

Advanced Clinical Herbalism: Immune & Lymphatic Systems

Introduction to the Immune System

“Human immunity is a vital component of the interface between the individual and the world.

The role of the human immune system is not simply to resist the dangers present in the environment. Rather, it is part of the complex and beautiful dance of elements flowing back and forth between the human body and the rest of the world. Seen within the context of ecology, both human and environmental, immunity is about harmony.”

-David Hoffman

The immune and lymphatic systems will be studied together, as they are intricately connected aspects of our physiology, designed to protect and cleanse the body from foreign invasion and the metabolic byproducts of infection. This is another area of herbalism that radically outshines conventional medicines approach to fighting off pathogens, which is strictly limited to antibiotic therapy. Plants are much more complex than simple pharmaceutical drugs to not only kill invading pathogens, but more importantly to shift the vital ecology of the organism to make it inhospitable to the various bacterial, microbes, viruses, and parasites that can infect us, as well as raise the host defense mechanisms and immunity. Drugs cannot begin to compare with what we can do with our herbs.

But even more importantly still, is that the holistic herbalist approaches immunity and infection from a very different perspective, going beyond “killing the bugs and germs” to a more vitalist approach of maintaining the organisms harmonious relationship with the environment- both macrocosmic of the seasonal shifts and the microcosmic of the microbial world. It’s sometimes alarming to people to think that every moment of every day we are surrounded by pathogenic microbes, bacteria and viruses- they are crawling all over us all the time! The reason they don’t make us sick is because our host defenses are such that we are protected and unharmed by their influence. So is it really a problem of bacteria or viruses making us sick? Or is it rather that throughout our live our defense mechanisms are such that we cannot tolerate them and become vulnerable to their influence? This is a major shift in perspective on immunity that differentiates an allopathic “kill the germ” approach and a holistic approach of shifting the ecology of the organism to make it inhospitable to pathogens.

In this lesson we will cover the anatomy and physiology of our immune and lymphatic systems, a holistic approach to immunity and treatment of fever, colds and the flu, as well as specific materia medica for both acute and chronic infection.

The Physical System

Anatomy and Physiology- The immune and lymphatic systems work together to form the bodies defense mechanisms, protecting it from infection, as well as the cleansing process after “the war has been fought.” If we think of a battle, the warriors and soldiers doing the battle itself is the immune system, whereas the lymphatic system is responsible for “cleaning up the field,” that is, removal of the deceased, cleansing and purification of the land. I tend to think of this process of lymphatic cleansing of having a physical and spiritual side. Let’s take a look at some of the fundamental components of these systems and their physiological functions.

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- **Immune System:** Unlike our other systems studied thus far, immunity does not necessarily have a specific organ associated with it. Rather it is a functional system comprising of multiple types of molecules, as opposed to larger anatomical organ structures. The immune system is generally divided into 2 primary components: 1) **innate defenses** and 2) **adaptive defenses**. Our innate defense mechanisms include the surface barriers of the body, primarily our skin and the mucous membranes that coat the surface of our organs exposed to the outer world- primarily the lungs, the GI, and the urinary tract. The second line of defense of our innate immunity is within the body proper, and includes immune cells which “kill the invading pathogens.” This includes phagocytes, natural killer (NK) cells, antimicrobial proteins, as well as the fever and inflammatory responses. This aspect of immunity is also called **non-specific immunity**. The adaptive defenses, also known as **specific immunity**, consists of specialized cells in the body which attack specific pathogens (bacteria, viruses etc.). These are called B-cells and T-cells. A good way to think of the difference is that our innate defenses are more general in their actions, whereas adaptive defenses are very specific in what they do- a specialized elite force in a sense.

Non-Specific Immunity (Innate Defenses)

- **Mucosal Membranes and Skin:** Remember these line all of the bodies cavities that open to the exterior world. Their function is to trap microorganisms and particulates and prevent them from entering deeper into the body. Their protective mechanisms include acidic secretions of the skin, hydrochloric acid and enzymes in the stomach which are anti-microbial, saliva in the mouth and lacrimal fluid in the eyes, as well as sticky protective mucous rich with immune cells lining the respiratory, digestive, urinary, and reproductive tracts. These protective membranes (skin and mucosa) are the first line of defense of the body, but when breached, the internal defense mechanisms of immunity are activated.
- **Phagocytes:** Literally meaning “cell eaters,” phagocytes derive from white blood cells (monocytes) which enter the tissues from the bloodstream to digest foreign pathogens. They do this through literally engulfing the pathogen into it and fusing it into a vesicle to which lysosomes containing enzymes attach to it which digest the pathogen. **Neutrophils**, the most common type of white blood cell, destroy pathogens via phagocytes, but unfortunately destroy themselves in the process. **Macrophages**, the most common type of phagocyte are more “robust” and are able to continue their work.
- **Natural Killer (NK) Cells:** This type of lymphocyte is very mobile, as they travel throughout the bloodstream and lymph, searching for pathogenic materials. They are quite sensitive, and do their work by sensing whether the receptors on the surface of a cell are either self or non-self. They function differently from phagocytes in that they do not engulf their prey, rather they induce **apoptosis**, or programmed cellular death, as well as secreting inflammatory chemicals.
- **Inflammation:** Inflammation, while commonly believe to be the root of all evil and ill health in the modern world, is truly one of the most remarkable adaptive responses of the vital force of the body to injury, chemical irritants, and infection. It is a primary defense mechanism with several benefits such as preventing the spread of damaging

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compounds to nearby areas through swelling, cleansing of waste products, cellular debris and pathogens, and beginning the bodies reparation process. The four cardinal signs of inflammation are: redness, heat, swelling and pain. Let's take a look at the actual process of inflammation.

1. **Chemical Alarm:** Upon tissue injury, or in response to a pathogen, the extracellular fluid is flooded with pro-inflammatory chemicals- primarily via macrophages which sense some form of invader. Central to these inflammatory compounds are **cytokines, histamine, prostaglandins, and leukotrienes** which induce inflammation and call upon white blood cells (WBC's) to the local area.
 2. **Vasodilation and Permeability:** All of these compounds lead to dilation of the local blood vessels in order to bring fresh oxygenated blood and immunological components, which leads to the redness and heat associated with inflammation. The capillaries become more permeable to bring clotting factors and anti-bodies to the area, which leads to swelling of the tissues. Swelling presses upon nerve endings causing pain, and the release of chemicals like prostaglandins also trigger the pain response. This is where NSAID's operate on, by inhibiting prostaglandin synthesis and thus inflammatory pain.
 3. **Clotting and Protection:** As the capillary beds become more permeable, clotting proteins flood the area which begin to repair the damaged area, as well as "wall off" the infected or damaged area from surrounding areas to protect them. Thus the injured area is isolated, and the swelling in say and injured area prevents motion from inflicting further damage.
 4. **Leukocytosis:** With the chemical triggers that take place (leukocytosis inducing factors), phagocytes in the form of neutrophils and macrophages enter the area after being mobilized from the bone marrow. They cling to the capillary wall (called margination) and squeeze through the capillary walls (called diapedesis) and begin doing their work of phagocytosis and cleaning up the local area (called chemotaxis) of pathogens and cellular debris. Long term inflammatory responses, especially in infection, leads to the formation of pus which is a mixture of dead neutrophils (remember they die after doing their job), pathogenic materials, and cellular debris. When this pus is unable to leave the local area, it can become walled off and turn into an abscess.
- **Anti-Microbial Proteins:** These are other components of our non-specific immunity which help to directly attack microorganisms or adversely impact their ability to properly reproduce. The most common of these are interferons and compliment proteins. Interferons are secreted by virus infected cells that help with blocking viruses from entering neighboring cells and replicating themselves (viruses need host cells to reproduce). Interferons also stimulate macrophage and NK cells. Complement proteins assist in destroying pathogens and amplify the inflammatory process. Scientists have discovered over 20 complement proteins, each with different specific functions. One of the most commonly known complement proteins is called **C-Reactive Protein (CRP)**, and is considered one of the most valuable markers for inflammation in the body. it is produced in the liver in response to inflammation.

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- **Fever:** Whereas inflammation is a localized response to infection or injury, fever is the entire organisms response- sort of a systemic inflammatory response. During an acute infection, leukocytes (WBC's) and macrophages secrete chemicals called **pyrogens** that signal the hypothalamus to tell the body to close the pores of the skin and increase the temperature of the body in order to “cook out” the invading pathogen. During a fever, the liver and spleen sequester zinc and iron in order to starve the pathogen from these necessary nutrients for their reproduction. Fever also raises metabolism, making the the regenerative process of the cells occur much more rapidly. Blood is shunted from the core to the periphery of the body in order to release the heat at the surface, hence in Chinese Medicine diaphoretics are often called “surface relieving remedies.” Once the fever breaks, a new signal is sent to the hypothalamus telling the pores to open so that the fluids and heat can be released- the body temperature then returns to normal.

It's **extremely important** to understand that a fever is the intelligence of the vital force and not something to be suppressed. It is our bodies natural way of protecting us from infection. When a fever is suppressed, pathogens are able to reproduce much more rapidly, and what would have perhaps been a 2-3 day infection turns into a 7-10 infection. From an herbalists perspective, we want to support the fever, following the vital intelligence of the body and using herbs to help the process along, as opposed to shutting off the bodies innate intelligent response and overriding that process.

Fever is truly one of the primary first line of defenses of the body, prior to direct activation of immunity at the cellular level (both specific and non-specific). This is an area of activity many herbal medicines are operative and where many of our “immune” medicines function.

Specific Immunity (Adaptive Defenses)

The primary difference between non-specific (innate) and specific (adaptive) immunity is that the latter has *memory*. That is, it has the capacity to recognize and target specific pathogens or foreign substances that trigger the immune response. Once our adaptive defenses have faces a certain pathogen, it remembers it and thus upon future infection is much more readily able to fight it off with more efficiency and efficacy. Specific immunity is also *systemic*, meaning that it is not limited to the initial infected site. This aspect of our immune system is divided into two primary components: humoral or anti-body mediated immunity, and cellular or cell-mediated immunity. Humoral immunity is achieved through the presence of anti-bodies which circulate through the humors of the body (fluids- IE blood and lymph) and “flag” pathogens in order to make them more easily destroyed by phagocytes or complement proteins. Cell-mediated immunity on the other hand directly destroys pathogens by either killing them or releasing chemicals which active inflammation and other host defense mechanisms. These 2 forms of adaptive immunity are achieved through 2 different types of **lymphocytes: B-cells** and **T-cells**.

- **Antigens:** Before talking about these 2 aspects of specific immunity in more depth, it's important to define the term **antigen**. An antigen is essentially any substance that initiates an immunological response that is considered foreign, or “non-self” by the body. They are the target of all immune responses. The term antigen means “generate antibodies.” While many think of antigens as being bacteria, microbes, viruses or

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parasites, they are really anything that enters the body that triggers inflammation or immunity, such as plant pollens, animal dander, or specific substances in foods (lactose, gluten etc.) The most powerful antigenic compounds are proteins, which are often on the surface of many pathogens.

- **Antigen Presenting Cells (APC's):** These are particular types of cells which do not directly kill a pathogen, but rather engulf them and send up a flag or signal, that presents them to T-cells (cell-mediated immunity) who do the dirty work. The 3 major types of APC's are B-cells, macrophages, and dendritic cells, which are located in the connective tissues.
- **B-Cells:** These specialized cells are the primary aspect of humoral immunity. They are “educated” and developed within the bone marrow to become able to recognize a singular specific antigen as well as become unresponsive to self (so as to not attack the bodies own cells). When an antigen binds to the receptor on a B-cell, it essentially clones itself to create an entire army of similar cells specific to that antigen. Plasma B-cells are responsible for secreting antibody molecules which mark the antigens for destruction and can produce 2000 molecules per second! These plasma B-cells only live 4-5 days. The antibodies that they produce are also called **immunoglobulins (Igs)**. Memory B-cells live much longer and hold the memory of that antigen, able to produce an army against them extremely rapidly. This is what holds our immunological memory, and secondary responses in the future to the same antigens occur much more rapidly and efficiently than the initial exposure. The whole premise of vaccination is based on this aspect of immunity, hoping to present certain antigens to our immune system so it can learn them ahead of time and be prepared for potential future infection.
- **T-Cells:** These are the main players of cell-mediated immunity. They go through their maturation process within the thymus gland and are divided into 2 primary categories based on the structure of their glycoproteins: CD4 (helper T-cells) and CD8 (cytotoxic T-cells). Helper T-cells function to activate macrophages, B-cells, T-cells, and induce all of their proliferation. They are like the bosses of the immune system. The cytotoxic T-cells are the only ones that can directly attack and kill other cells. They are essential against virus infected cells, but also function against bacteria and parasites. Essentially this aspect of our immune system is responsible for the direct attack against pathogens.
- **Thymus:** The thymus is responsible for the maturation of T-cells and cellular mediated immunity, a function that occurs primarily in the earlier stages of life. It is located in the lower part of the neck and upper thorax. It matures our immune system by secreting hormones (thymopoietin and thymosins), which trigger a process called positive and negative selection, whereby T-cells are “tested” as to whether they are able to recognize and differentiate self from non-self. If they do not pass the test, they undergo apoptosis, or cellular death. This all occurs to make sure that our bodies immune system does not launch an attack on our own cells- what is called **autoimmunity**. An alarmingly low amount of T-cells actually make it through this strict selection process, roughly 2%. This 2% is then exported from the thymus and enters secondary lymphoid tissues where it awaits to antigen

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binding. The thymus begins to atrophy after puberty and by old age is primarily composed of fibrous and fatty tissue with no known physiological function.

- **Bone Marrow:** Like the thymus, the bone marrow is where specific immunity maturation occurs, more precisely the maturation of B-cells. Here they undergo similar tests to make sure they do not flag our own bodies cells with anti-bodies and initiate autoimmunity. If they do not pass the test, they either under apoptosis, or are able to “edit” their antigen receptors. Once mature, the B-cells leave the bone marrow and are stored in secondary lymphoid tissues (spleen, lymph nodes, etc.) where they await exposure to an antigen.

Lymphatic System

The lymphatic system is composed of 2 distinct parts. The first is the meandering system of lymphatic vessels, and the second is the various lymphatic nodes, tissues, and organs scattered throughout the body. These pathways are integral aspects of our immunity and detoxification pathways for the bloodstream.

- **Lymphatic Vessels:** These vessels, while juxtaposed to the circulatory vessels, are not exactly a part of the cardiovascular system and hold a different function. As blood is squeezed out of the capillary beds and enters the interstitial fluids bathing the cells, a majority of it is picked up by the venous circulation for return to the heart. The fluid that is left behind in the interstitial fluids, along with cellular debris and waste products is picked up by the lymphatic vessels, cleansed and filtered, and dumped back into the blood stream in order to maintain consistent blood volume. It is essentially an elaborate system of drainage ducts which collects excess protein containing interstitial fluid to return it to the blood. This fluid is called lymph. The vessels gradually get larger in size, progressing from lymphatic capillaries, to collecting vessels, to trunks, and ultimately the lymphatic ducts- the largest of the system. All of the lymphatic vessels move in one direction- towards the heart, where they ultimately dump back into the bloodstream via the thoracic duct and the subclavian veins (under the clavicles). An important consideration in regards to the lymphatic vessels and movement of lymph, is that unlike the cardiovascular system, it does not have a pumping mechanism. It’s movement is solely based on the movement of the diaphragm via breathing, and movement of the physical body (IE exercise).
- **Lymphatic Tissues:** The lymphatic system is filled with lymphoid cells, or **lymphocytes**, which are described above as the main cellular components of the immune system. The lymph is constantly under surveillance from the immune system to make sure to blood stays pure and that pathogens do not invade the body. They are constantly moving between the bloodstream, lymphatic tissues, and connective tissues in order to disperse themselves throughout the body and be quick to respond. Lymph nodes are the primary organs of this system. They act as filters for the bloodstream via macrophages and immune components to clean the fluid reentering the bloodstream as well as helping to activate the immune system via constant screening for antigens. It is these nodes which often become swollen during acute infection, due to the congestion of pathogenic materials and production of lymphocytes. Other highly important lymphatic tissues are the tonsils, located in the throat, Peyer’s Patches located in the wall of the duodenum (small intestine), and the appendix. These are highly important for the throat is a major passageway into the body, and the small

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intestine is a permeable membrane that requires adequate defense mechanisms. These are variously called GALT (Gut Associated Lymphoid Tissue), or some call them MALT (Mucosa Associated Lymphoid Tissue). Removal of the tonsils and excessive use of antibiotics radically damage these aspects of the lymphatic system and thus our host immunity.

- **Spleen:** This is the largest organ of the lymphatic system. The spleen is located on the left side of the abdominal cavity beneath the diaphragm. It can be thought of as the headquarters of the immune system, where lymphocyte proliferation and immune surveillance occurs. It is also the great purifier of the blood, extracting defective and aged blood cells, platelets, and immune components. It also stores byproducts of red blood cell metabolites for future use and produces red blood cells in the fetus.

Pathological Patterns and Tissue States

The inflammatory process and activation of the immune and lymphatic systems described above form the crux of the pathological patterns of these systems. This occurs whenever there is some form of invading influence in the body- be it a bacteria, virus, or splinter. The goal of the immune system is to keep the invader contained to the local area and protect the surrounding areas of infection. Infection from microorganisms can occur due to or conjunction with any of the 6 tissue states we have been working with throughout this program, and herbal therapeutics targeted to these tissue states forms the crux of a holistic model of using plants for the lymphatic and immune systems.

Before jumping into the tissue states though, we can look at the immune system as a whole from the perspective of excess and deficiency. When the immune system is deficient, it is lacking it's proper response to invading pathogens and is unable to properly fight them off. Low level infections and low grade fevers ensue, and the organism is unable to fully recover fully from illness- the healing process is slow. High levels of stress, inadequate amounts of sleep, and poor diet are major contributing factors, and can in fact be a trigger for another bout of illness. Small cuts and wounds heal slowly and are easily infected, cold and flu symptoms may not fully disappear and then reappear full force within weeks or a few months, or simply linger for a prolonged period of time. With low immunity the lymphatic glands may remain swollen for long periods of time. Not always, but this can often be associated with the cold/depression or damp/stagnation tissue states.

Those with excess immunity would be either classified as autoimmune, where the bodies immune system attacks it's own cells and tissues, or being "hypersensitive," meaning that the smallest of triggers initiate an overly excitable immune response. This could be to foods, pollens, animal dander, or any little microbe or bacteria floating in the air. Immuno excess often reflects in allergies or asthma, and often manifests in the respiratory tract or digestive system. There often chronic and systemic inflammation, joint pain, arthritis, digestive issues, connective tissue damage, or autoimmune disorders like fibromyalgia, lupus, scleroderma or Shogren's Disease. They are typically in the heat/excitation tissue state. It's important to differentiate these 2 expressions of immunity (excess/deficiency) because they can both get sick often but for two completely different underlying causes.

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- **6 Tissue States-** In regards to the 6 tissue states, the pattern of heat and cold relates to hyper and hypo immunity, respectively- which are the direct correlates of tissue states to the immune system proper. The 2 damp tissue states and dry primarily relate to the state of the lymphatic system. Wind/tension does not *really* apply that directly here as neither of these systems are directly innervated by the nervous system. That being said, high levels of fever can lead to states of tension and wind which are relieved by our relaxant diaphoretics, so it does have an indirect connection. Let's take a look at these tissue states and how you might assess it in someone with either an acute or chronic dynamic at play within the immune and lymphatic systems.
 - **Heat/Excitation:** As mentioned above, heat/excitation relates to autoimmunity, or at least hypersensitivities in the immune system (IE excess). We can see it by there being excessive reactions to the slightest foreign materials entering the body, and in regards to autoimmunity, to the body itself. This is essentially systemic inflammation that is occurring chronically. The tissues are red, hot, inflamed, irritable, sensitive, swollen, and painful. The mucosa of the respiratory, urinary, and digestive systems are irritated and easily infected and inflamed. There is 99.9% of the time some form of food antigen, or food intolerance/allergy at the root of this that **must** be corrected for complete cure. For food is the one thing we are consistently putting into our body that would be at the root of a consistent hyper-inflamed state such as this. Because the immune system is overactive with chronic inflammation, there is likely tissue degradation and swelling in the lymphatics due to constant dead immune cells needing to be cleaned up. But this is really looking at it from a chronic perspective. The most straightforward representation of the heat/excitation tissue state in general is fever. Skin is red, pulse elevated and rapid, tongue red and sharp, heat, and elevated body temperature all being hallmark signs. Often the tongue will have a yellow coating if there are toxins present (metabolic toxins that is). Many of our Rose family plants are excellent for the autoimmune/systemic inflammation side of things, such as: Hawthorn (*Crataegus monogyna*), Rose hips and petals (*Rosa spp.*), Wild Cherry (*Prunus serotina*), Peach leaf (*Prunus persica*), Yarrow (*Achillea millefolium*), Elder berry and flower (*Sambucus spp.*), Lemon Balm (*Melissa officinalis*), Skullcap (*Scutellaria lateriflora*), and Bee Balm/Wild Bergamont/Horse Mint (*Monarda fistulosa*) - **Note: you'll see this plant under any of the 3 above common names, and there are others. I include them all there so you'll recognize it!**
 - **Cold/Depression:** As the opposite to heat/excitation, cold/depression indicates an innate deficiency in the immune system often accompanied by a generalized constitutional weakness. The body is unable to rid itself of invading pathogens as well as the metabolic byproducts of inflammation and immune activation. Thus there is a relative amount of stagnation within the interstitial fluids, lymph, and blood, and increased potential for recurrent infections and systemic toxicity- a precursor to deeper problems like cancer. Typically fatigue and lethargy go along with it, coldness in the extremities, fluid discharges, "bad blood" symptoms (IE skin issues), and swollen lymph nodes. Candida, leaky gut, poor digestion, low metabolism, weight gain, and chronic infections are likely. Because heat is associated with the vital force, there is typically lowered vitality (hence the lethargy and fatigue), and cellular function is depressed and creates an environment more prone to recurrent infections. The tongue will often be dark colored (red, purple or

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blue), with a white to yellow to brown coat, the pulse low, slow, difficult to find. This tissue state is treated with pungent aromatic remedies to rekindle digestive fire and circulate the blood. Examples include: Ginger (*Zingiber officinale*), Cayenne (*Capsicum annuum*), Cinnamon (*Cinnamomum spp.*), Black Pepper (*Piper nigrum*), Thyme (*Thymus vulgaris*), Oregano (*Origanum vulgare*), Rosemary (*Rosmarinus officinalis*), Prickly Ash (*Xanthoxylum americanus*), Echinacea (*Echinacea angustifolia*), Red Cedar (*Thuja plicata*), Calendula (*Calendula officinalis*), Wild Indigo (*Baptisia tinctoria*), and Figwort (*Scrophularia nodosa*).

- Dry/Atrophy: As the lymphatic system is primarily composed of fluids, when it enters a state of dry/atrophy, there is deep stagnation within the lymph nodes and thus lack of filtration of the blood, stagnation of fluids, and impaired nutrition to the cells because of toxic interstitial fluids. Immunity is comprised due to the relative immobility of what little fluids there are which contain lymphocytes. The glands tend to become hardened and swollen. During fever, if it is prolonged the body will loose too many fluids leading to systemic dryness. Symptoms here are indicated by dry red or pale skin, rashes, thinness, malnourished, weak constitution, emaciation, skin conditions due to “bad blood,” low appetite, intense thirst, constipation, weakness, infertility, and a dry tongue with weak absent pulse, potentially tense from nervous exhaustion. Remedies here include Pleurisy root (*Asclepias tuberosa*), Linden (*Tilia europea*), Burdock (*Arctium lappa*), Astragalus (*Astragalus membranaceus*), Cleavers (*Galium aparine*), Red Clover (*Trifolium pratense*), Violet (*Viola odorata*), Mullein leaf (*Verbascum thapsus*), Marshmallow (*Althea officinalis*), and Chickweed (*Stellaria media*).
- Damp/Stagnation: This is a very common tissue state associated with the lymphatic and immune systems. The lymphatic system is *very* prone to stagnation, for the same reasons the venous side of circulation is susceptible to it- it does not have a pump and requires physical activity and deep breathing for it to circulate. When the immune system is working hard, there is an excess of dead immune, bacterial and viral cells, various cellular debris and the like that the lymphatic system is responsible for cleaning up. This can overwhelm and congest the fluids, leading to swelling and stagnation in the lymph nodes, especially in the neck, armpits and inguinal area- depending on of course where the infection is located. In the old days this was called **scrophula**, today simply stated as swollen lymph nodes (though back in the day it would sometimes progress to the point of purulent discharges in the neck, cracking behind the ears, and congestion in the ears, throat). As the fluids stagnate, toxins accumulate which prolongs the immune activity and inflammatory processes. A lot of times people feel this as the post cough, cold, or flu phase, where they don't feel acutely sick anymore, but there's a lingering sense of not being fully well, with lethargy, lack of appetite, and an overall sense of being full, congested and not fully back on track. This is one of the main problems with antibiotics. They drop into the body like a nuclear bomb, completely destroying everything in their wake- killing the good and the bad of the bacterial world. But that's about as far as they go. Our body is like a battle field with rotting putrefying corpses everywhere. Those antibiotics don't do anything for cleanup- which is where our herbs shine. Common symptoms are heavy and dull sensations in the body and mind, achy pains, lethargy, fatigue, musculoskeletal pain, chronic infections, low grade fever, dark red tongue with a

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thick white coat. Alteratives and lymphatic remedies are highly indicated: Dandelion (*Taraxacum officinale*), Goldenseal (*Hydrastis canadensis*), Poke root (*Phytolacca decandra*), Blue Flag (*Iris versicolor*), Stillingia (*Stillingia sylvestris*), Figwort (*Scrophularia nodosa*), and Pipsissewa (*Chimaphila umbellata*).

- **Damp/Relaxation:** Relaxation of the lymphatic system can lead to a lack of filtration of the interstitial fluids because the tension at the lymphatic capillaries is such that they do not hold the fluids- they just passively leak back into the tissues. This can lead to edema or our general symptoms of passive venous congestion. This can impact the lymph nodes in the throat, leading to the need for constant swallowing, excessive sweating unassociated with fever (pores stuck open), chronically cool moist skin, and sinus leakage, aka post nasal drip. Astringents are our primary remedies for the relaxation tissue state anywhere, and these remedies were seen in classical systems of medicine as helping to strengthen the periphery of the body and it's resistance to intrusion and invading pathogens or cold. They help to "firm up" the constitution and as preventatives to colds and flus to be used during the winter months. There may be mental depression and apathy, insomnia, swollen glands, diarrhea, frequent urination which is pale and copious, and symptoms generally aggravated by dampness (environmentally). Some remedies here include: Red Root (*Ceanothus americanus*), Oak bark (*Quercus alba*), Bayberry (*Myrica cerifera*), Sage (*Salvia officinalis*), Witch Hazel (*Hamamelis virginiana*), and Sumach (*Rhus typhina*).
- **Wind/Tension:** This tissue state does not commonly affect the immune or lymphatic systems, as neither are directly innervated by the nerves. But, with long term congestion of the lymphatic system, it can undergo a certain "spasm" where it suddenly dumps its contents- what the old doctors called "venting the spleen." The quality of the blood suddenly changes and can shock the system into a sympathetic state, leading to slight fever, shakiness, sweating and weakness. It is commonly associated with the storing and releasing of strong emotions, or of inflammation stressing the spleen. The most common way this tissue state shows up though is during acute febrile states, where the fever has moved into the tension state- the person will often be physically tense with cramping muscles, pain, irritability, difficulty sleeping, physical discomfort, and overall psychological tension. They look like a "ball of nerves." Wind/tension is caused by the shivering mechanism being prolonged in it's influence which impacts the liver (liver wind)- often associated with the alternating fever and chills from malaria (called intermittent fever). Over prolonged periods of time the nervous system gets "stuck" in the sympathetic state, adversely affecting digestion (which needs to be in the parasympathetic state to properly function) as well as liver and gall bladder function. Wind/tension associated with fever is where the relaxant diaphoretics truly shine. Characteristic symptoms include chills, shivering, fever, muscular tension, aches and pains, chronic health issues ever since a fever, spasms or convulsions, chronic digestive issues since fever, sympathetic dominance in the nervous system, alternating diarrhea and constipation, symptoms come and go at random. Tongue is often shaky and the pulse is tight, wiry and hard. Common remedies here include: Lobelia (*Lobelia inflata*), Elder flower (*Sambucus spp.*), Chamomile (*Matricaria recutita*), Lemon Balm (*Melissa officinalis*),

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Catnip (*Nepeta cataria*), Peppermint (*Mentha piperita*), Boneset (*Eupatorium perfoliatum*), Pleurisy root (*Asclepias tuberosa*), and Blue Vervain (*Verbena hastata*).

Evaluation Criteria

As with the musculoskeletal system, the immune and lymphatic systems do not have specific pulse positions to facilitate in its evaluation, though we can look to the overall quality of the pulse to assess the general state of the constitution and overall physiology. In Chinese Medicine, the spleen position is on the right wrist, medial position, deep. It's important to understand that the Chinese concept of Spleen is different from what talk about in the west, the anatomical spleen. Spleen in the Chinese system has to do with our bodies capacity to digest, absorb and process nutrients from our food- the transformational ability of the body. When it is deficient (what in Ayurveda would be considered low agni, or digestive fire), dampness accumulates which affects the lymphatics, immunity, and fluids of the body, which would in turn impact the physiological spleen.

In regards to the tongue, the lymphatics show up along the edges of the tongue, from the middle down towards the tip. This also indicates the bloodstream, which is intimately tied into the lymphatics. Typically what one would want to look for here would be the nature of the coating and relative moisture. What is commonly seen is “streamers” or little frothy bubbles along the edge of the tongue which typically indicates relaxation of the tissues. Scalloping along the edges shows weak Spleen or digestive faculty, as does the center of the tongue, which also corresponds to the stomach. Lymph and immunity are also indicated on the tongue by raised red papillae (dots) which indicate systemic inflammation or infection, if chronic it could indicate low grade or old persistent infections. These red dots indicate heat penetrating into the blood and are good indicators for Echinacea or Wild Indigo.

The lips can be indicators of the stomach/spleen complex also. Margi Flint also notes that choppy lines across the forehead are spleen lines, as well as lines that move from the outside corner of the eye and wash down the cheek. Blue-black coloration under the eye can indicate low or depressed immune function- typically associated with lack of sleep or a degree of adrenal fatigue.

But by far the best indicators of the immune and lymphatic systems are to simply observe the constitution and current state of symptoms. If there is lymphatic swellings, determine whether it is accompanied by dampness or cold (wet coated tongue, kapha, heavy thick obscure pulse), dryness (dry tongue, chaotic thin pulse, vata), or heat (red tongue, rapid pulse, pitta). Look to the specific stage of fever one is in- are they tired, dull, languid, fatigued, pale, and look like they need stimulation? Or are they tense, frustrated, achy, and look like they need to relax? These are often the best cues for proper remedy selection.

These are important clues that get us much more specific in choosing appropriate herbs that match the constitution and current tissue state- rather than just throwing a bottle of Echinacea at everyone that has a cold or a little fever, or just giving a shotgun formula that is no more strategic than an antibiotic.

The Energetic System

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A central theme in regards to the energetics, or the spirit of the immune system is the capacity to differentiate self from non-self. On a cellular level this is one of the most vitally important aspects of immunity, which ultimately protects our cells and tissues from self attack. We can reflect this microcosmic pattern on the cellular level up into the territory of our psychology and spirit and see it's importance here as well.

The capacity to differentiate self from non-self brings us to a discussion of boundaries and spiritual sensitivity. Many highly empathic individuals with a call to healing oftentimes have little to no energetic boundaries, walking around like a sponge soaking up all the "stuff" from other people's minds, hearts, and electromagnetic fields. They take on other people's stuff. As someone with 4 Planets in Pisces, the most sensitive of all the Signs, I can certainly relate to this. (Interestingly enough I ended up learning that Pisces rules the lymphatic and immune systems!) In my early 20's I can remember many times when I'd take the time to listen to a friend in need or going through hard times and having the sense of reaching out to them with my heart, and *feeling* for them so deeply and wanting them to feel better. After hearing out an angry friend I'd walk away feeling frustrating and angry, while they skipped away feeling all better. Offering a shoulder for someone to weep on would find me later that evening depressed and sad for reasons I couldn't figure out. I realized I was taking on everyone else's stuff!

The capacity to differentiate self and non-self is *vitally* important for healers. Compassion and empathy are gifts for healers- it is often engrained in their soul. But for our own health and sanity's sake, we cannot take other people's pain away and take it on as our own! We must learn to develop healthy boundaries, where we can extend empathy, compassion and love to others, while allowing them to process their own emotions, thoughts and feelings. If we are to do energetic or spiritual healing work with others (if you are called to that sort of thing) there must be proper "disposal" of those energies so they don't cling to us and follow us home. That's where life can get really challenging, confusing, and overwhelming. As healers it's vitally important to keep our lives clean- our bodies, our homes, our minds, and hearts, and the energetic spaces we surround ourselves in. This involves having clear boundaries with ourselves *and* our clients, and knowing how to differentiate self from non-self, and how to maintain our self-identity.

This dynamic of the self-identity and differentiation between self and non-self has everything to do with the thymus gland, which is it's central physiological function. Interestingly enough, the thymus sits right on top of the heart- where our True Self resides, as well as our path and life purpose. Suppressive medicines like antibiotics override this "immune school" and I believe fractures our physiological and psychological capacity to come into the fullness of our self-identity.

Matthew Wood also likens the lymphatic system to the "inner ocean" of the body (another Pisces reference as the Sign of the fishes), and have a connection to our imagination and the melancholic states- what he calls "artist funk" (cf Red Root).

Looking to the astrology of the lymphatic and immune systems, we see that the primary Planetary ruler is Mars and the Sun. Because the Sun governs our overall vitality and

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constitutional strength he lends a strong rulership to the immune system. This is essentially our core vital strength, resistance to disease and ability to ward off malefic influences. The immune system proper though comes under the dominion of Mars- the inner warrior. When our immune system becomes activated, the primary symptoms are all very Martian: heat, redness, inflammation, fever, and pain to name a few. As the archetype of the warrior, protector and defender, it makes sense that our bodies inner army would be ruled by the red planet. The root causes of fever on the other hand may be due to a number of different Planetary influences, though the response itself always is ruled by Mars. The Fire Signs (Aries, Leo and Sagittarius) may also prove of importance here. People with an excess of these Fire Signs (especially Aries) and Mars may be prone to autoimmunity or at least immune hypersensitivities.

The lymphatic system, being the “inner ocean” bears a strong relationship to the Moon, as well as the Signs Aquarius (the water-bearer) and Pisces (the fishes). All of the Water Signs (Cancer, Scorpio, and Pisces) will have some relationship to the lymph, but Pisces is the stronger ruler here, tying this Sign to the immune system in general as well. Neptune as the modern ruler of Pisces also bears strong correspondence, which is connected mythologically to the lymph as well, being the God of the Sea.

We can think of the Pisces-Virgo axis and see some interesting connections between the two. Pisces is the lymphatics and immunity and Virgo is the intestinal tract. The two are intimately connected via the GALT (Gut Associated Lymphatic Tissue), as well as the rich ecosystem of bacteria dwelling in the gut and the vast immunological components residing there as well. The whole complex of autoimmunity, systemic inflammation, and leaky gut syndrome could be seen as a disorder in the Pisces-Virgo axis.

| Body System | Planet | Sign | House |
|------------------|----------------|--|-------------------------|
| Immune System | Mars, Sun | Aries, Leo, Sagittarius. Pisces (in connection to lymph) | 1st, 5th, 9th, and 12th |
| Lymphatic System | Moon, Neptune | Pisces, to a lesser degree Aquarius | 11th and 12th |
| Spleen* | Saturn and Sun | Virgo, to a lesser degree Scorpio | 6th and 8th |

**I thought this was a very interesting passage from Cornell that I would share in regards to the Spleen.*

“The Solar Forces enter the body thru the Spleen, and are then circulated thru the body as the Vital Etheric Fluid, which fluid is ruled by the Sun. The Spleen is called the Gateway of the Solar Forces. The focal point of the Astral Body in the physical body is in the Spleen, and the

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Spleen contains the center which connects the physical body with the Astral World, and to coordinate with its activities requires much balanced power of understanding.”

-H.L. Cornell in “Encyclopedia of Medical Astrology.”

Primary Herbal Actions

- **Diaphoretic:** This is a primary herbal action for operation on the febrile mechanism, or the fever response. Oftentimes with acute immune activation and illness, fever is present, and understanding proper and appropriate treatment of fever is **vitaly important** for the modern herbalist to have in their skill sets. It cannot be understated how important these remedies are, and how much better they are than standard over-the-counter and even prescription drugs in the treatment of fever. This is because diaphoretics are absolutely supporting the vital force in achieving what it is doing with a fever. They do not take a fever away from suppressing it like aspirin, but rather support the fever in achieving it’s goal, often by actually gently raising the fever, increasing circulation, and pushing everything up towards the surface so that the fever can break. This is why in Chinese Medicine they are often called “surface relieving” remedies. Like many of our vitalist actions, diaphoretics can generally be divided into 2 categories, which match the different stages of a fever and should be used appropriately: stimulants and relaxants.
- **Stimulant Diaphoretic:** A stimulant diaphoretic is just as it sounds, stimulating. Not to the nervous system per se, but rather to the circulation of blood throughout the organism, primarily to the periphery and surface of the body. They move the blood from the core organs of the body and bring it out to the capillary beds underneath the skin, often dilating these beds so that more blood can be pushed through them. Just like how Fire moves up and out, these herbs drive the vital force in that direction in order to distribute the heat of the organism throughout the system and relieve some of it through the surface. By driving the heat up and out, they will open the pores of the skin and induce sweating, thereby lowering body temperature and helping the fever to break. These are best used in the earlier stages of a fever, when the person feels chilled, pale, cold, tired, run down, and fatigued. Sometimes there isn’t a fever as of yet (according to a thermometer) because the hypothalamus has reset the internal set point temperature to higher than normal, but because the body temperature is still at normal the person will feel cold.
 - An important consideration with stimulant diaphoretics is that they lower fever not just necessarily through sweating, but simply by opening the capillary beds at the surface and allowing hot blood in the core to be vented at the surface, cooling the blood as it returns to circulate back to the core. These are **all** pungent, aromatic, spicy remedies that typically contain warming essential oils. They are across the board warming to hot remedies. Of course there are varying degrees of heat they will contain, and it’s ideal to choose a remedy with a matching degree of heat to the general degree of cold the person is experiencing.
 - While they are initially heating and pungent, because they cool you off they have a secondary effect of being cooling. Also worth mentioning is that many (if not all) stimulant diaphoretics are also circulatory stimulants, carminatives, and expectorants. They are typically best delivered as a hot tea, or at least tincture delivered in hot water. Examples of classic stimulant diaphoretics include: Cayenne

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(*Capsicum annuum*), Ginger (*Zingiber officinale*), Yarrow (*Achillea millefolium*), Thyme (*Thymus vulgaris*), Oregano (*Origanum vulgare*), Garlic (*Allium sativum*), Onions (*Allium cepa*), Prickly Ash (*Zanthoxylum americanum*), Wild Bergamont (*Monarda fistulosa*), Clove (*Eugenia caryophyllum*), and Wild Ginger (*Asarum canadensis*).

- **Relaxant Diaphoretic:** This category of diaphoretic is different from the stimulant diaphoretic in that rather than stimulating peripheral circulation and driving the blood to the surface, they relax the neuromuscular tension that often occurs in the vasculature during a fever. These are typically used in a later stage of a fever, when there is a distinct elevation of body temperature, and the person is hot, red, and tense- both physically (muscle pain, discomfort, difficulty sleeping etc.) as well as psychologically (irritable, frustrated, etc. *You can usually tell when someone is tense...*) Many of our best relaxant diaphoretics are also anti-spasmodics, since they are relaxing tension in the vasculature. Some classic examples of relaxant diaphoretics are: Elder flower (*Sambucus spp.*), Boneset (*Eupatorium perfoliatum*), Lemon Balm (*Melissa officinalis*), Blue Vervain (*Verbena hastata*), Lobelia (*Lobelia inflata*), Pleurisy root (*Asclepias tuberosa*), Catnip (*Nepeta cataria*), Peppermint (*Menta piperita*), and Spearmint (*Mentha spicata*).
- **Antipyretics:** This category of herbal action means those agents which is effectively lower a fever. Diaphoretics do the same, but through different mechanisms. An antipyretic medicine is often a cooling refrigerant, many of which contain constituents which will modulate inflammation and lower the fever response- most often the salicylate or berberine containing plants. There are two ways of looking at their action, the first is through pharmacological effects or through their humoral effects, which are typically bitter, cooling and draining to moisture. In my opinion, they are not as preferable to use as a diaphoretic as their mechanism is more suppressive to the vital force- moving the body in the opposite direction it is trying to go. Some examples of antipyretics include: Willow bark (*Salix spp.*), Meadowsweet (*Filipendula ulmaria*), Wintergreen (*Gaultheria procumbens*), Oregon Grape (*Mahonia aquifolium*), Barberry (*Berberis vulgaris*), and Usnea lichen (*Usnea spp.*).
- **Immunostimulant/Anti-Microbial:** I lump these 2 actions together because there are only a few herbs that have scientifically been proven to directly activate the immune system for use during acute infection- yet many have been shown to display broad spectrum antimicrobial properties both in vivo and in vitro. Here we see plants having 2 types of actions, either stimulating the bodies innate defense mechanism by raising white blood cell count, thus helping the body itself to destroy pathogens, or by having direct constituents in them which fight off infection. Many plants do this through various biochemical mechanisms, from alkaloids like berberine in Goldenseal and Oregon Grape, to multiple compounds in essential oils, or other interesting pathways, such as Cranberry's ability to prevent adherence of *E. coli* to the walls in the urinary tract.
 - Also worth mentioning here is that many of these remedies are also alteratives which facilitate in the detoxification of the blood, lymphatics, liver, spleen, and skin, cleansing the body of cellular debris, metabolic waste products, and dead viral, bacterial, and immune components. Different antimicrobial and immunostimulant remedies will also have different affinities for certain organ systems, making certain remedies specifically indicated depending on the local site of the infection. At the end of this lesson is a list of

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various antimicrobial plants divided according to major organ systems prone to infection, primarily the urinary, digestive and respiratory system.

- Some major antimicrobial and immunostimulant remedies include: Echinacea (*Echinacea purpurea* and *E. angustifolia*), Wild Indigo (*Baptisia tinctoria*), Calendula (*Calendula officinalis*), Eucalyptus (*Eucalyptus spp.*), Juniper (*Juniperus communis*), Myrrh (*Commiphora molmol*), Gentian (*Gentiana lutea*), Sage (*Salvia spp.*), Oregano (*Origanum vulgare*), Thyme (*Thymus vulgaris*), Yarrow (*Achillea millefolium*), Rosemary (*Rosmarinus officinalis*), Usnea (*Usnea spp.*), Wormwood (*Artemisia absinthium*), Mugwort (*Artemisia vulgaris*), Sweet Annie (*Artemisia annua*), Elderberry (*Sambucus spp.*), Garlic (*Allium sativum*), Ginger (*Zingiber officinale*), Elecampane (*Inula helenium*), Osha (*Ligusticum porteri*), Lomatium (*Lomatium dissectum*), Licorice (*Glycyrrhiza glabra*), and Balsam root (*Balsamorhiza sagittata*).
- **Immune Tonic:** These would be our deeper acting remedies on the immune system, used to strengthen the vital reserve and build up core immunity- rather than superficially stimulating the peripheral immune system. As such, they are best used while one is not acutely sick in order to rebuild the immune system and are typically considered contraindicated during acute infection. Most of these are adaptogenic remedies which have much farther reaching actions that simply supporting the immune system, such as strengthening the nervous system, modulating the endocrine system and hormones, strengthening digestion, and enhancing overall vitality. Some examples of classic immune tonics include: Reishi (*Ganoderma lucidum*), Ashwaganda (*Withania somnifera*), Codonopsis (*Codonopsis tangshen*), Eleuthero (*Eleutherococcus senticosus*), Elderberry (*Sambucus spp.*), Licorice (*Glycyrrhiza glabra*), Astragalus (*Astragalus membranaceus*), Ginsengs (*Panax spp.*), Cordyceps, Maitake, Shiitake (*Lentinus edodes*), Chaga, and Schizandra (*Schizandra chinensis*).
- **Anti-Viral:** Here we have various plants that are specific against viruses. There is a relative amount of controversy amongst herbalists as to whether herbs actually do have impacts against viruses or not- I stand on the fence. I've treated viral infections with herbs quite successfully, but whether the herbs were "killing the virus" or simply shifting the ecology of the body and boosting immunity to handle it I do not know. In vitro studies have revealed certain plants to either being directly virucidal, by inhibiting viral replication, or by protecting the host cells from invasion via interferon like mechanisms. Many botanical compounds have been studied by scientists and shown to inhibit different stages in viral replication- much of these studies have been fueled by HIV research. A few herbs that I am familiar with that have displayed anti-viral activity include: Elderberry (*Sambucus spp.*- **Note: primary research has been on *S. nigra*, the common European variety**), Osha (*Ligusticum porteri*), Lomatium (*Lomatium dissectum*), Sage (*Salvia spp.*), St. John's Wort (*Hypericum perforatum*), Usnea (*Usnea spp.*), Lemon Balm (*Melissa officinalis*), and Propolis. I'm sure there are many others.
- **Anti-Parasitic** These would be remedies that display activity against parasitic infections- primarily impacting the digestive system, but can include those impacting the skin as well. These are oftentimes nauseatingly bitter remedies and are often extremely cooling in their energetics, with the exception of Clove. Be cautious in giving these to vata type constitutions as it can certainly aggravate their coldness and dryness. If someone comes to me and says

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they have parasites **I want to be sure.** I don't just say "okay here's some herbs for that," but rather want either a lab test to see what specifically is going on, or to get some clear information that would indicate that. That would primarily be examples of traveling to 3rd world countries, going camping and drinking river water etc. Typically if the symptoms started during a time like that and they've "never been the same since," it's a pretty clear indicator. But there are small factions of the alternative health scene where everyone thinks they have parasites and just want to cleanse, cleanse, cleanse... which can prove to be quite unhealthy. Some specific remedies here include: Oregon Grape (*Mahonia aquifolium*), Wormwood (*Artemisia absinthium*), Sweet Annie (*Artemisia annua*), Black Walnut (*Juglans nigra*), Pau d'Arco (*Tabebuia avellanedae*), and Clove (*Syzygium aromaticum*). I'm sure there are many others.

- **Alterative:** We have discussed the alterative action in many previous lessons. Naturally as the inflammatory process ensues and the immune system is waging it's war, there is a lot of clean up that needs to happen. Over time, the lymph, blood, liver, spleen, kidneys, digestion, lungs, skin etc. can become stagnant and congested with all the dead bacteria, viruses, and immune components. Alteratives are indicated to keep the channels of elimination open and fluids and tissues of the body free and clear and cellular debris. As previously mentioned, this is a very broad category of herbs, each of which will have a specific system or organ affinity- thus they should be selected appropriately (IE- diuretics for the kidneys, hepatics and bitters for the liver, expectorants for the lungs, diaphoretics for the skin etc.) As we are focusing on the immune and lymphatic systems, the most important sub-category of alteratives here would be our lymphagogues, or lymphatic remedies.
- **Lymphagogue:** These are our remedies which facilitate in the draining, cleansing, and detoxification of the lymphatic ducts and glands, as well as the blood and interstitial fluids. Many of them are general alteratives as well, and may act on the kidneys, liver and bowels along with the lymph (they are all so interconnected). You may also see the term "lymphatic" in place of lymphagogue- they essentially mean the same thing. These remedies are indicated whenever there is swelling in the lymph nodes, congestion of fluids within the system, a slow, sluggish, toxic sensation, and that post sickness "not quite feeling right" sensation, where you are better but not totally there yet. This is typically due to cellular debris stagnating within the system, as well as dead bacteria or viruses secreting exotoxins that maintain a low grade fever and inflammation. Some of our great lymphagogues include: Cleavers (*Gallium aparine*), Poke (*Phytolacca decandra*), Figwort (*Scrophularia nodosa*), Blue Flag (*Iris versicolor*), Red Root (*Ceanothus americanus*), Calendula (*Calendula officinalis*), Echinacea (*Echinacea purpurea*, *E. angustifolia*), Burdock (*Arctium lappa*), Red Clover (*Trifolium pratense*), Bayberry (*Myrica cerifera*), and Balsam root (*Balsamorhiza sagittata*).
- **Expectorant:** This action was covered in our respiratory lessons, but I wanted to mention it here again, as very often the local site of a cold or flu is rooted in the respiratory system. Evaluating the energetics of the mucosal membrane in the lungs is central to proper materia medica selection, as it is the difference between making a cough feel better or worse. Review your notes on the respiratory system for more information and to brush up on that material, as it is often central to treatment of the immune system and acute infection.

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Materia Medica by Common Symptoms

Acute infections can affect any of the major organ systems of the body, but we primarily see them in the mucosal membrane coated systems: urinary, digestive, and respiratory systems, with the latter being the most common. This is due to the fact that they are superficial systems, meaning they are in close proximity to the exterior of the body, hence they are on the “front lines” so to speak. Infection of the deeper organs, such as the liver, kidneys, spleen, and heart are much more serious conditions that are beyond the reach of this program (IE they should probably see a doctor). Of course, many herbs have the ability to operate on these deeper level infections, but they are much more serious and not to be taken lightly.

For our purposes here in regards to common symptoms and materia medica, the focus will primarily be on the treatment of fever and lymphatic swellings. Acute infection of the respiratory, digestive and urinary systems are covered in their respective sections of this course and will not be reiterated here. Please see those lessons for details on treatment of infections of those organ systems.

- **Fever:** While fever was briefly discussed above, what I’d like to cover here is some more of the physiology and process of a fever so you can recognize the stages it goes through so you’ll know how and when to apply certain herbs. To reiterate, a fever is a healthy response to the presence of pathogens and antigens in the body- it is normal and natural! A fever is not a disease in and of itself, but rather an intelligent response of the body. A lot of people get really freaked out by fever, but temperatures reaching between 102-104 F are a good healthy fever, which in fact optimizes antibody and white blood cell production (about 20x), enhanced detoxification and circulation. A fever is triggered by the hypothalamus which receives signals from the immune system to close the pores of the skin and increase the **set point** of our internal temperature. While 98.6 is considered a standard set point for most people, but it can go down to 96 for some people, and sometimes up to 99. It’s good to know that our temperature fluctuates throughout the day, as well as throughout the seasons. It’s different from person to person. Let’s take a look at the basic febrile process, of which there are 4 primary stages.

1. **Stage 1:** During the 1st stage of a fever, the hypothalamus has received the signal of an invading pathogen and raises the set point of our body temperature. Say it sends it up to 102. If the set point is at 102, but our actual temperature is still around 98, we will feel cold. Thus the first stage is marked by feeling cold, the pores of the skin are closed, and the blood is shunted from the periphery to core of the body in order to warm it up. This also makes you look pale. The hypothalamus will also initiate the shivering response, activating the muscles in order to produce friction to warm you up (shivering increases metabolism by 20%, thus it is generating heat). This is the stage of fever that requires stimulant diaphoretics, since the body is attempting to warm itself up. Also taking hot baths, being in warm rooms, and just keeping warm!
2. **Stage 2:** Once the 2nd stage is reached, the hypothalamic set point is reached, and the physiological temperature rises up to that point. As mentioned, 102-104 is considered a good healthy fever. At this point you will feel warm, the skin red, dry, and flushed, because the blood is now shunted from the inner organs to the periphery. The body is

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trying to cool itself off. Due to rapid circulation the pulse is rapid, high and bounding. Temperatures above 99.5 shuts down the digestive system, hence eating during a fever is **not recommended**. There's an old saying, "fast a fever, nourish a cold." If you eat food during this stage of fever you are likely to slow your immune response, as the vital force that was going into fighting the fever is now going to digesting food. Because the immune system requires amino acids in order to manufacture it's components, and there is a lack of nutrition from digestive shut down, muscle tissue is broken down in order to provide the baseline components- hence fevers are also accompanied by musculoskeletal aches. This is where the relaxant diaphoretics are primarily used therapeutically. Also important is to drink copious amounts of fluids (luke warm is good), **no cold baths or ice on the body**, warm tepid baths are good as opposed to piping hot baths,

3. **Stage 3:** The hypothalamus now reduces the set point back to standard body temperature, though the body itself is still at a higher temperature, thus the person feels very hot. This is the point of the fever breaking and sweating ensues in order to cool the person off. Oftentimes a fever will cycle between stage 2 and 3 intermittently. Here we want to simply make sure the person rests properly and continues to fast until the fever drops to below 99 degrees and they actually feel hungry. Simple foods like bone broth or soups are good.
 4. **Stage 4:** This is considered the recovery period after a fever, and is typically the same length of time as the fever lasted itself. Here we want to continue with rest therapy, nourishment, alterative herbs if needed, and not returning to strenuous (or any) activity. This rest period is crucial, if it is not taken then symptoms are likely to return or they won't fully recover.
- While 104 is a pretty high fever, that is considered the high range of a healthy working fever. The influenza virus dies at 99 degrees, *gonococcus* dies at 104, and polio virus replication is reduced at this temperature as well. Dangerously high fevers are those which reach above 104. At 106 there is possibility of seizure, but this is also the temperature at which *pneumococcus* and various spirochetes dies. Fevers of 108-110 is when there may be brain damage due to protein denaturing and death of our normal cells. The last important consideration of fevers is the risk of dehydration due to fluid loss, which requires adequate water intake and electrolyte replacement. This is especially important in young children, elderly, and patients which are notably weak.
 - As mentioned previously, suppressing fevers with the use of antipyretic herbs (Willow, Oregon Grape, Meadowsweet) or NSAID's (aspirin) increases the length of infection time. There was a study where rabbits were injected with pneumococcus and had a 29% mortality rate. When their fever was artificially lowered with salicylates they had a 100% mortality. That's a pretty alarming number! Remember the fever is the intelligent response of the body, not the illness itself.
 - An important note here before we get into fever materia medica is that most of these remedies are best prepared as hot infusions, as the hot water is the best delivery mechanism to bring the herbs to the surface. Naturally, it's hot which helps to warm the

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body up. Let's take a look at some materia medica based on the different phases of fever, essentially between stimulant and relaxant diaphoretics.

Stimulant Diaphoretics- Stage 1 Fever Remedies

- Cayenne (*Capsicum annuum*): Cayenne is of course one of our best circulatory stimulant remedies, kindling the heat in the central core of the body and pushing it out to the periphery. As a circulatory stimulant it helps to dilate the peripheral capillary beds and drive the blood to the surface of the skin. It can be taken as a powder mixed in hot water for this purpose, or as a tincture in hot water. This remedy was used extensively by Samuel Thomson as well as the physiomedicalists as a circulatory stimulant for a wide variety of illnesses. It's worth noting here that Cayenne is a really strong plant, and people with weaker constitutions may be overly stimulated by it. I suggest only using it in people with robust constitutions. For those that may not tolerate it, Ginger is an ideal alternative.
- Ginger (*Zingiber officinale*): Like Cayenne, Ginger is an excellent stimulant diaphoretic, though with a gentler warming effect than Cayenne. Both of these remedies are also excellent antimicrobial remedies that support the immune system. The temperature difference is quite remarkable between fresh and dry Ginger, with the dry being significantly more pungent than the fresh roots. Either work just fine. Ginger also makes an excellent remedy to add to a hot bath, of which the powder works quite well. It has a strong affinity for the GI and as such is an important remedy for intestinal infections. Wild Ginger (*Asarum canadensis*) is a similar remedy (though totally different family and genus) that is interchangeable, though it is a bit warmer than standard Ginger.
- Yarrow (*Achillea millefolium*): This remedy is my favorite remedy for treating fever, primarily because it has such a broad spectrum of action. It is slightly mixed in its stimulant and relaxant properties and can be used in either stage 1 or 2 of a fever. It effectively increases the circulation of the blood, the oil being a relatively broad spectrum antimicrobial, stimulant to the immune system, and also has good inflammation modulating and cooling effects. So much about this plant is paradoxical, as it is warming and yet cooling at the same time. It is part of a classic triplet fever formula used in western herbalism for quite some time, which includes Yarrow, Peppermint and Elder flowers. I think Yarrow is one of the most dynamic remedies for treatment of acute infection with a broad range of application (respiratory, urinary, digestive, blood, circulatory, fever, topical, etc.) One of the neat things about Yarrow is that it not only stimulates the circulation of the blood to the periphery, but directly acts upon the venous return and drainage of the interstitial fluids.
- Thyme (*Thymus vulgaris*) and Oregano (*Origanum vulgare*): I lump these 2 remedies because they are relatively similar in their actions. Both contain a high quantity of aromatic essential oils which are pungent, warming and diffusive, increasing circulation and being directly antimicrobial in their actions. The oils can also be used in a diffuser to disinfect the air in a home, an excellent approach to what David Crowe calls "community immunity." They are excellent when the person is cold. They have a strong influence on the respiratory and digestive systems, dispersing cold and damp

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accumulations- a very useful action especially towards the end of infection when the digestive function is low and there is general stagnation in the fluids and tissues of the body.

- Garlic (*Allium sativum*): One of the most famous remedies in the world, Garlic has been used since time immemorial- throughout the Arabias, Egypt, Greece, India, China, and the Americas. From the humoral model of medicine, it is considered hot in the 4th degree, as it can raise blisters on the skin. It increases peripheral circulation, dilates the capillary beds and displays *very* broad spectrum anti-microbial activity. A traditional method of preparation is to make a Garlic honey, where crushed or finely minced garlic is covered with honey, with small spoonfuls taken. The honey helps to buffer the slightly irritating properties of the Garlic, enhances the antimicrobial activity (if its good wildflower honey), and makes it much more palatable.
- Other good stimulant diaphoretic remedies include: Sassafras (*Sassafras albidum*), Cloves (*Syzygium aromaticum*), Wild Ginger (*Asarum canadensis*), Rosemary (*Rosmarinus officinalis*), Wild Bergamont (*Monarda fistulosa*), and Prickly Ash (*Zanthoxylum americanus*).

Relaxant Diaphoretics- Stage 2 Fever Remedies

- Boneset (*Eupatorium perfoliatum*): This is likely one of the **best** relaxant diaphoretics we have available to us. It is specific for high fever with a significant amount of tension, to the point of deep seated pains in the muscles and bones (remember the immune system strips amino acids from the muscles to build more erythrocytes and components). It is a *super strong* bitter remedy with an acrid undertone, indicating it is cooling and relaxing- making it ideal for high fever with tension. It is used both herbally and homeopathically for the same thing, thus can be used in a variety of dosage ranges. It was traditionally used for intermittent, or malarial fever, with alternating fever and chills- specifically when one feels a chill enter their system that won't go away and persists. German research has shown Boneset "boosts" the immune system even more strongly than Echinacea, and thus enhances our own bodies innate and specific defense mechanisms, as well as possibly having direct antimicrobial actions. While a hot tea is often ideal for delivering diaphoretics, this remedy is so bitter it can be a bit difficult to get down. Tincture will suffice, especially if delivered in hot water. Too much of the tea can be nauseating and emetic, so don't make it too strong!
- Elder flower (*Sambucus spp.*): Another one of our quintessential fever remedies, the use of Elder flower goes back a long ways- after the fall of the Roman Empire, in around 800 CE, Charlemagne decreed that every household would plant an Elder tree, making it one of the most prominent plants used in European folk medicine. While this plant has a massive amount of applications and different parts which are used, in regards to the treatment of fever, it is the flowers we are most concerned with. The flowers prepared as a hot tea promote a rapid perspiration, relax tension in the muscles and mind, and promote a pleasant peacefulness. It is indicated when the skin is hot, irritable, red and dry- in fever and in other conditions (primarily skin conditions). It's an excellent remedy for children as the taste is mild and palatable for them- especially combined with

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Peppermint or Lemon Balm. It's specifically applicable when there is congestion in the upper respiratory tract. The berries of Elder are quite different than the flowers, in that they are extremely antioxidant and cooling, directly antiviral and antimicrobial, stimulating to the immune system, and building to the blood. I consider the berries of Elder to be a deep acting immune tonic, somewhat like the immune tonics from Chinese Medicine (Astragalus, Schizandra, etc), but not many western herbalists talk about it that way. It's important to mention that the red Elder berries **cannot** be used a medicine, though the blues and blacks are excellent. The reds contain cyanogenic glycosides which are toxic. The bark and leaves have also been used though are purgative in nature- I have no experience of using them.

- Lemon Balm (*Melissa officinalis*): Lemon Balm is an excellent relaxant diaphoretic as it has a stronger affinity for the nervous system than the above remedies. I like to think of it as being specific for someone who is tense, hot, irritable, and loosing sleep due to fever. It is a great sour cooling remedy, which sedates excessive heat/excitation in the tissues, and relaxes wind/tension in the musculature, vasculature, and mind. By helping to relax tension in the vessels it allows the blood to circulate more freely to the periphery thus lowering fever, and by relaxing skeletal and smooth muscles it can help with tension and pain from fever, as well as helping the nerves to settle so that one can sleep and rest more comfortably. Due to its pleasant taste, it's a very ideal remedy for children.

I can remember my first use of Lemon Balm for fever and children was with my little nephew. His cheeks were bright red, skin bone dry, pulse rapid and bounding, writhing in pain, achey all over, irritable and frustrated. And he wanted ice cream.... I gently warned against giving it to him- the massive dose of dairy and sugar sure to make his symptoms worse and prolong the fever and infection. Not being a parent myself, I can't really understand what it must be like, but it seems like sometimes it's easier to just submit than to deal with the temper tantrum. Down went the massive bowl of ice cream. I was curious to see what would happen.

15 minutes later I heard the cry "my tummy hurts!" As if he needed anything more to throw on top of everything else contributing to his misery. I offered to help him out with some herbs (my family can sometimes be a little skeptical of what I'm up to with plants...) I didn't have much on hand, but I did have a little bottle of Lemon Balm spagyric essence, so I gave him 3 drops or so on his tongue and watched to see how he responded. His stomach sure was upset by that point and he was almost manic it seemed, very tense and irritable. In about 5 minutes he felt like he needed to get sick (I like to think of it as getting well, since it's the bodies intelligence at work). To the toilet he went and purged the contents of the ice cream (luckily before it would really have a chance to get into his system). Afterwards I had him drink some water and administered another drop or 2. His tension subsided and he started to gently perspire and slipped into a deep sleep. He woke up with no fever. I was stoked... and so was his mom =)

This illustrates a principle in both febrile states as well as emetics. Lemon Balm is definitely not an emetic plant (which I had to convince his mom of for a bit!), but what was happening was that he had so much tension systemically that the sphincters of his stomach were clenched shut and because his GI was shut down due to the fever there was no juices or anything there

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to digest it (I believe he also has a dairy allergen which runs in the family). The Lemon Balm not only relaxed the peripheral tension in his capillaries to allow the fever to break, but also relaxed the tension in his pyloric sphincter which allowed him to relax enough to purge out the ice cream.

- Blue Vervain (*Verbena hastata*): This is another great remedy with a good strong affinity for the nervous system and the tension tissue state. Though unlike Lemon Balm, with its nice aromatic sweet taste, Blue Vervain is bitter.... *really* bitter. It's great for fevers with a good amount of musculoskeletal tension, especially in the neck and shoulders, and for people who just want to work right through the fever- those individuals who have iron clad will power and refuse to take to bed, refuse to stop going, will not submit! A strong hot tea of the bitter herb promotes and good relaxed diaphoresis, but can also be slightly nauseating for some- it combines well with Ginger for that. Because it is so relaxing, it is useful when there is musculoskeletal spasm, aches in the bones, and even to the point of convulsions.
- Pleurisy root (*Asclepias tuberosa*): While often regarded as a respiratory remedy, Pleurisy root is also an excellent relaxant diaphoretic, especially in dry/atrophic conditions where the individual has lost copious amounts of fluids, drying out the lungs, serous membranes and the like. As a "fluid generator" it is especially useful for febrile states where excess heat has cooked down the fluids, or evaporated them off. There is typically dry skin, soreness in the joints, and the specific respiratory indication of "hot and dry above, moist below." So in fever with cough it is a specific.
- Some other good relaxant diaphoretics include: Lobelia (*Lobelia inflata*), Catnip (*Nepeta cataria*), Linden (*Tilia europaea*), Chamomile (*Matricaria recutita*), Peppermint (*Mentha piperita*), and Wild Yam (*Dioscorea villosa*).
- In general, you do not want to use a stimulant diaphoretic during this 2nd stage of a fever, because they will drive too much blood to the surface, increase the rate and height of the pulse, and generally stress and overstimulate the system.
- The following herbs can typically be used in both stage I and II of a fever, as they are both relaxing and mildly stimulating: Catnip (*Nepeta cataria*), Yarrow (*Achillea millefolium*), Lemon Balm (*Melissa officinalis*), and Peppermint (*Mentha piperita*).
- Most treatments for fever should contain both stimulant and relaxant diaphoretics. This is because if someone comes to see you for a fever, or you are doing a house call, the fever will change rather quickly- so unless you are going back every day, or a few times a day, it is not practical. So a nice blend of relaxant and milder stimulant diaphoretics is an ideal approach.
- **Colds and Flus:** Here we shift gears away from therapeutics specifically for fever and into the territory of colds and flus. It's kind of funny that we typically say those two words right after one another, "colds and flus," as if they are similar to one another. The common cold is considered a relatively minor illness, whereas the flu can be *very* serious and kills millions of people every year. What they do have in common is that they are typically respiratory route viral infections. The unique thing about viruses is that they are unable to reproduce on their

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own accord and require hosts in order to survive. Essentially they penetrate into our healthy cells, dock onto the DNA, and use our own genetic code to replicate themselves and ultimately destroys the cell! Super invasive. They are typically sensitive to higher temperatures found in the core of the body, and thus tend to dwell closer to the periphery of the body- hence the respiratory tract is a primary site of dwelling. They primary enter via inhalation from a microscopic droplet of mucous (like mist) that someone else who is infected coughed or sneezed out. Thus the air itself can literally be filled with viral infected droplets of mucous, hence the traditional uses of smudging herbs or diffusing essential oils. Examples of respiratory viruses include: influenza (flu), rhinovirus (cold), adenovirus, and syncytial virus.

The main difference between the common cold and the flu, is that the latter always has an accompanying fever and musculoskeletal pain, whereas the common cold is typically localized to the respiratory tract (sinuses, throat, lungs etc.) and is accompanied by cough, sore throat, sinus congestion, sneezing, copious mucous, and sometimes eye irritation. The symptoms of the common cold typically last less 4-5 days (unless suppression occurs) and flu symptoms can last longer. The common cold can be caused by a wide variety of viruses, whereas the flu is one specific virus (*Myxovirus influenzae*). Also a major difference as mentioned above, is that the common cold is relatively benign whereas the flu can kill you. Colds typically display cold/damp symptoms, whereas the flu often displays as heat/dry symptoms (depending on the phase). As the flu is marked by fever, everything mentioned above applies.

It is the T-killer cells which are primarily responsible for attacking viruses. This is why a new virus can enter the general population and make so many people so sick- because they do not have any immunity (antibodies) to it. This is also why taking drugs and suppressive medicines ultimately make one more sick because the immune system isn't given a chance to develop memory of those antigens. Most flus are spread via pigs or birds (chickens), which are variously called avian or swine flus. Many of these begin in rural China and spread back and forth between pigs and birds, which leads to radical mutations and the formation of different strains- hence we can get sick from different types of influenza.

Let's look at some herbs common used for the treatment of the common cold and flu:

- Echinacea (*Echinacea purpurea* & *E.angustifolia*): This is obviously the most popular remedy used in the modern world in the treatment of both common colds and the flu. What is interesting is that Echinacea has not demonstrated any impact upon shortening the symptoms or preventing the flu. This was also noted by the Eclectic physicians. It's a common practice today for people to take massive amounts of Echinacea at the initial onset of the cold to try and beat it before it sets in. While this is often relatively effective, from a truly holistic standpoint, it is a form of suppression. Colds come on when people are tired, stressed, not eating well, and generally deficient (especially in their immunity). More often than not the cold is the cure, as it's trying to knock the person off their feet, get them in bed to rest and recuperate. If you take a squirt of Echinacea every hour for 2 days to try and "beat it" and keep on going not sleeping enough, eating well, and being all stressed out, from a vitalist perspective you just got more sick. That being said, this method *does work* for preventing the cold from coming on.... but it is suppressing a natural healing process-

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because it is a perspective of “fighting off the infection,” as opposed to seeing the ecological dynamics of the organism. “Chronic suppression of acute symptoms leads to chronic disease.” Read that carefully and remember it.

The roots and flowers of Echinacea are what are used and display a pretty broad spectrum antimicrobial actions, as well as direct stimulation of the immune system. It directly activates macrophages, neutrophils, monocytes, eosinophils, B and T-cells, as well as direct activity against *Streptococcus* and *Staphylococcus* bacteria, via it’s broad range of constituents like polysaccharides, caffeic acid derivatives, alkylamides, and essential oils. It has a strong affinity for the respiratory tract and the blood. But traditionally, Echinacea was primarily used as an alterative medicine with a primary affinity for the lymphatic system and purifying the bloodstream, for symptoms like blood poisoning, septicemia, poisoning, and boils. It also has topical applications for snakebites, spider bites, and other infected, poisonous wounds. Thus what we see in the traditional use of this remedy by the Eclectics wasn’t for minor acute head colds and upper respiratory tract infections, but rather deeper levels of infection within the blood itself, a very serious situation. It is primarily used for the depression and irritation tissue states. It is contraindicated in autoimmune excess and immune hypersensitivities.

- Elderberry (*Sambucus spp.*): This remedy was discussed in more detail above under fever. But it is important to realize that the berries are extremely beneficial for the treatment of both cold and flu. They are traditionally prepared as a syrup. The honey also provides a nice demulcent and expectorant effects. Research has been done in vivo and in vitro and found that there are certain compounds in Elderberry that directly kill and prevent replication of the influenza virus *in multiple strains*- showing that it is working in a way that the virus cannot mutate around. The main way this has been shown to operate is that constituents in the berries of Elder effectively deactivate the enzyme (called neuraminidase) that stud the influenza virus which are responsible for breaking a hole in the cell wall allowing it to invade our healthy cells. So in a sense it deactivates the virus, making it unable to replicate itself by invading the cell. It has been shown to do this within 24 hours. Studies have shown complete cure of influenza after 3 days of treatment *just* with Elderberry syrup. That’s pretty remarkable!! While it is a super common remedy for treatment of the flu, and sometimes it’s tempting to not just want to go with what everyone else is doing- do it, it works!! Just make sure you instruct your clients to continue to rest after they feel better, eat lightly, and give them some general support for their recovery phase. This is really important, as the virus may still be in there and go deeper into the body if they don’t properly rest (IE viral pneumonia).
- Wild Indigo (*Baptisia tinctoria*): This potent remedy is classically used as a stimulant to the immune system with antimicrobial and anticatarrhal properties, making it useful in the treatment of upper respiratory tract infections marked by congestion and stagnation of mucous in the ears, nose, throat, and sinuses. It is also one of our stronger lymphatic medicines, opening up and cleansing stuck stagnant lymph, swollen nodes and overall congestion from immunostimulant and waging the pathogenic war. It is a strong bitter remedy, acting upon the glandular system (secreting organs- liver, gall bladder, GI and lymph). The old doctors used it extensively in the treatment of scarlet fever and typhoid. It is specific for the cold/depression tissue state, where there is necrotic tissues, swollen lymph

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glands, and low grade chronic fever. It pairs very well with Echinacea in the treatment of deep seated blood poisoning, but can also be used for influenza, tonsillitis, and general infections. Matthew Wood mentions it working miracles in cases of mononucleosis, especially in those cases where mono was contracted and the person “was never quite the same.” This is a relatively uncommon herb used in modern practice, but it was so extensively used in history that I feel it’s important to study it and bring it back into modern practice. It’s important to mention that this is a *strong medicine*, and excessive dosing can lead to nausea, catharsis, and vomiting. Finley Ellingwood mentions it as being a specific for septic conditions in the blood, ulcerations of the mucosa, “low fevers with dark or purplish mucous membranes of the mouth, tongue dry and thin, with a dark coating, face dusky and suffused, circulation feeble.” While I include it here under cold/flu, it is truly a lymphatic alterative remedy.

- Calendula (*Calendula officinalis*): Calendula is one of our wonder workers in the botanical kingdom, with an extremely broad spectrum of uses and applications as both an internal and topical medicine. For years it was primarily just used as a first aid plant, steeped into medicated oils and salves for burns, cuts, scrapes, and wounds. As both an antimicrobial and vulnerary, it is well suited in this regard. But internally it has a whole other spectrum of uses. The antimicrobial and vulnerary properties used topically on the skin makes it a specific in the treatment of leaky gut syndrome and intestinal disbiosis. It has a primary affinity for the lymphatic system as well, helping to purge lymphatic swelling and stagnation, purifying the blood and skin, and removing impurities within the interstitial fluids. It is a good warming remedy, ruled by the Sun- building the gastric Fire and stimulating circulation of the blood. Through increasing circulation and draining the lymph, it is one of our choice remedies for lingering infections and chronic low grade fever. Folk usage throughout Europe indicated it as a “winter tonic” used to prevent illness and strengthen the immune system. It is specific for the cold/depression tissue state. A note on preparation, Calendula does not do well as a fresh tincture, as it dilutes the alcohol too much and is likely to go bad- even if it does not, the medicine yielded is weak. The best preparation is the dried flowers in a 40-50% alcohol.
- Garlic (*Allium sativum*): Garlic was mentioned above as a stimulant diaphoretic used in the treatment of fever, but it is also a good all around pungent remedy with broad spectrum antimicrobial activity, useful in the treatment of head colds and the flu. The pungent oils have an affinity for the respiratory system as well as digestive system, and can be used for infections of either systems. Although one should exercise caution in its use with pitta constitutions as it is an *extremely* pungent remedy. This heating quality, along with a slightly moistening quality, makes it specific for cold conditions, as it helps to cut through heavy, stagnant catarrh and mucoid plaque. This is what makes it so useful in cardiovascular disorders marked by the damp and cold tissue states. Garlic is an incredible remedy for it directly kills bacteria through the sulfur compounds, as well as changes the internal ecology to a state less hospitable to pathogens. It is broad spectrum in its antibacterial properties, yet remarkably does not harm the beneficial flora in the gut. These pungent principles also stimulate metabolism as a whole, build digestive fire, and act as an alterative to cleanse the bloodstream, lymphatics, digestion, and lungs.

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- **Balsam root (*Balsamorhiza sagittata*):** This little used plant in modern herbalism is a *profound* remedy for both the immune and respiratory systems, with applications in the treatment of cold, flu, and overall respiratory tract infections and low immunity. The root is the primary part used in this regard and has been combined with other immunostimulants and tonics, as well as expectorants and antimicrobials. Michael Moore described this plant aptly when he states it is like “a combination of Echinacea and Osha.” Thus, it is beneficial for use at the acute onset of upper respiratory tract infections, coughs, colds, and fever. I often like to combine it with Elderberry and Licorice. Balsam root, as the name implies, contains resinous compounds which are innately antimicrobial (similar to Osha), and also has caffeic acid constituents similar to those found in Echinacea- thus we see that combination Moore noted on the chemical level. It is not quite as pungent and heating as Osha, making it a bit more tolerable for many people. That said, it is specific for depression as well as excitation tissue states. I really like to use the fresh root tincture, done at 95% alcohol to extract the resinous compounds.
- Fever Materia Medica
- Respiratory Materia Medica

Lymphatic Swelling: This is our last common symptom for this lesson. There isn't too much to say about it, other than it is a very common symptom associated with activation of the immune system and fighting off a pathogen. When the lymphatics are swollen, it is because there is an excess of metabolic waste products associated with the microbial occurring within the tissues: dead white blood cells, bacteria, viruses, and cellular debris. As mentioned above, it is the job of the lymph to clean the interstitial fluids and the blood of these waste products, and when there is a lot of work to be done, the nodes can become congested and swollen. Also remember that within the lymph ducts, glands, and fluids is a majority of our immune components, and when they are busy being manufactured and multiplied there can be extra stress placed on the system. Sometimes bacteria or viruses get into the lymph and there can be infection and inflammation within the tissues themselves. Because it is a passive system (no pump) it is quite prone to stagnation much like the venous side of circulation, making the damp/stagnation/toxic tissue state being very common, as well as relaxation. Let's take a look at just a few specific remedies that operate strongly on the lymphatics, as well as listing a few others that are applicable.

- **Poke (*Phytolacca decandra*):** The root of Poke has a longstanding traditional use in the treatment of deep lymphatic swellings and congestion and is in my opinion one of our strongest lymphagogue remedies in the western materia medica. It has a specific affinity for the lymph nodes in the neck, and as such is used for catarrh in the upper respiratory tract- tonsillitis, laryngitis, mumps and lymphatic swelling. It is excellent for those who get recurrent infections due to low immunity and stagnant fluids- where people never really fully recover from being sick. It also has been used in the treatment of mastitis (inflammation and swelling of the breasts) internally and as a poultice. When damp/stagnation is deep to the point of leading to rheumatic pains it has application by draining the excess fluids provoking inflammation in the joints. We can think of this stagnation as permeating not just the tissues, but in someone's life as a whole. In homeopathy the indications from Boerke are “loss of personal delicacy, disregard of surrounding objects,

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indirect to life.” We can see this as being a messy person with no regard for ones space and living a bit like a sloth. The tongue is usually heavily coated, especially towards the back. We can consider it a strong alterative with a lymphatic and immune affinity. Remember this another one of our *very strong medicines*, that dwells on the edge of medicine and toxin. Low doses are typically sufficient (1-3 drops) or in homeopathic potencies for damp/stagnant and depressed tissue states.

- **Figwort (*Scrophularia nodosa*):** As the latin genus name implies, this was one of the top remedies used in the old days for scrofula, or extremely swollen lymph glands common associated with tuberculosis. This disease was also traditionally called “kings evil.” The plant contains the signature for this on the roots, which have what look like nodular swellings. To quote Matthew Wood, “What is distinct about scrophularia is that the symptoms of “toxic blood” and lymphatic stagnation are associated with symptoms of blood stagnation, so that acne and skin lesions are not only swollen, red and inflamed, but sometimes exhibit a blue cast.” Thus we look for the indications of lymphatic swellings with chronic skin problems like eczema. It has a specific affinity for the neck and throat, similar to Poke. The old Eclectic physicians used it as a primary remedy in their treatment of cancer. Like most of the lymphatic remedies, it is beneficial in damp/stagnant and cold/depressed tissue states. Another beneficial aspect of this remedy is that it is significantly milder than some of the stronger lymphagogues like Poke, Wild Indigo and Blue Flag. On a chemical level, Figwort contains a unique set of compounds called *harpagosides* which are found primarily in Devil’s Claw (*Harpagophytum procumbens*). It is these compounds to which are attributed it’s distinct anti-inflammatory effects and may make it a useful alternative to using Devil’s Claw for rheumatic pains, as that plant has been radically over-harvested and doesn’t cultivate well.
- **Red Root (*Ceanothus americanus*):** Red Root is a unique plant that unlike many others has a specific affinity for the spleen (not many plants operate on this organ directly). Doctors during the Civil War era used it for swellings of the spleen and lymphatics associated with intermittent fevers (alternating fever and chills commonly due to malaria). While in our modern world people don’t typically get malaria anymore, or a swollen spleen, it does prove to be valuable in the treatment of mononucleosis (like Poke) or low grade chronic fevers with swollen glands. It can also be used if people just “never felt the same” after contracting mono. It’s most prominent taste is astringent, another unique quality which differentiates it from other lymphatic alteratives. It is excellent for swollen lymph glands, especially in the digestive system, making it an invaluable remedy for relaxed tissues in the gut, or leaky gut syndrome. This condition is typically associated with systemic and local inflammation in the gut and hyper immune activity which over a long term period of time congests the GALT (Gut Associated Lymphatic Tissue). It astringes lax gastric tissues, drains lymphatic swellings, and cools excessive heat. It can be applied in this way for infections in the throat like strep throat and tonsillitis, as well as general lymphatic swellings. Whenever Matthew discusses this remedy he always mentions the lymphatic system and the spleen being associated with the “inner ocean,” the Sign of Pisces, and their tendency towards melancholy or mild depression- what he calls “artists funk.” If we think of creativity as being the flow of inspiration that comes from the beyond (sometime Pisceans are gifted with), stagnation of the inner waters blocks that creative flow, they feel disconnected from the Source, and malaise and melancholy ensue. Red Root quickly clears this up. Be careful in

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using it in hypertonic (tense) individuals as it is remarkably astringent, but in regards to temperature it is neutral, not markedly heating or cooling. Tongue indication is swollen and puffy with a slick and dirty yellowish-brown-white coat.

Lastly, Michael Moore has made interesting discoveries about the action of Red Root upon the blood, to quote him: “Redroot, particularly the tincture, helps diminish the tendency for red blood cells to clump together in blood that is either high in fat chylomicrons or with elevated inflammatory compounds... Another way to describe it is having sticky or viscous blood, with adhering constituents and diminished surface tension or charge. Redroot kicks up the charge and helps blood cells and inner vessel linings repel each other better; the blood, while not changing chemistry, changes its osmolality and flows better. This aids the transport across capillary walls of diffuse substances and the nonprotein fractions of blood that become interstitial fluid and lymph.”

- Cleavers (*Galium aparine*): As you know well by now, I have a deep appreciation for this remedy, as its power is in its gentleness. Through acting upon the systemic Water Element of the body, Cleavers effectively cleanses the blood, lymph and kidneys, washing away cellular impurities and metabolic wastes. It is cooling, soothing and moistening, and mild in its actions when compared to some of the heavier hitters like Poke, Wild Indigo and Blue Flag (which all 3 can be toxic in higher doses). This gentleness is sometimes just what is needed, especially in people that are truly debilitated, weak, and possibly unable to tolerate one of these stronger medicines. Its Water Element correspondence is not only reflected in its organ system affinities, but also in its general actions, as it helps to break up and dissolve calcareous depositions, hardened swollen tissues (lymph nodes), calcifications, and fibrous tissues. Because of its cooling properties, it is excellent for dampness associated with heat and inflammation, yet because it has a local moistening effect, it can also be used in dry conditions- though not long term as its diuretic properties will ultimately have a constitutional drying effect.
- Red Clover (*Trifolium pratense*): Our last remedy for the lymphatics is Red Clover, which juxtaposes nicely with Cleavers as another remedy on the milder side- not to say that it is less effective, it just isn't toxic in higher doses! This is an excellent remedy to keep in mind during the course of colds and flus, as it is a nice relaxing and moistening expectorant, a gentle lymphatic purifier, and the tea will provide some nourishment from the mineral content. Specifically in regards to the lymph, Red Clover is a specific for hardened nodules in not only the lymph but the salivary glands, breasts, and ovaries as well. Think of it as a glandular remedy. “Red Clover is associated with conditions where the body walls off the offending matter, making a hard glandular cyst or node. Sometimes there might be a few along the course of a lymphatic drainage duct. Sometimes these cysts break open, especially in the sinuses, resulting in the sudden appearance of fever, sinus drainage, lung drainage.” (Wood) As a good mild alterative, it's great for kids with skin conditions like eczema, but primarily when the skin is dry, flakey, itchy and inflamed. Like Cleavers, it is a cooling and moistening remedy, making it best for excitation and atrophy tissue states.
- Other lymphatic remedies include: Calendula (*Calendula officinalis*), Echinacea (*Echinacea purpurea* & *E. angustifolia*), Balsam root (*Balsamorhiza sagittata*), Wild Indigo (*Baptisia*

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tinctoria), Pipsissewa (*Chimaphila umbellata*), Goldenseal (*Hydrastis canadensis*), Oregon Grape (*Mahonia aquifolium*), and Burdock (*Arctium lappa*). **Alteratives in general.**

- **Immunodeficiency:** We will cover remedies for chronic immunodeficiency in the next class when we discuss the endocrine system and adaptogens. Remedies which are deeply restorative for the immune system are typically adaptogens, which thereby have a much broader range of application than just the immune system. Under the materia medica listings below are some deeper acting immune tonics which can be used to raise overall vitality and build host resistance.

Other Contributing Factors

- **“Fast a fever, feed a cold.”** Remember during a fever the digestive system is shut down, so fasting is extremely important!
- **Stress Management:** Cortisol, our bodies natural anti-inflammatory compound is directly immunosuppressive. Thus when people are chronically stressed out their immune system is compromised and lowered.
- **Fatigue and Sleep Debt:** It’s been shown that sleep deprivation radically reduces the activity of our NK cells. A big part of this is being up and at it during periods of time when the endocrine system is supposed to be in a resting state (IE staying up past 1 am or so). This is because cortisol is supposed to be low during that time, but the unnatural rhythm is making it rise more often.
- **Sugar Intake:** Sugar has been shown to have a direct immunosuppressive effect. Hence many people eating a standard western diet have a chronically depressed immune system. Studies have shown that 3 oz of ingested sucrose reduced phagocyte capacities by 40%, with the suppressive effects beginning within 30 minutes and lasting over 5 hours. Most soft drinks, or even fancy blended coffee drinks have about 2 oz of sugar.
- **Suppressive Medicines:** NSAID’s and standard decongestants are extremely suppressive to the bodies innate healing responses and in general will prolong common colds or the flu. NSAID’s essentially turn off the fever response- a bad idea. And decongestants suppress the natural and healthy flow of mucous from the membranes, which are full of antibodies and immunological components- another bad idea. Studies have shown that people who receive these types of suppressive medicines end up having worse symptoms in general that last longer than those who do not take anything.
- **Smudges:** we see the burning of aromatic herbs in various religious and spiritual ceremonies, as well as traditional healing methods in indigenous cultures as a method of destroying airborne infectious agents. Herbs used in this regard include Frankincense, Myrrh, Copal, various forms of Cedar and Sage, Juniper, and Palo Santo. Any conifer trees work well in this regard actually. A modern manifestation of this is the volatilizing or diffusing of aromatic essential oils, such as Oregano, Thyme, Rosemary, Cedar, Sage, and many many other essential oils. I love how David Crowe puts it, calling this method establishing “community immunity.”

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- Volatilized Water (aka steam): Sauna therapy, sweat lodges etc. This is a “topical” application of steam to the mucous membranes of the respiratory tract. The steam can be an antimicrobial herbal decoction or infusion, or dosed with antimicrobial essential oils. A simple way of doing this at home is to pour boiling water into a pot of water and drape a towel over your head to create a little tent. Just be sure not to burn your skin... it’s easy to do =).

Nutritional Factors

- Vitamin C
- Zinc

Materia Medica

Heat/Excitation

Hawthorn (*Crataegus monogyna*)
Rose hips and petals (*Rosa spp.*)
Wild Cherry (*Prunus serotina*)
Peach leaf (*Prunus persica*)
Yarrow (*Achillea millefolium*)
Elder berry and flower (*Sambucus spp.*)
Lemon Balm (*Melissa officinalis*)
Skullcap (*Scutellaria lateriflora*)
Wild Bergamont (*Monarda fistulosa*)
Red Clover (*Trifolium pratense*)
Cleavers (*Galium aparine*)

Cold/Depression

Ginger (*Zingiber officinale*)
Garlic (*Allium sativum*)
Cayenne (*Capsicum annuum*)
Black Pepper (*Piper nigrum*)
Thyme (*Thymus vulgaris*)
Oregano (*Origanum vulgare*)
Rosemary (*Rosmarinus officinalis*)
Prickly Ash (*Xanthoxylum americanus*)
Echinacea (*Echinacea angustifolia*)
Balsam root (*Balsamorhiza sagittata*)
Red Cedar (*Thuja plicata*)
Calendula (*Calendula officinalis*)
Wild Indigo (*Baptisia tinctoria*)
Figwort (*Scrophularia nodosa*)

Dry/Atrophy

Pleurisy root (*Asclepias tuberosa*)
Linden (*Tilia europea*)

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Burdock (*Arctium lappa*)
Astragalus (*Astragalus membranaceus*)
Cleavers (*Galium aparine*)
Red Clover (*Trifolium pratense*)
Violet (*Viola odorata*)
Mullein leaf (*Verbascum thapsus*)
Marshmallow (*Althea officinalis*)
Chickweed (*Stellaria media*)

Damp/Stagnation

Dandelion (*Taraxacum officinale*)
Goldenseal (*Hydrastis canadensis*)
Poke root (*Phytolacca decandra*)
Blue Flag (*Iris versicolor*)
Stillingia (*Stillingia sylvestris*)
Figwort (*Scrophularia nodosa*)
Pipsissewa (*Chimaphila umbellata*)
Garlic (*Allium sativum*)

Damp/Relaxation

Red Root (*Ceanothus americanus*)
Oak bark (*Quercus alba*)
Bayberry (*Myrica cerifera*)
Sage (*Salvia officinalis*)
Witch Hazel (*Hamamelis virginiana*)
Sumach (*Rhus typhina*)

Wind/Tension

Lobelia (*Lobelia inflata*)
Elder flower (*Sambucus spp.*)
Chamomile (*Matricaria recutita*)
Lemon Balm (*Melissa officinalis*)
Catnip (*Nepeta cataria*)
Peppermint (*Mentha piperita*)
Boneset (*Eupatorium perfoliatum*)
Pleurisy root (*Asclepias tuberosa*)
Blue Vervain (*Verbena hastata*)

Immune Tonics

Reishi (*Ganoderma lucidum*)
Ashwaganda (*Withania somnifera*)
Codonopsis (*Codonopsis tangshen*)
Eleuthero (*Eleutherococcus senticosus*)
Licorice (*Glycyrrhiza glabra*)
Astragalus (*Astragalus membranaceus*)

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Ginseng (*Panax spp.*) Note: this applies to Chinese, Korean and American Ginsengs
Cordyceps
Maitake
Shiitake (*Lentinus edodes*)
Chaga
Schizandra (*Schisandra chinensis*)

Immune Stimulants

Garlic (*Allium sativum*)
Echinacea (*Echinacea angustifolia*, *E. purpurea*)
Usnea (*Usnea spp.*)
Wild Indigo (*Baptisia tinctoria*)
Calendula (*Calendula officinalis*)
Myrrh (*Commiphora molmol*)
Thuja (*Thuja occidentalis*)

Anti-Microbial Herbs by Organ System

Genitourinary Tract

Yarrow (*Achillea millefolium*)
Buchu (*Agathosma betulina*)
Pipsissewa (*Chimaphila umbellata*)
Uva-Ursi (*Arctostaphylos uva-ursi*)
Juniper (*Juniperus communis*)
Couch Grass (*Elymus repens*)
Oregon Grape (*Mahonia aquifolium*)
Usnea (*Usnea spp.*)
Goldenseal (*Hydrastis canadensis*)

Respiratory Tract

Osha (*Ligusticum porteri*)
Lomatium (*Lomatium dissectum*)
Balsam root (*Balsamorhiza sagittata*)
Garlic (*Allium sativum*)
Wild Indigo (*Baptisia tinctoria*)
Eucalyptus (*Eucalyptus spp.*)
Elecampane (*Inula helenum*)
Thyme (*Thymus vulgaris*)
Oregano (*Origanum vulgare*)
Usnea (*Usnea spp.*)
Balm of Gilead aka Poplar buds (*Populus balsamifera*)
Goldenseal (*Hydrastis canadensis*)
Sage (*Salvia spp.*)
Honey

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Digestive Tract

Garlic (*Allium sativum*)
Wormwood (*Artemesia absinthium*)
Cayenne (*Capsicum annuum*)
Oregon Grape (*Mahonia aquifolium*)
Goldenseal (*Hydrastis canadensis*)
Gentian (*Gentiana lutea*)
Clove (*Syzygium aromaticum*)
Thyme (*Thymus vulgaris*)
Oregano (*Origanum vulgare*)
Black Walnut (*Juglans nigra*)
Ginger (*Zingiber officinale*)
Aloe (*Aloe vera*)
Sage (*Salvia spp.*)

Steven Buhner's Top 15 "Antibiotic" Herbs*

Acacia (*Acacia spp.*)
Aloe (*Aloe vera*)
Cryptolepis (*Cryptolepis sanguinolenta*)
Echinacea (*Echinacea purpurea*, *E. angustifolia*)
Eucalyptus (*Eucalyptus spp.*)
Garlic (*Allium sativum*)
Ginger (*Zingiber officinale*)
Goldenseal (*Hydrastis canadensis*)
Grapefruit seed extract (*Citrus paradisi*)
Honey
Juniper (*Juniperus communis*)
Licorice (*Glycyrrhiza glabra*)
Sage (*Salvia spp.*)
Usnea (*Usnea spp.*)
Wormwood (*Artemesia absinthium*)

*These are derived from "Herbal Antibiotics: Natural Alternatives for Treating Drug-Resistant Bacteria" by Steven Harrod Buhner

Simple Formulations

Classic European Diaphoretic Tea

Peppermint (*Mentha piperita*)
Elder flower (*Sambucus spp.*)
Yarrow (*Achillea millefolium*)

Combine in equal parts. Fill a quart mason jar 1/2 way with the dried herbs, fill with boiling water, cover and allow to steep for 20 minutes or so. Drink piping hot, ideally in a hot bath. This is a classic formula that truly works... as the saying goes, "if it ain't broke don't fix it!"

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Classic North American Diaphoretic Tea

Lobelia (*Lobelia inflata*)

Cayenne (*Capsicum annuum*)

Bayberry (*Myrica cerifera*)

Combine in equal parts. This is a relatively similar formula to the classic European formula, though the herbs are much stronger.

Children's Fever Pair

Elder flower (*Sambucus spp.*)

Linden (*Tilia europea*)

or

Catnip (*Nepeta cataria*)

Ginger (*Zingiber officinalis*)

The second one comes from the British Physiomedicalists Priest and Priest.

Influenza Formula*

Yarrow (*Achillea millefolium*) 4 parts

Peppermint (*Mentha piperita*) 3 parts

Elder flower (*Sambucus spp.*) 2 parts

Angelica (*Angelica archangelica*) 2 parts

Boneset (*Eupatorium perfoliatum*) 1 part

* This one comes from W. Burns Lingard, an English herbalist in the 1950's.

Cold and Flu Formula*

Pleurisy root (*Asclepias tuberosa*) 2 parts

Boneset (*Eupatorium perfoliatum*) 1 part

Skullcap (*Scutellaria lateriflora*) 1 part

add Cayenne (*Capsicum annuum*) 1 part only if chills are predominant

*This comes from R. Swinburne Clymer. A nice combination of primarily relaxant diaphoretics, plus a nervine sedative to help promote sleep and relaxation. Then if it slips back into an earlier phase one can add the Cayenne to bring in a stimulant action.

Swollen Spleen Pair*

Red Root (*Ceanothus americanus*) 4 parts

Oregon Grape (*Mahonia aquifolium*) 1 part

*This simple pair comes from William (Bill) Mitchell, a leader in the naturopathic community at Bastyr University.

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Immunostimulant Triplet

| | |
|---|-----|
| Echinacea (<i>Echinacea purpurea</i>) | 33% |
| Balsam root (<i>Balsamorhiza sagittata</i>) | 33% |
| Elderberry (<i>Sambucus spp.</i>) | 33% |

Modulations:

- Add Cayenne or Ginger if chills are present.
- Add Boneset and Blue Vervain if fever with musculoskeletal tension
- Add Red Root and Calendula if swollen lymph nodes
- Add Mullein and Red Clover if dry cough is present
- Add Osha and Elecampane if wet cough is present
- Add Lemon Balm, Chamomile, and/or Skullcap for tension, fever, and difficulty sleeping
- Add Licorice if they are especially dry, with stress, high cortisol, and debility

Lymphagogue Compound

| | |
|---|-----|
| Calendula (<i>Calendula officinalis</i>) | 20% |
| Red Clover (<i>Trifolium pratense</i>) | 20% |
| Cleavers (<i>Galium aparine</i>) | 20% |
| Dandelion root and leaf (<i>Taraxacum officinale</i>) | 15% |
| Red Root (<i>Ceanothus americanus</i>) | 15% |
| Poke root (<i>Phytolacca decandra</i>) | 5% |
| Cayenne (<i>Capsicum annuum</i>) | 5% |

This is a good broad spectrum lymphatic formula combining cooling remedies (Red Clover, Cleavers, Dandelion) with warming remedies (Calendula and Cayenne) for a balanced humoral effect. This is not just working on the lymphatics, but stimulating the immune system, having direct antimicrobial activity, as well as moving the kidneys, liver, bowels, and circulating the blood for a broad spectrum detoxifying effect.

Airborne Infection Blend

Thyme essential oil (*Thymus vulgaris*)
Oregano essential oil (*Origanum vulgare*)
Eucalyptus essential oil (*Eucalyptus spp.*)

Combine in equal parts and add a few drops to steaming water, drape a towel over you to make a steam tent and breathe deeply. (Just don't burn your skin!) These can also be combined with distilled water and put into a misting spray.

Immune Soup Broth

Bones (can be chicken, turkey, beef, bison, or lamb. I personally like lamb)
Garlic
Onions
Ginger
Olive oil
Rosemary
Oregano

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Thyme
Shiitake mushroom
Reishi mushroom
Astragalus
Calendula
Kale

The way I will typically prepare a soup broth like this, is to first make a strong bone broth by placing the bones in a pot full of water and decocting it overnight and reducing the amount of water by half or so. You can throw in the Astragalus sticks and a few slices of Reishi (not too much as it's really bitter) in there to decoct overnight.

In the morning I will add the Rosemary, Oregano, Thyme and Calendula and cover with the lid to infuse for an hour or so. From there, chop up the onions, mince the garlic and ginger. Cook the onions in the olive oil until softened- you don't want to completely caramelize them because you want some of those pungent principles. Add the Shiitake mushrooms and cook. Add the garlic and ginger and cook only briefly. Add this to the soup stock along with the kale. Salt to taste and enjoy!

I don't measure things like this but usually do it by eye.....

Sometimes I will just have the broth on hand (with all the herbs and mushrooms and whatnot), heat it up in a little pot, and crush a large clove of garlic in it, add a slice or fresh ginger and add a pinch of salt and pour it into a mug. I like to think of it as bone tea... I treat this like a medicine and not so much like a food, although we do use it as a base for pretty much all of our winter soups. There are many variations on this and I suggest you find your own and bring it to your own place of perfection!!