

Boosting our immune system.

Naturally Healthy Families



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Naturopathy

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Nutrition



What is immunity?

- Immunity – the state of having sufficient biological defences to avoid infection, disease, or other unwanted biological invasion, and is related to the functions of the immune system. (*Wikipedia*)
- Immune system – a collection of mechanisms within an organism that protects against disease by identifying and killing pathogens and tumour cells. (*Wikipedia*)



The Immune System

- Most infectious agents enter the body via the epithelial surfaces of either the respiratory, gastrointestinal or genitourinary tracts.
- Once an infectious agent has penetrated the body, a variety of physical and chemical defence mechanisms occur.
- Immune responses can be non-specific (innate) or specific (adaptive).

BIOCeuticals "ImmunoFactors" Professional Reference Guide



Innate immunity

- The skin and mucous membranes, together with their secretions, are the first line of defence.
- Other components of innate immunity include natural killer cells, the complement cascade, phagocytosis, inflammation and fever.

BIOCeuticals "ImmunoFactors" Professional Reference Guide



Adaptive immunity

- This system is responsible for antibody production in response to a specific invader.
- The specific response depends on B cells and T cells.
- Adaptive immunity is either:
 - cell-mediated (involving the activation of T lymphocytes)
 - Antibody-mediated (activation of B cells which differentiate into plasma cells that secrete specific



~*Vitamins & Minerals*~
which ones are important for our immune system?



Vitamin C

- Vitamin C can boost immunity.
 - Note the RDA for Vitamin C is 60mg! (the minimum amount to prevent deficiency (scurvy) but is not the maximum required for optimal health).
 - Dosages (preferred form – sodium ascorbate):
 - » 100mg/day per month of age until the age of 10 months, e.g. a 6 month old's dose will be 600mg/day
 - » 1000mg/day from 10 months until 1 year
 - » 1000mg/day per year of age until age 10, e.g. a 5 year old's dose will be 5g/day
 - » 10g/day from age 10, including adulthood.

Baratossy, P. There is Always an Alternative. 2006.



Vitamin C

- Why do we need lots of Vitamin C?
 - We cannot make vitamin C ourselves (although most other animals can!)
 - It is an antioxidant and so is used up when the body is eliminating toxins, pollutants, microbes etc – the more the body is exposed to the more Vitamin C is required.
 - Is essential for the immune system, increasing anti-viral and anti-bacterial activity and stimulates white blood cell production.

Baratossy, P. There is Always an Alternative. 2006.



Vitamin C

- Dispelling some myths of Vitamin C supplementation
 - Large doses of Vitamin C are not just peed out, rather, tissue saturation occurs after kidney spill-over levels
 - Large doses of Vitamin C (sodium ascorbate) does not:
 - Cause kidney stones
 - Overload the body with sodium (vitamin C is a good diuretic, and so most of the sodium is peed out)

Baratossy, P. There is Always an Alternative. 2006.



Vitamin C

- Sources of Vitamin C
 - Sodium ascorbate e.g. Melrose brand from Health Food Shops and some Pharmacies
 - Use Acerola powder (GPA Wholefoods, www.greenpastures.com.au) for a natural form of Vitamin C, but have to take more of it to get the equivalent amount compared with the sodium ascorbate type.



Vitamin A

- Vital for the development of the body's barriers to infection
 - helps maintain the surface layer of the gastrointestinal and respiratory tract which helps encourage a protective barrier against microorganisms entering our body.
- Stimulates and enhances many immune functions, including antibody response and the activity of white blood cells such as T helper cells and phagocytes – this promotes healing of infected tissues and increases resistance to infection.
- Antibody mediated immunity is severely impaired in individuals with Vitamin A deficiency.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



Vitamin A

- Sources of Vitamin A
 - Usually in the form of retinyl acetate in "multivitamin" supplements
 - Cod liver oil is an excellent source, which also contains the added benefits of natural Vitamin D and essential fatty acids.
 - GPA Wholefoods Australia (www.greenpastures.com.au) is an excellent source of cod liver oil.



Zinc

- Zinc is one of the most important nutrients for the immune system:
 - Necessary for healthy antibody, white blood cell, thymus gland and hormone function hence vital for maintaining resistance to infection and in wound healing.
 - Zinc deficiency results in a decrease in the numbers of several types of T cells, natural killer cells and other components of the immune response, leading to increased susceptibility to infection and wound-healing time.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



Zinc

- Supplementation, in those deficient, improves immune function, increasing the activity of the thymus gland, improving antibody responses and enhancing the functioning of white blood cells.
- Zinc supplementation has also been shown to inhibit the growth of bacteria and possibly viruses.
- Zinc has also been shown to boost interferon, which is a protein which is formed when cells are exposed to viruses which helps to fight infection.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



Zinc

- Sources of Zinc
 - Present in most “multivitamin” supplements.
 - Available as a “zinc drink” which is a liquid which is added to water and consumed.
 - For babies and children: as part of a supplements such as “ImmunoFactors” by BIOCeuticals or “Immune Care for Kids” by Metagenics, or children’s multivitamin and mineral supplements.



Other micronutrients

- Other vitamins and minerals that are useful for boosting our immune systems include:
 - Beta-carotene, an antioxidant, shown to stimulate and enhance many immune system processes.
 - Selenium, as part of the antioxidant enzyme, glutathione peroxidase, may enhance immune function by protecting white blood cells from free radical damage. It also appears that selenium increases antibody production and accelerates the production and effectiveness of white blood cells.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



Other micronutrients

- Vitamin D – involved in the regulation of the immune system and has several functions, including effects on white blood cells (monocytes and lymphocytes).
- Copper – important in developing resistance to infection, as deficiency can lead to reduced resistance to infection as white blood cell activity and cellular immune responses are reduced.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



Other micronutrients

- Iron – involved in the maintenance of a healthy immune system. Certain types of immune cells rely on iron to generate the oxidative reactions that allows these cells to kill of bacteria and other pathogens, and if iron levels are low these cells cannot function properly.
- Essential fatty acids – deficiency may adversely affect immune function and supplements may promote optimum function. Also useful for treating autoimmune disorders.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements & Herbs. 1998. Bookman Press.



~HERBS~



Herbs

- Herbs that have immune enhancing effects include:
 - Echinacea (*E. angustifolia* and *E. purpurea*)
 - Astragalus (*Astragalus membranaceus*)
 - Andrographis (*Andrographis paniculata*)
 - Goldenseal (*Hydrastis canadensis*)
 - Licorice (*Glycyrrhiza glabra*)
 - Ginseng (*Panax ginseng*)
 - Garlic (*Allium sativum*)
 - Pau d'Arco (*Tabebuia avellanedae*)
 - Cat's claw (*Uncaria tomentosa*)
 - Mushrooms such as shiitake, reishi and maitake



Herbs

- Herbs contain active constituents which may act to enhance the effectiveness of our immune system, or may act to alleviate the symptoms associated with infection, for example the herb may have anti-inflammatory and anti-febrile effects.
- The action of herbs, and their correct prescription for various disorders of the immune system as well as for the purposes of immune boosting are too numerous to mention today, but the typical immune boosting formula may include:
 - Echinacea, Andrographis and Astragalus (for children)
 - Echinacea, Andrographis, Astragalus, Cat's Claw and Pau d'Arco (for adults)



~THE GUT~ and our immune system



Gut flora and the immune system

- There is a connection between our gut flora and immunity – in fact, about 84% of our immunity is located in the gut wall!
- Without beneficial gut flora, the two major arms (Th1 and Th2) of the immune system get out of balance.

BIOCeuticals "BabyBiotic" Professional Reference Guide



Gut flora and the immune system

- A healthy gut flora = healthy Th1 immunity
- If the gut flora is disabled, the Th1 arm of immunity cannot function properly and so the Th2 arm becomes hyperactive in order to compensate – this is when we start reacting to everything!

BIOCeuticals "BabyBiotic" Professional Reference Guide



Gut flora and the immune system

- What can we do?
 - Breastfeed our babies – even one bottle of formula is enough to change the gut flora that it takes another two weeks of fully breastfeeding to correct the changes!
 - During pregnancy, look after the mum and dad and ensure that they have healthy gut flora as the baby will begin colonisation of their gut during passage through the birth canal.
 - Probiotics – for adults and children
 - Especially after antibiotic use, or gastrointestinal upsets
 - Eg. "Baby Biotic" by BioCeuticals



~VACCINATION~ What does it do to our immune system?



Vaccination and the immune system

- Vaccines can reduce our immunity in many ways:
 - Vaccines contain many chemicals and heavy metals, such as mercury and aluminium, which are in themselves immune suppressing.
 - Vaccines contain foreign tissues and foreign DNA/RNA which act to suppress the immune system via graft-vs-host rejection phenomena.
 - Vaccines alter our t-cell helper/suppressor ratio and this ratio is a key indicator of a properly functioning immune system



Vaccination and the immune system

- Vaccines alter the metabolic activity of polymorphonuclear neutrophils and reduce their chemotactic abilities (i.e. ability to find and travel to where the pathogens are) – these PMNs are our bodies defence against pathogenic bacteria and viruses.
- Vaccines suppress our immunity by overtaxing our immune system with foreign materials, heavy metals, pathogens and viruses.



Vaccination and the immune system

- Vaccines clog our lymphatics with large protein molecules which have not been adequately broken down because they have not been through our digestive system
 - this is one reason why vaccines are linked with allergies.
- Vaccines deplete our body of vital immune-enhancing nutrients, such as vitamin C, vitamin A and zinc, which are required for a strong immune system.

http://www.mercola.com/article/vaccines/immune_suppression.htm



Vaccination and the immune system

- What can we do?
 - Not vaccinate
 - Homeopathically vaccinate
 - If vaccinating, wait until the child's immune system is more mature
 - If vaccinating, use single vaccines
 - If already vaccinated, detox for heavy metals and homeopathics can be used to help with effects that may be suffered after vaccinations.



~Nutrition~

What should and shouldn't we eat?



Nutrition

- A balanced protein/carbohydrate diet, with plenty of fruit, vegetables and fibre is beneficial for the immune system.
- The diet should be low in polyunsaturated vegetable oils and products made from them as these fats readily form free radicals that damage our immune cells.
- High protein diets are damaging to the immune system as by-products of protein metabolism can cause irritation, especially in those with autoimmune or allergy issues.
- Milk proteins are a common irritant of the immune system.
- Foods of animal origin (which also tend to be high in protein) often contain residues of antibiotics and hormones that can weaken our immune system.

Reavley, N. The New Encyclopedia of Vitamins, Minerals, Supplements and Herbs. 1998. Bookman Press.



Nutrition

- What can we do?
 - Breastfeed your babies.
 - Eat organically grown fruit and veg.
 - Eat fruit and veg that are local and seasonal.
 - Eat meat from organically raised animals.
 - Eat wholefoods and limit processed and artificially flavoured foods.
 - Limit refined sugar intake.
 - Include lacto-fermented and cultured foods in your diet – e.g. sauerkraut, kvass, kombucha, kefir, piima and crème fraiche.



Nutrition

- Make your own stocks and broths.
- Drink raw milk, use raw cream and butter
- Drink alkalised, mineralised water from glass containers or Sigg bottles, not plastic.
- Minimise coffee, alcohol, cigarettes, drugs (pharma or otherwise) – all will rob the body of vitamins and minerals that are important for the optimal functioning of our immune system.



~Lifestyle~

Lifestyle factors to boost our immune system.



Lifestyle

- Stress – minimize it!
- Sleep – get enough of it!
- Nurture yourself!
 - Listen to what your body is telling you, slow down when you need to and take “mental health days” off work if you have to.
 - Have a regular massage or a relaxing warm bath with essential oils.