

Components of the immune system

- Antigens are proteins that can activate the immune system
- Infection - Host immune system plays the biggest role in successful recovery
- Zinc is essential for mucosal integrity and for our body to make stomach acid, both part of our first line of defense
- Antibodies are proteins – a healthy immune system needs protein!
- Our lymphatic system fights infection and moves when we move – exercise/activity is key!
- Thymus differentiates lymphocytes – desiccated thymus has all immune factors still intact
- Lymphocytes help recognize and destroy previous invaders
- Thymosin produced by thymus stimulates pituitary hormone production
- Mucosal T cells are dependent on our gut microbiome
- Immunoglobulins (Ig) are glycoproteins – IgM is the first to be increased during a viral infection
- IgA can be measured in saliva – if high: defenses are too strong; if low: defenses are too weak
- IgG fights against infection
- Adrenal gland produces glucocorticoids and catecholamines and is a key modulator of immune function – desiccated adrenal is a great addition to infection treatments
- Stress is an inhibitor of immune function
- Cytokines are small proteins that signal between cells

Importance of the GI tract in immunity

- ~80% of immune system is located in the gut
- Gastric, salivary, or vaginal pH have the ability to promote pathogens when out of balance
- Proton pump inhibitors can block the conversion of pepsinogen to pepsin due to decreased HCl
- Fiber helps to sustain blood sugar and clear toxins
- Gut flora aid in digestion – helping to prevent inflammation caused by undigested food that acts like an antigen to our GI tract

Antibiotic resistance

- Antibiotics select for resistant bacteria
- Many microbes are resistant to our first and second line therapies
- Antibiotic residues are found in animal byproducts, soil, and water
- Antibiotic resistant organisms affect both strong and weak immune systems
- There is a clear need to improve antimicrobial prescribing patterns to preserve their future use

Natural antibiotics

- Herbs have a large range of biological activity and secondary metabolites that may be harnessed to fight infections
- Terpenes are antibacterial in nature (essential oils are in this category)
- Bacteria are unable to develop resistance to the complex phytochemicals in plants
- A combination of conventional antibiotics and plant extracts may allow us to expand the antibiotic spectrum