



*seed &
sprout*
NUTRITION

What creates a good immune response?

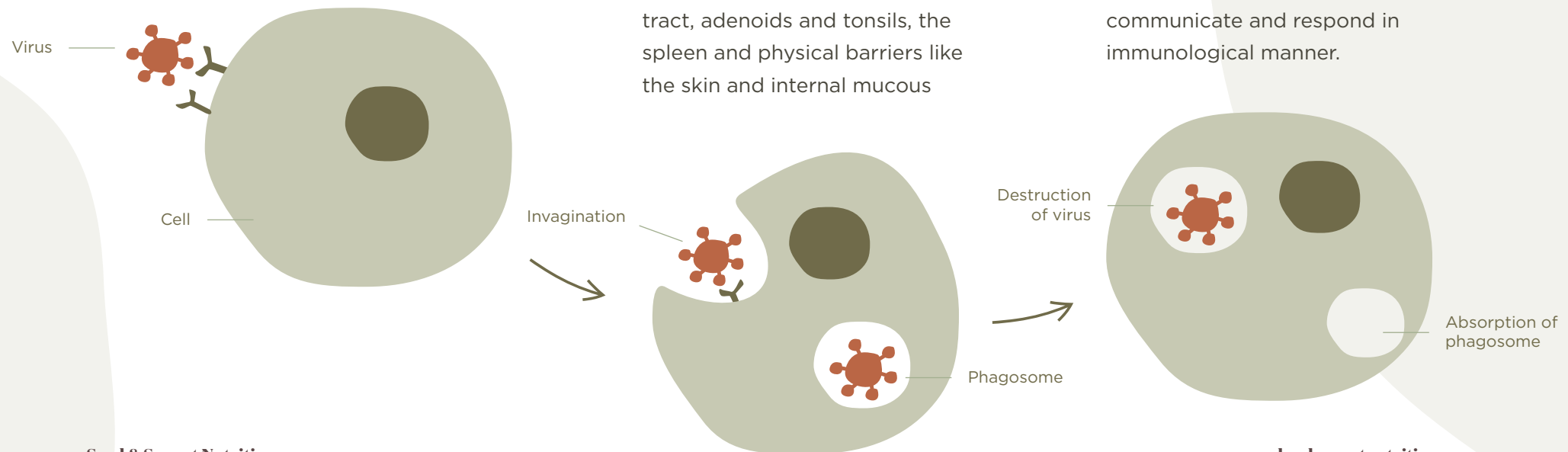
Your guide to a healthier immune system

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What is our immune system?

PHAGOCYTOSIS

The mechanism by which organisms can be contained, killed and processed for antigen presentation.



First we are going to have to do a little crash course in anatomy and biochemistry here because I'm a huge lover and advocate of teaching people how their body works so that you can learn to heal yourself! So let's find out how our incredible body works to keep us healthy on a daily basis.

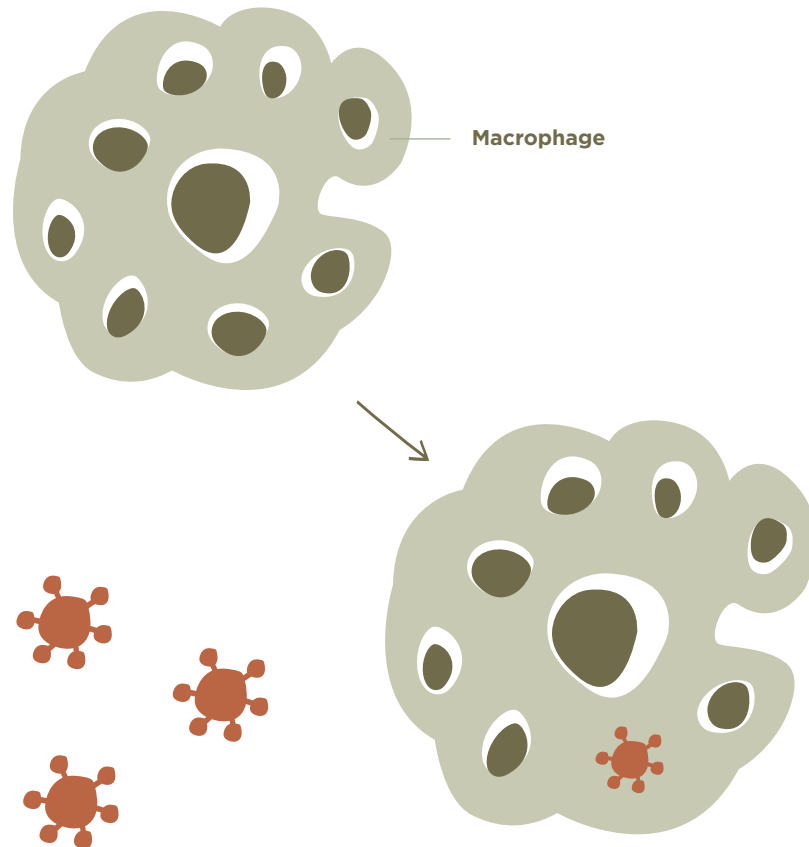
Immune regulation is a complex and highly efficient response that is contributed to by several organs, cells and systems within the body. This includes the lymphatic system, bone marrow, the thymus, peyers patches within the gastrointestinal tract, adenoids and tonsils, the spleen and physical barriers like the skin and internal mucous

membranes. They all serve to 'sense and respond' to anything getting into the body that shouldn't be there (AKA bacteria, toxins, fungi, parasites or viruses). Within this organization, there are two main regulatory 'systems' of the immune system that respond both immediately and adaptively to environmental conditions.

Each system relies on the optimal health of the body to make new red and white blood cells, cleanse and circulate lymphatic fluids and regulate accurate chemical signalling to allow the body to communicate and respond in immunological manner.

HOURS

Within hours, macrophages are sent in to engulf and kill pathogens via phagocytosis.

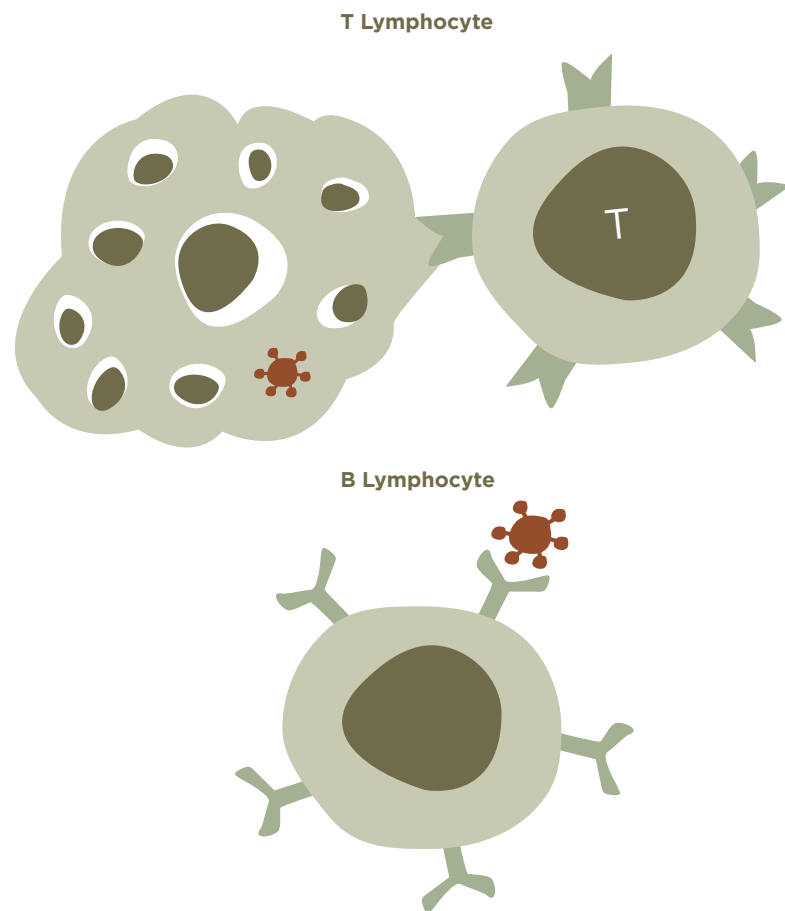


The innate immune system

You are born with this, and it is our body's first response to a potential invaders. From birth, your skin, respiratory tissues and mucous membranes all can inherently sense a pathogen or deleterious microbe and will send in phagocytes (white blood cells) to surround and cover the pathogen. It's our first line of response and it happens within minutes of invasion. Think of it as a security guard on patrol!

DAYS

Within days your body will have developed antibodies against pathogen.



The adaptive immune system

This response is developed over time, when your body is exposed to viruses, microbes or chemicals by-products released by pathogens. With help from the innate immune system, your adaptive immune system will then develop anti-bodies against the bacteria and viruses we may come across so that we can defend ourselves against them from that point forward. It essentially uses an 'immunological memory' to learn about the threat and enhance the immune response accordingly. This can take several days to develop but lasts a lifetime.

So how do we best support our immune system?

The best thing we can do is eat foods with key nutrients that provide the chemistry for these systems and immune cells to be developed and regulated efficiently. We know there is a bidirectional interaction among nutrition, infection and immunity: the immune response is compromised when nutrition is poor, predisposing individuals to infections, and a poor nutritional state may be exacerbated by the immune response itself to an infection. So when we are sick we need to up the ante with good food and targeted nutrition!

Don't Forget..

Exercise improves circulation and detoxification.

Sleep is vital for immune response - 8 hours minimum.

Hydration helps the body to circulate immune cells - clean water 1-2 L per day

Manage Stress, it is one of the biggest immunosuppressant's. Your body can't combat infection when it's 'fight or flight' mode.

Limit alcohol and **refined sugar** these are also major immunosuppressant's - for up to five hours after ingestion!

Good Hygiene washing your hands goes a long way in preventing illness.

Key nutrients needed by the immune system:



1/

Vitamin A

Helps regulate the immune system and protects against infections by keeping skin and tissues in the mouth, stomach, intestines and respiratory system healthy. Get some more vitamin A from foods such as sweet potatoes, carrots, capsicum, broccoli, spinach, apricots and eggs.

Vitamin C

Supports the immune system by stimulating the formation of antibodies and protects white blood cells. Include more sources of vitamin C by choosing foods such as oranges, kiwi, acerola cherry, Kakadu plum, tangerines, capsicum, papaya, and strawberries.

Vitamin D

Can help modulate the innate and adaptive immune response. Increase your intake with foods such as fatty fish (salmon, mackerel, tuna and sardines), eggs and mushrooms.

Vitamin E

Works as an antioxidant to support immune function. Include more vitamin E in your diet with sunflower seeds, almonds, hazelnuts and peanut butter.

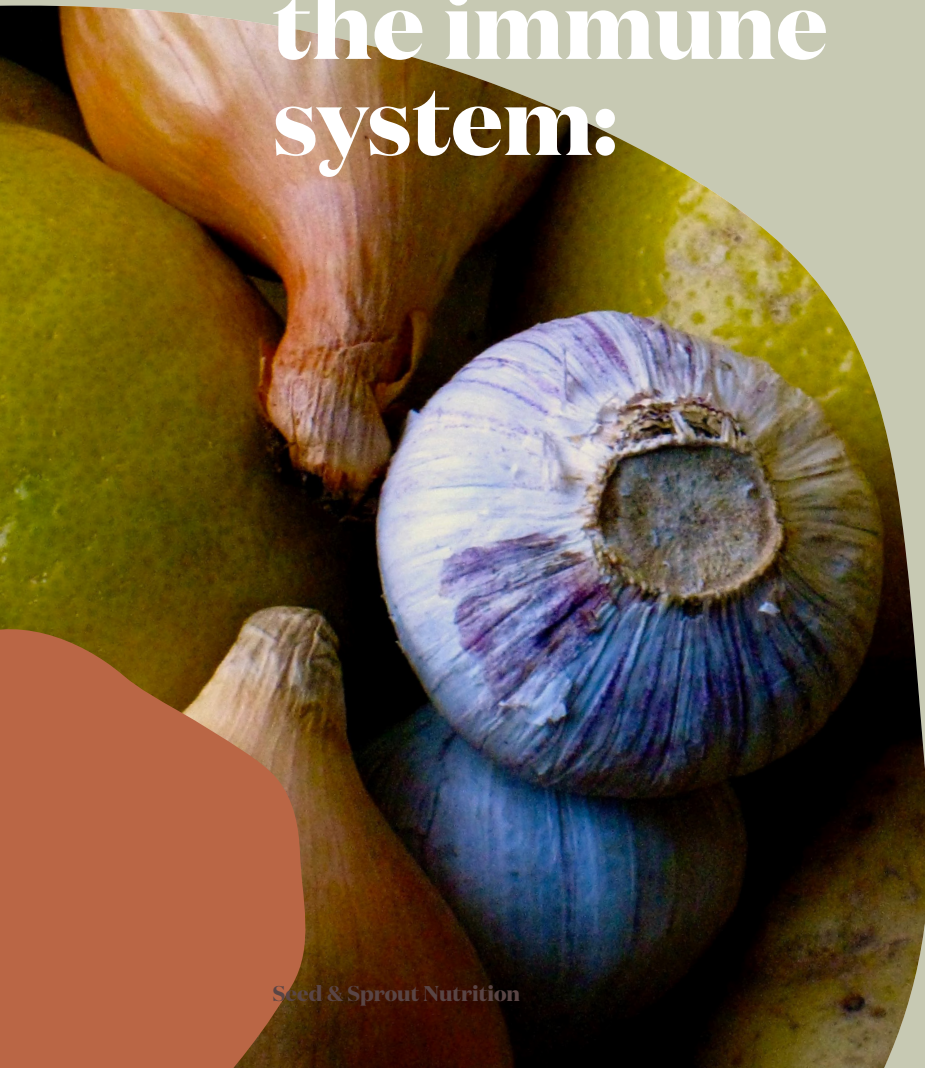
Zinc

Is crucial for normal development and function of cells mediating nonspecific immunity such as the neutrophils and natural killer cells. To increase zinc, include more oysters, crab, ethically sourced organic lean meats and poultry, pumpkin seeds, probiotic yogurt or kefir and chickpeas.

B2

Speeds the clearance of bacteria from the body and also lowers levels of molecules that cause inflammation. Increase B2 by eating more almonds, asparagus, organic chicken and beef.

Key nutrients needed by the immune system:



2/

B6

Is vital to supporting biochemical reactions in the immune system. Vitamin B6-rich foods include organic chicken and cold-water fish such as salmon and tuna as well as green vegetables and chickpeas.

Folic Acid (Folate)

Is needed to make DNA and RNA, the genetic material that dictates cell functions, including immune cells. To increase folate eat foods such as beans, peas as well as leafy green vegetables.

Iron

Is necessary for immune cells proliferation and maturation, particularly lymphocytes. Heme sources of iron are abundant in organic lean meats, poultry as well as seafood. Vegan sources include beans, broccoli and kale.

Selenium

Levels are important for initiating immunity, but they are also involved in regulating excessive immune responses and chronic inflammation. Good sources of selenium are in garlic, broccoli, sardines, tuna, brazil nuts and barley.

Probiotic Bacteria

has a very important role in modulating our immune response. Some of the most common strains that reside in our gastrointestinal tract are shown to promote T cells and Natural Killer cells as well as stimulated adaptive immune antibody production. Get more probiotics in your diet by increasing foods such as kefir, sauerkraut, kombucha, fermented yogurts and miso. Alternatively, you can get good quality broad spectrum probiotic formulas from qualified practitioners.

Your immune challenge:

Nourish your immune system and pick one food from each nutrient category to include in your next weeks of eating.



VITAMIN A	VITAMIN C	VITAMIN D	VITAMIN E	ZINC	B2	B6	FOLATE	IRON	SELENIUM	PROBIOTIC FOODS
Sweet Potato	Oranges	Salmon	Sunflower Seeds	Oysters	Almonds	Organic Chicken	Beans Legumes Peas	Organic Lean Meats	Garlic	Kefir
Carrot	Kiwi	Mackerel	Hazlenuts	Crab	Asparagus	Salmon	Leafy Green Veggies	Beans	Broccoli	Yogurts
Capsicum	Acerola Cherry	Eggs	Almonds	Organic Lean Meats	Organic Chicken	Tuna	Asparagus	Broccoli	Sardines	Sauerkraut
Broccoli	Camu Camu	Sardines	Peanut Butter	Pumpkin Seeds	Organic Beef	Green Veggies	Eggs	Kale	Tuna	Miso
Spinach	Tangerines	Mushrooms	Spinach	Kefir	Portobello Mushrooms	Chickpeas	Beetroot	Silverbeet	Brazil Nuts	Kombucha
Apricots	Capsicum		Avocado	Chickpeas	Almonds	Carrots		Tofu	Barley	
Eggs	Papaya					Sweet Potato				

Eliminate foods that disadvantage immune responses:

- 1/ Processed foods**
Fried foods, baked goods, fast food, and convenience meals (all the wrong kinds of fats and sugars).
- 2/ Refined carbohydrates**
White bread, pasta, crackers, chips, biscuits and snack bars (don't need the insulin spike).
- 3/ Processed meats**
Bacon, salami, bologna, beef jerky, and lunch meats (preservative central here).
- 4/ Sugary beverages**
Sodas, fruit juice, sweet teas, sports drinks, and energy drinks (liquid sugar and artificial flavour).
- 5/ Added sugar**
High-fructose corn syrup, table sugar, agave nectar, artificial sweeteners (Immunosuppression and decrease of white blood cells).

Immune remedies

Some of the best immune remedies are those that have stood the test of time and have been passed down from generation to generation.

1/

Bone broth supports immune function by promoting the health of your gut and reducing inflammation caused by leaky gut syndrome. The collagen and amino acids (proline, glutamine and arginine) found in bone broth help to seal openings in the gut lining and support its integrity as well as providing a wide range of minerals. We know that gut health plays a major role in immune function.

2/

Ginger root and **ginger essential oil** can treat a wide range of diseases with its immunonutrition and anti-inflammatory responses. Research shows that ginger has potent antimicrobial and antiviral potential, which helps in treating infectious diseases. Make that old-fashioned lemon, ginger and honey tea.

3/

Fire Cider is a long standing remedy to assist in the prevention and treatment of upper respiratory tract infections and colds/flu. Start brewing your fire cider a few months prior to winter and you will have a great tool to rely on at the first sign of the sniffles.

What creates a good immune response?

Some of
grandma's
old fashioned
tips are still
the best!

Print out the
recipe below!

Immune Supplements*

1/ **ASTRAGALUS**
Used in Chinese Medicine for 1000's of years, we still use it today to increase white blood cell count, to essentially 'build a bigger army' and stringer immune response. This can be used safely long term for people that are immunocompromised. My favourite brands - **Fusion Astragalus 8** or **Eagle Immunoadapt**.

2/ **MEDICINAL MUSHROOMS**
Beautiful mushrooms such as reishi, maitake, turkey tail, shitake and cordyceps can assist in the production in macrophages, modify inflammatory cytokines and boost the structure and strength of our cells. Try to get a blend of at least three of these and your body will be thanking you! My favourite brands - **Superfeast Mushrooms** or **Bioceuticals Ultra Defense Mushroom 7**.

*Always discuss supplementation with a qualified practitioner, especially if you are on pharmaceutical medications.

Pick one nutraceutical supplement to invest in for the winter months!



Immune Supplements

3/ **VITAMIN C / ZINC POWDERS**
There are some awesome food based vitamin C powders out there now days (Wild C and Green Nutritionals) as well as some great practitioner formulas with lipospheric or highly absorbable vitamin c/zinc blends with bioflavonoids for absorption. Look for **Bioceuticals Ultra Potent C** or **Orthoplex Ultra Buffered C.**

4/ **VITAMIN D**
This is one supplement that I always bring out in the winter months. We don't get out as much or simply cover up more in the winter months which means our skin doesn't have the same opportunity to absorb and metabolise vitamin D. Vitamin D can be easily taken in drop or caplet form for the whole family. My favourites are **Bioceuticals Liposomal D Spray** or **Orthoplex Vitamin D.**



Fire Cider Recipe

Burn the bugs away!

INGREDIENTS

- 1/2 cup freshly peeled & grated ginger root
- 1/2 cup freshly grated horseradish root
- 1 lemon, zest and juice
- 1 medium onion, chopped
- 8 cloves of garlic, crushed or chopped
- 2 organic jalapeño or chilli peppers, chopped
- 1 tbsp dried rosemary leaves
- 1 tsp cinnamon powder
- 1 tbsp turmeric powder or 2 Tbsp grated turmeric root
- 1/4 tsp cayenne powder (optional)
- Organic unfiltered apple cider vinegar
- 1/4 cup raw or maunka honey, or to taste

INSTRUCTIONS

1. Add ginger, horseradish, onion, garlic, jalapeño peppers, lemon zest and juice, rosemary, turmeric, cinnamon and cayenne powder into a large wide mouthed glass jar.
2. Pour apple cider vinegar in the jar until all the ingredients are fully covered and the vinegar reaches the very top of the jar.
3. Use a piece of natural parchment or baking paper under the lid to keep the vinegar from touching the metal.
4. Gently shake jar to combine all the ingredients and store in a dark, cool place for 4-6 weeks, remembering to shake the jar a few seconds every 2nd day.
5. After about one month, use a mesh strainer or cheesecloth to strain out the solids, pouring the vinegar into a clean jar. Be sure to squeeze out as much of the liquid as you can.
6. Add honey to the liquid and stir until incorporated.
7. Store in a sealed container in the refrigerator or in a cold, dark place.
8. Drink 1-2 Tablespoons when needed.



Thanks

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