	3 ounces	6
Turkey, dark meat	3 ounces	3.8
Beans	1/2 cup	1.2-1.8

Garlic. This flavorful member of the onion family is a powerful immune booster that stimulates the multiplication of infection-fighting white cells, boosts natural killer cell activity, and increases the efficiency of antibody production. It has a higher anti-infectiveness than penicillin. The immune-boosting properties of garlic seem to be due to its sulfur-containing compounds, such as allicin and sulfides. Garlic can also act as an antioxidant that reduces the build-up of free radicals in the bloodstream. Garlic may protect against cancer, Cultures with a garlic-rich diet have a lower incidence of intestinal cancer. Garlic may also play a part in getting rid of potential carcinogens and other toxic substances. It is also a heart-friendly food since it keeps platelets from sticking together and clogging tiny blood vessels.

Selenium. A clue to selenium's crucial role in immune system support is the fact that serum levels of this mineral are the single most important nutrient factor accounting for survival in patients with AIDS. Selenium also has been shown to protect humans from the heart-damaging effects of cytomegalovirus (CMV). Researchers now suspect that selenium deficiency may allow viruses to mutate into more dangerous pathogens. Selenium's role as a partner for the key antioxidant glutathione also helps explain its protective effects.

This mineral increases natural killer cells and mobilizes cancer-fighting cells. Best food sources of selenium are tuna, red snapper, lobster, shrimp, whole grains, vegetables (depending on the selenium content of the soil they're grown in), brown rice, egg yolks, cottage cheese, chicken (white meat), sunflower seeds, garlic, Brazil nuts, and lamb chops.

Omega-3 fatty acids. A study found that children taking a half teaspoon of flax oil a day experienced fewer and less severe respiratory infections and fewer days of being absent from school. The omega 3 fatty acids in flax oil and fatty fish (such as salmon, tuna, and mackerel) act as immune boosters by increasing the activity of phagocytes, the white blood cells that eat up bacteria. (Perhaps this is why grandmothers used to insist on a daily dose of unpalatable cod liver oil.) Essential fatty acids also protect the body against damage from over-reactions to infection. When taking essential fatty acid supplements, such as flax or fish oils, take additional vitamin E, which acts together with essential fatty acids to boost the immune system. One way to get more omega-3 fatty acids in your diet is to add one to three teaspoons of flax oil to a fruit and yogurt smoothie.

Throw in some herbs when you cook and fight off colds as you eat. **Thyme and rosemary** both possess antimicrobial properties, so add to dishes (they add great extra flavour to roast meats and casseroles) or make teas by putting the fresh or dried herb in a cup of hot water and leave to infuse for around 10 minutes.

Add ginger to cooking or better still have some fresh ginger tea. Simply cut a slice of fresh ginger and add a teaspoon of sugar and pour hot water over to infuse. See over the health benefits of ginger

GINGER

- strong antioxidant
- Antimicrobial (kills bacteria - including salmonella) - internally and topically as an antiseptic
- two natural antibiotics are found in ginger
- contains anti-inflammatory agents
- helps eliminate congestion
- contains zingibain that dissolves parasites and their eggs
- ginger root tea eases some throat pain
- kills cold viruses
- inhibits production of cytokines which cause pain and swelling
- combats chills and fever
- ginger inhibits 5-LO enzymes, the only food for **prostate cancer cells** , prostate cancer cells die in one to two hours without this enzyme
- gingerol (an extract of ginger) inhibits **pancreatic cell growth**
- beneficial to prevent **constipation-related cancer**

- an effective ani-tumour agent in **leukaemia cells**
- an extract of ginger causes **lung cancer cell death**
- gingerols inhibited the growth of Helicobacter pylori associated with dyspepsia, peptic ulcer disease and the development of **gastric and colon cancer**
- ginger extract raises significantly the thymus index, spleen index, percentage of phagocytosis, and thus improves the immunologic function relating to **tumours**
- gingerol inhibits cell adhesion, invasion, motility and activities of **breast cancer cell lines**
- gingerol induces viability reduction (killed) **gastric cancer cells**
- a ginger extract causes apoptosis (cell death) of **breast carcinoma cells**
- ginger inhibits cell growth and modulates angiogenic factor in **ovarian cancer cells**
- 6-shogaol (component of ginger) induces cell death in **colorectal carcinoma cells**
- compounds of ginger inhibits proliferation (stops growth) of **ovarian cancer cells**
- a component of ginger suppresses **metastasis (stops the spread) in any type of cancer cell including leukemic, skin, kidney, lung, and pancreatic cancer cells** - one of the most exciting and powerful health benefits of ginger!

If you have any health questions or questions in general about chiropractic or herbal medicine, please feel free to contact me at the clinic to have a chat.

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Juicing Tips

Buy a juicer that has a separate waste compartment if possible.

Buy one that is easy to clean otherwise you will get fed up and not use it.

Buy one that has a large enough entrance that you only need to chop an apple in half – you don't want to be spending time chopping fruit and veg into small sections.

Place a small plastic bag in the waste compartment which is then easy to lift out and dispose of emptying into the compost.

Clean the juicer immediately after use as its a nightmare if you leave it for a few hours.

The only rule - Always 80% vegetables, 20% fruit. This keeps sugar intake at a moderate level.

Use organic where possible as you are taking in a larger than normal proportion of fruit/vegetables therefore potentially a larger amount of pesticides. In particular never juice non organic carrots. They have over 50 different pesticides used on them because they attract the most bugs.

Almost anything can be juiced – but with leaves such as spinach – itsimportant to place the leaves between two harder pieces of fruit/veg so that you get more juice out of the combined fruit/veg otherwise the spinach spins too quickly on its own.

To prevent oxidation – add a squeeze of lime or lemon to the finished juice. Even although it can go brown – it still tastes fantastic.

You can add any powders or oils to the juice to save you having to take multiple medicines.

Its always best to juice then consume immediately – however it can be stored in the fridge for 24 hours with added citrus juice with no massive loss of nutritents.

When juicing you are gaining the benefits of enzymes which are lost when cooking higher than 118 degrees. Without enzymes your body cannot use vitamins and minerals.

Don't overdo oranges are they are highly acidic and inflammatory – so moderation.

Watermelon is the most alkalizing of the fruits and the aim is always to bring the body into a more alkalised state as cancer is acid producing and hates an alkaline environment.

I've listed four of my favourite recipes below – but remember you can play about juicing almost anything. Remember than only a little fruit will change the taste into a really lovely sweet juice. Everything is RAW – including the beetroot. If you are juicing organic then

carrots, apples, cucumber etc does not have to be peeled. You obviously need to peel beetroot, turnip etc . You can add herbs and spices into it – ginger is fabulous added into the green juice (lettuce and cucumber based) especially if you are experiencing nausea. Mint, thyme, borage flowers, chilli etc can all be added to taste at the end. If you prefer it sweeter, then honey can be used.
Juices are lighter on the tummy when feeling sick and can easily be used as a replacement food for a few days. Spirulina powder can be added for protein to the juice in place of heavier animal or food protein.

Juice 1
2 beetroot
3 carrots
1 apple
Handful of strawberry (optional)

Juice 2
Half cucumber
Half lettuce
¼ melon

Juice 3
½ cucumber
Half lettuce
1 or 2 stalks of celery to taste
2 apples or pears.
(ginger to be added if experiencing nausea)

Juice 4
1 or 2 beetroot
2 carrots
1 sweet red pepper
Handful of berries (any in season)