

SURFACE ERUPTIONS: AN HERBALIST'S PRIMER ON SKIN RASHES AND THEIR TREATMENT

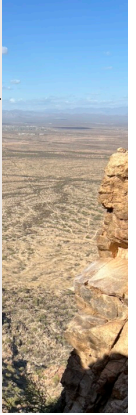
Dr. Kenneth Proefrock



PRIMARY LESIONS

arise *de novo* and are most characteristic of the disease process

- Bulla: a circumscribed, elevated fluid-filled lesion greater than 1 cm in size (e.g. epidermolysis bullosa, bullous impetigo). A large blister.
- Macule: a circumscribed, flat lesion with color change up to 1 cm in size that is not palpable (e.g. freckles, ash leaf macules, café au lait macules).
- Nodule: a circumscribed, elevated solid lesion with depth up to 2 cm e.g. cyst.
- Papule: a circumscribed, elevated solid lesion up to 1 cm in size, elevation may be accentuated with oblique lighting, e.g. Mila, acne, verrucae.
- Plaque: a circumscribed, elevated, plateau-like, solid lesion greater than 1 cm in size (e.g. psoriasis).
- Pustule: a circumscribed, elevated lesion filled with purulent fluid, less than 1 cm in size (e.g. erythema toxicum neonatorum, acne).
- Vesicle: a circumscribed, elevated, fluid-filled lesion up to 1 cm in size (e.g. herpes simplex).



BULLAE

- Circumscribed fluid-filled lesions that are greater than 1 cm. in diameter.



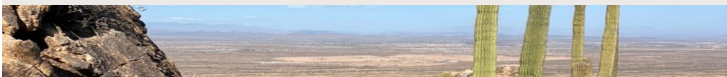
2-year-old female with Stevens-Johnson syndrome has both bullae and vesicles.



Diabetic foot bullae in 64 year old female



4-year-old boy with bullae on the pinna of his ear from a contact dermatitis.



MACULE

A flat, change in the color of the skin, macules greater than 1 cm. are referred to as *patches*.



18 month old with neurofibromatosis and characteristic cafe-au-lait macules.



3-year-old girl with tuberculous sclerosis has hypopigmented macules and patches.



8-year-old boy with a macular rash associated with the viral disease *erythema infectiosum*, fifth disease.



NODULE

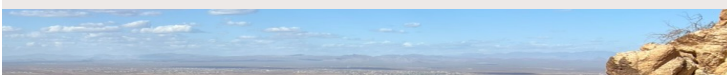
Raised solid lesion more than 1 cm, may be in the epidermis, dermis, or subcutaneous tissue.



Basal cell carcinoma on the scalp of a 23-year-old male



Axillary lymph nodule of a 6-year-old boy associated with cat-scratch fever-*Bartonella henselae*



PAPULE

Solid raised lesions with distinct borders and less than 1 cm in diameter, occurring in a variety of shapes (domed, flat-topped, umbilicated) and often with secondary features such as crusts or scales.



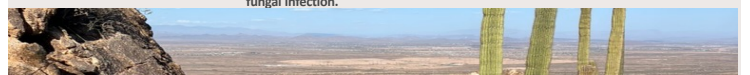
Tinea corporis is a fungal papulosquamous lesion.



5-year-old boy with hundreds of papules with a generalized hypersensitivity reaction to a fungal infection.



Molluscum contagiosum in a 3-year-old girl.



PLAQUE

Solid, raised, flat-topped (think plateau) lesion greater than 1 cm in diameter



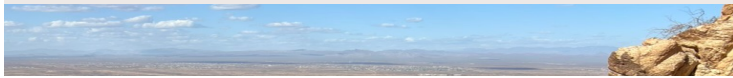
Shagreen plaque associated with tuberous sclerosis on the left lumbosacral area of a 7-year-old



Psoriatic plaque on the upper thigh of a 42-year-old female.



Psoriatic plaque below the knee on an 18-year-old male



PUSTULE

Circumscribed elevated lesions that contain pus, most commonly an infection (folliculitis) but may be sterile (pustular psoriasis).



Pustules on the foot of a 15-year-old boy caused by a group A beta-hemolytic Streptococcal infection



Acne vulgaris pustules



Pustular psoriasis



Ruptured pustule on the foot of a 6-week-old infant



VESICLE

Raised lesions less than 1 cm. in diameter that are filled with clear fluid



3-year-old with oval vesicles in his palm from Coxsackie virus.



Herpangina in a 9 year old with Coxsackie virus



Vesicular eruption typical of shingles, Varicella zoster



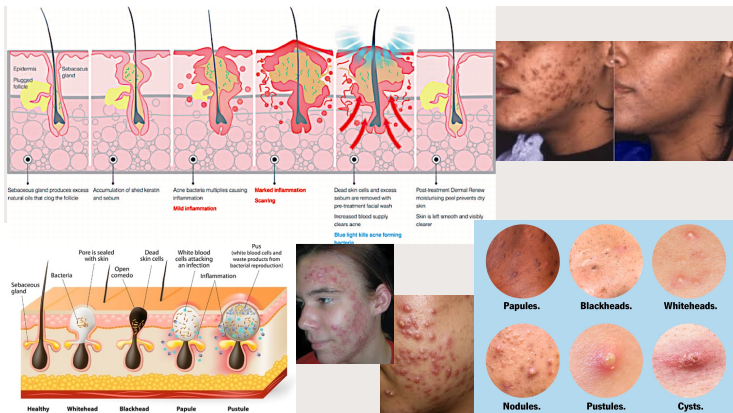
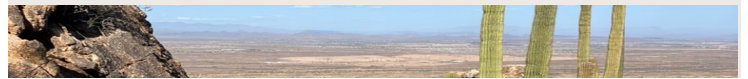
ACNE VULGARIS

A very common skin condition involving blockage and/or inflammation of the hair follicles and their accompanying sebaceous gland, presents with noninflammatory lesions, inflammatory lesions, or a mixture of both, affecting mostly the face but also the back and chest.

Acne is associated with four factors:

- (1) follicular epidermal hyperproliferation (more skin tissue growth) with subsequent plugging of the follicle
- (2) excess sebum production
- (3) the presence and activity of the commensal bacteria *Cutibacterium acnes* (formerly *Propionibacterium acnes*)
- (4) inflammation .

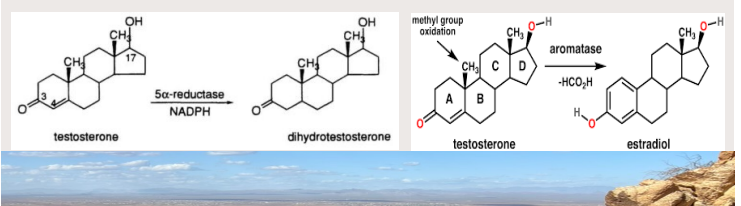
Genetics is also a key factor in the pathophysiology of acne.



Acne is exacerbated by increasing levels of Dihydrotestosterone (DHT) acting on genetically susceptible androgen receptors in the follicle.

DHT or 5 α -dihydrotestosterone (5 α -DHT), also known as androstanolone (5 α -androstan-17 β -ol-3-one) as well as 17 β -hydroxy-5 α -androstan-3-one, is a sex steroid and androgen hormone converted from testosterone via the 5 α -reductase enzyme in the prostate, testes, hair follicles, and adrenal glands.

This enzyme reduces the 4,5 double-bond of testosterone, producing DHT, which is 5 times more androgenic.



The following medications are used in the treatment of acne vulgaris:

Topical anti-microbials: erythromycin, benzoyl peroxide, clindamycin, azelaic acid, based on the rationale that killing the bacteria stops the inflammatory cycle.

When a topical or systemic antibiotic is used, it should be used in conjunction with benzoyl peroxide to reduce the emergence of resistance.

Retinoids: topical tretinoin, adapalene, tazarotene, isotretinoin, hydroxyphenolone, which act on the follicle to reduce sebum production

Systemic Antibiotics: tetracycline, minocycline, doxycycline, sarecycline, trimethoprim/sulfamethoxazole, clindamycin, daptomycin, based on the premise that the whole ecology is compromised and manifesting in the skin.

Selective aldosterone antagonists (spironolactone)

Androgen receptor inhibitors (clascoterone)

Estragen/progestin combination oral contraceptive pills—to establish a stable hormonal base, reducing androgen production.

**Benzoyl Peroxide**

Benzoyl peroxide possesses both comedolytic and antimicrobial properties Available in various formulations and concentrations ranging from 2.5% to 10%

Typically, applied once daily, focusing on 1 or 2 small areas during the initial 3 days to test for any potential hypersensitivity reactions.

Benzoyl peroxide should not be applied simultaneously with tretinoin due to its oxidizing effect on tretinoin. To avoid any reaction, benzoyl peroxide should be applied in the morning, whereas tretinoin should be applied in the evening.

It is important to note that skin irritation may occur with benzoyl peroxide use, particularly at high concentrations. It may also have a bleaching effect on clothing and hair.

Salicylic acid is a desquamating keratolytic (it promotes the sloughing of old, dead and dying skin cells), it is also comedolytic and antimicrobial and available over the counter at concentrations of 1-5%.

**Serenoa repens-Saw Palmetto**

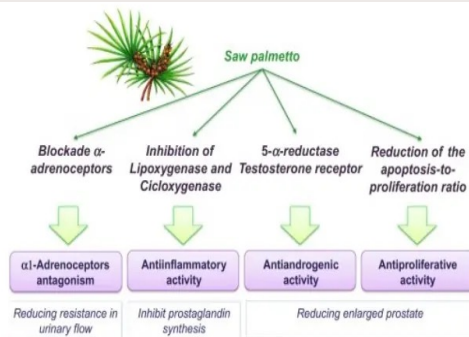
Saw palmetto is used in several forms of traditional herbal medicine. Native people from the Americas have used the fruit for food and as a treatment for urinary and reproductive issues for millennia.

The Mayans drank it as a tonic and the Seminoles used the berries as an expectorant and antiseptic.

Inhibits conversion of testosterone to DHT, decreasing severity of acne and hair loss.

May also increase conversion of Testosterone to Estrogen

Dosage is typically 320 mg/day

**New law pertaining to the harvest, sale and purchase of****SAW PALMETTO BERRIES
Section 581.189, Florida Statutes**

Effective **July 1, 2024**, there will be new requirements for both harvesters and those who buy, transport and process saw palmetto berries in Florida and new penalties for those who do not comply with the new law.

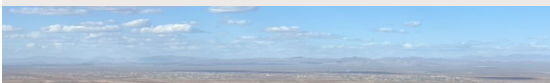
Harvesters:

- Saw palmetto berries may only be harvested from private property with prior written landowner permission and those harvesting must first have:
 - Written permission from the landowner, and
 - A permit from FDACS as provided in s. 581.185, Florida Statutes.
 - Written landowner permission must include:
 - Name, address, telephone number of landowner
 - Start date, end date, and location, including county, of the harvest
 - The landowner's actual or electronic signature
- Unauthorized harvest of saw palmetto berries from state public lands is not allowed. That means it is illegal to harvest from Florida state forests, state park lands, wildlife management areas, water management district lands, or any other category of public land unless authorized by the agency that administers the land. The unauthorized harvest of saw palmetto berries on public lands will be a third-degree felony beginning July 1, 2024.

Cucurbita pepo—Pumpkin seed

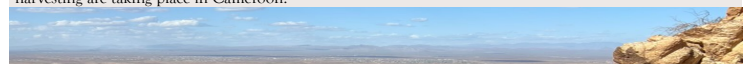
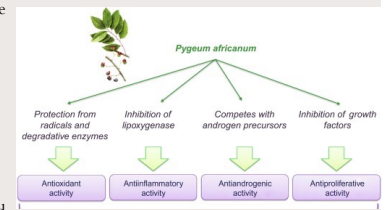
Native to the Americas, pumpkin seeds have been used in folk medicine worldwide for the treatment of gastrointestinal diseases and intestinal parasites, as well as hair and skin care for the past five centuries. They contain secondary metabolites such as terpenoids, quinones, saponins, steroids, phenols, tannins, alkaloids (berberine), cucurbitine, and palmatine.

They inhibit 5 alpha reductase activity, have anti-androgenic activity, and generally anti-inflammatory. Topical use of the oil is reportedly stimulating to the circulation and conditioning to the hair follicle. The oil can be consumed and used topically, the seeds are food, eat them freely and often and with wild abandon.

**Prunus africana--“Pygeum” or “African cherry”**

Evergreen tree from forests scattered across sub-Saharan Africa, Madagascar, and surrounding islands. Traditionally, decoctions of the stem-bark are taken orally for the treatment of a wide variety of conditions, such as benign prostatic hyperplasia (BPH), stomach-ache, chest pain, malaria, heart conditions, and gonorrhea, as well as urinary and kidney diseases. The timber is used to make axe handles and for other household needs. The dense wood is also sawn for timber.

Significant increases in harvesting over the past few decades has caused this tree to be added to the Appendix II of the Convention Trade in Endangered species. Attempts at sustainable cultivation and harvesting are taking place in Cameroon.

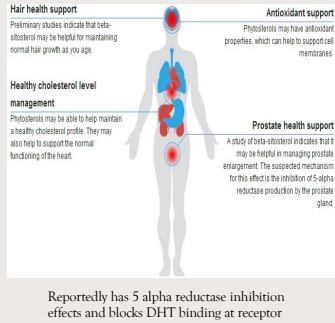


Beta-sitosterol

Phytosterols are sterols, a biochemical category that contains over 200 identified members, they are structurally similar to cholesterol.

Phytosterols occur naturally in free form as well as bound forms such as esters of glycosides or fatty acids. Free phytosterols are soluble in alcohol and insoluble in water. The daily intake of phytosterols is typically between 150 mg and 450 mg per day, depending on diet. Some vegetarian diets provide up to 700 mg of phytosterols per day.

Beta-sitosterol is one of the most abundant naturally occurring phytosterols, and it typically accounts for about 65 percent of the dietary intake of phytosterols in humans. Campesterol accounts for about 30 percent of phytosterol intake and stigmasterol comprises the majority of the remainder. Beta-sitosterol is also the primary phytosterol used in health supplements.



Urtica dioica/urens-Nettles

Nettle is one of the most widely applicable plants in western herbalism, it is astringent and very useful for myofascial pain conditions, and its root possesses some 5 alpha-reductase inhibiting effects. It may best be done as a nourishing herbal infusion, 1 oz of dried herb added to a quart of hot water and allowed to steep for 8-10 hours (overnight) the preparation is pressed through a French press the next morning and then the infusion drank throughout the day, it is nice with a bit of lemon or lime added to it and/or some sea salt or smoked sea salt. Tincture dosage is 1/2-1 tsp 3 times daily. It is rich in mineral constituents, and helps build and repair connective tissue and fascia, and reduces hair loss, prostatic swelling and severe acne associated with DHT production.



Reproductive system

Erectile dysfunction, loss of the weight of the corpus cavernosum, morphological alteration of penile area

Peripheral circulation

Altered levels of neuroactive steroids, alkaline phosphatase, cholesterol and glucose

Brain

Altered levels of neuroactive steroids in cerebral cortex, hippocampus and cerebellum; decreased neurogenesis and increased neuroinflammation in the hippocampus

5α-reductase inhibitors effects

Colon

Altered gut microbiota composition

Behavior

Depressive-like behavior and anhedonia

Kidney

Histological abnormalities and damage associated with an altered cell apoptosis/proliferation ratio and linked to lymphocyte infiltration



Seborrheic dermatitis

Also called seborrheic eczema, is a chronic skin condition that predominantly affects the scalp, damages the hair follicles and hinders hair growth. Seborrheic dermatitis can be a fungal disease, it can also be due to a developed intolerance to one's own secretions.

"Seborrhea" characterizes chronic inflammatory conditions that cause scaly skin and oily skin due to excessive sebum production by the sebaceous glands.

Increased sebum production creates irritation and inflammation on the scalp with intense itchiness. Scratching the scalp damages hair follicles, which obstructs natural hair growth, causing hair to fall out.

Excess sebum production can also increase the amount of the naturally-occurring yeast, *Malassezia* on the skin, causing inflammation and further damage to hair follicles.

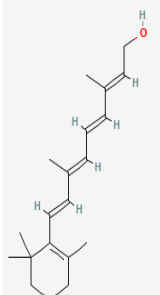


Deficiency of Vitamin A

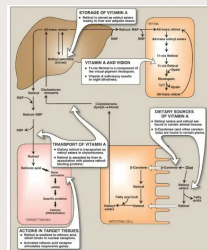
- Most susceptible populations:
 - Preschool children with low F&V intake
 - Urban poor
 - Older adults
 - Alcoholism
 - Liver disease (limits storage)
 - Fat malabsorption



- Consequences:
 - Night blindness
 - Decreased mucus production
 - Decreased immunity
 - Bacterial invasion of the eye
 - Conjunctival xerosis
 - Bitot's spots
 - Xerophthalmia
 - Irreversible blindness
 - Follicular hyperkeratosis
 - Poor growth



VITAMIN A



Vitamin A encourages the growth of new skin cells whilst breaking down dead skin cells. It can also regulate the amount of keratin being produced by your skin and prevent dead skin cells from sticking together and forming acne-causing blockages in hair follicles.

In addition, vitamin A can regulate skin tone and reduce the red, purple and brown colouring that acne can leave on the skin. It can also reduce the size and productivity of your oil glands, meaning that your skin produces less acne-causing oil.

Vitamin A can make your skin more sensitive to the sun, meaning that a non-oily sunscreen should be used whilst treatment is ongoing. Further side effects of vitamin A include skin irritation, dryness and peeling, vomiting, diarrhoea, liver complications and hair loss

As with most acne treatments, vitamin A takes time to work and you should allow for twelve weeks of use before determining whether or not the product has worked for you. It is also advised that you continue to use vitamin A (if it has proven effective) even after your acne symptoms have improved. The skin sheds its top layer every twenty-eight days and acne problems may reoccur if the treatment has been stopped

VITAMIN A LEMON DROP HYDROGEL

- 1 % Allantoin
- 3% Pentoxifylline
- 0.025% Vitamin A (as tretinoin)
- 10 drops of lemon essential oil
- In aloe/hyaluronic acid 10 mg/ml gel and applied to skin lesion 1-2 times a day

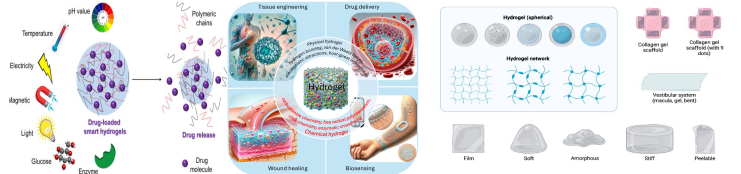


Hydrogel

A hydrogel is a three-dimensional network of hydrophilic polymer chains that have the capacity to absorb and retain a significant amount of water within their structure...often exceeding 90% of their total weight. This water content allows them to mimic natural tissues and adds to their biocompatibility, they do not elicit adverse immune responses when in contact with living organisms.

Depending on their composition and cross-linking density, hydrogels can have varying degrees of softness and flexibility, and they typically possess a porous structure that allows for the diffusion of substances such as nutrients and drugs. This property is crucial in drug delivery systems and tissue engineering.

Hydrogel dressings provide a moist environment for wound healing and are used for burns, ulcers, and surgical wounds as well as moisturizers, face masks, and eye patches for their ability to provide intense hydration and cooling effects.



SKIN REMODELING-SCAR TISSUE

Acne vulgaris is generally a temporary condition, the scarring the results can last a lifetime—initiating healthy remodeling, limiting fibroblast activity can be very helpful.

Tendskin—15% Acetylsalicylic acid in Isopropyl alcohol—glycerin—especially beneficial for people who tend to cheloid formation—

Hamamelis—Witch hazel—astringent

Miederma—onion skins, *extractum cepae*

Vitamin A/Vitamin E/Vitamin D—promote better skin remodeling

Hydrogels—for acne for scarring—

Boswellia—an inhibitor of scar tissue formation



Boswellia serrata-Frankincense

Boswellia serrata (Salai/Salai guggul), is a moderate to large sized branching tree of family Burseraceae (Genus *Boswellia*), grows in dry mountainous regions of India, Northern Africa and Middle East.

The resin of *Boswellia* species has been used as incense in religious and cultural ceremonies and in medicines since time immemorial.

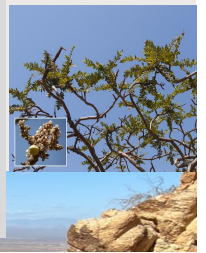
Oleo gum-resin is tapped from the incision made on the trunk of the tree and is then stored in specially made bamboo basket for removal of oil content and getting the resin solidified.

The oleo gum-resins contain 30-60% resin, 5-10% essential oils, which are soluble in organic solvents, and the rest is made up of polysaccharides.

Gum-resin extracts of *Boswellia serrata* have been traditionally used in folk medicine for centuries to treat various chronic inflammatory diseases.

The resinous part of *Boswellia serrata* possesses monoterpenes, diterpenes, triterpenes, tetracyclic triterpenic acids and four major pentacyclic triterpenic acids responsible for inhibition of pro-inflammatory enzymes.

Acetyl-11-keto- β -boswellic acid appears to be the most potent inhibitor of 5-lipoxygenase enzymes and topical application reduces the formation of scar tissue.



IMPETIGO



Impetigo is a common skin infection in children between the ages of 2 and 5 years old. It is highly infectious and is caused primarily by gram-positive bacteria, mainly *Staphylococcus aureus* and group A *beta-hemolytic streptococcus*. The lesions are characteristic, appearing as bullae that dry to form a honey-colored, thick crust that may cause pruritus. Most impetigo infections resolve without requiring antibiotics; however, to reduce the duration and spread of the disease, topical antibiotics are used. Oral antibiotics are generally reserved for patients with more severe or treatment-refractory infection and include penicillinase-resistant penicillin or first-generation cephalosporins.



CELLULITIS

Cellulitis is an acute bacterial infection causing inflammation of the deep dermis and surrounding subcutaneous tissue, it presents as a poorly demarcated, warm, erythematous area with associated edema and tenderness to palpation.

The infection is without an abscess or purulent discharge and is usually caused by group A streptococcus (*Strep pyogenes*), and *Beta-hemolytic streptococci* followed by methicillin-sensitive *Staphylococcus aureus*.

Patients who are immunocompromised, colonized with *methicillin-resistant Staphylococcus aureus*, bitten by animals, or have comorbidities such as diabetes mellitus may get secondary infections. Over 14 million cases occur in the United States annually accounting for approximately 3.7 billion dollars in ambulatory care costs and 650,000 hospitalizations



ECHINACEA PURPUREA/ANGUSTIFOLIUM



Classically used for increasing the resistance of the body to infection and used in *boils*, *septicemia*, *cancer*, and other infective conditions.

Echinacea preparations are commonly used as nonspecific immunomodulatory agents. Alcohol extracts from three widely used Echinacea species, *Echinacea angustifolia*, *Echinacea pallida*, and *Echinacea purpurea*, have been studied for immunomodulating properties. The three species demonstrate a broad difference in concentrations of individual lipophilic amides and hydrophilic caffeic acid derivatives, and all three extracts induce similar, but differential, changes in the percentage of immune cell populations and their biological functions. Echinacea is a wide-spectrum immunomodulator that modulates both innate and adaptive immune responses. *E. angustifolia* and *E. pallida* may have more anti-inflammatory potential.

Classically, water decoctions seem more clinically useful...and conducive to hydrogel formation.



RUDBECKIA LACINIATA YELLOW CONE FLOWER/DORMILON

Traditionally used to treat a wide variety of infectious states, often regarded as a replacement for Echinacea...similar but not the same.

Regional Native American uses included the treatment of colds and helminthic invasions; rinses were used topically to treat wounds, ulcerative skin lesions and snake bites; root juice used for the treatment of earache, edema and dropsy

Arabinogalactan lectins possess immunomodulatory properties, phytohemagglutinin, T-cell mitogen and B-cell mitogen activity, leucocyte blast transformation, and IgM antibody production. Arabinogalactan enhances the secretion of granulocyte-macrophage colony-stimulating factor, tumor necrosis factor- α , interleukin-6 and interferon- γ , and also activates the complement system in the classical and alternative pathways.

Whole plant extract increases interferon production

Tiarubrin C, isolated from the roots, exhibits pronounced antibacterial and antifungal properties and can be used as an antiseptic.

The plants, their extracts, and chemicals isolated from them exhibit an immunomodulatory, anti-inflammatory, and antioxidant effect.



BAPTISIA TINCTORIA WILD INDIGO

Tincture of dried root 1:5, dosed at 5-10 drops 3-4 times a day, increase dosage as tolerated-too much too fast will create gastrointestinal distress.

Some specific indications:

Inflamed gums from general immunosuppression.

Purulent laryngitis with systemic effects.

Chronic sinusitis with necrotic, foul discharge.

Chronic tonsillitis with necrosis.

Cellulitis/Impetigo

Septic diarrhea.

Highly effective ultradilute medicine for the treatment of typhoid; activates both T and B cells and the formation of antibodies.



BERBERIS FREMONTII/ MAHONIA B. TRIFOLIATA

Berberine containing plants, similarity in action but not the same...

Generally, a bitter tonic for digestion, a stimulant for liver metabolism, antimicrobial for intestinal tract and helpful in skin rashes and wounds.

Cold and astringent...long considered to be a helpful lymphagogue and antimicrobial agent in botanical medicine.

Studies have shown a 4% w/w ointment demonstrated considerable wound contraction, epithelization time, and improved wound index.

Broadly antibacterial, antiviral, and antifungal, root extracts exhibit moderate cytotoxicity and changes in the signaling pathways linked to immune cell adhesion, proliferation, and migration.

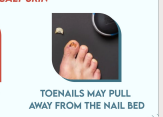
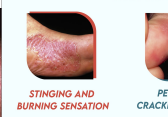
Dried root tincture 1:5, dosed at 10-60 drops 3-4 times per day

Makes a great hydrogel mixed in 10 mg/ml Hyaluronic acid after ETOH removal.



TINEA PEDIS (ATHLETE'S FEET) RINGWORM/TINEA CORPORIS

Tinea pedis, commonly known as athlete's foot, results from fungal infections on the skin of the feet caused by dermatophytes, including *Trichophyton rubrum*, *T. mentagrophytes*, *T. interdigitale*, and *Epidermophyton floccosum*. This infection typically occurs through direct contact with the organism while walking barefoot in locker rooms, showers, and swimming complexes. Individuals with diabetes and those who wear occlusive shoes are at an increased risk.



TOPICAL ANTI-FUNGALS

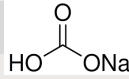
Topical imidazoles such as clotrimazole, econazole, ketoconazole, miconazole, isoconazole, tioconazole, and sulconazole offer effective remedies with a very low incidence of adverse effects. They interfere with the cytochrome P450 system of both humans and the fungus, some people experience an increase in their liver enzymes as a result, even topical application can do this.

Topical application of terbinafine and amorolfine yields faster results in treating *Tinea pedis* than clotrimazole treatment, adding a topical keratolytic, like a 3-5% salicylic acid, can be beneficial in patients with hyperkeratosis. Using prophylactic tolnaftate powder after swimming and showering in community settings reduces the levels of toe cleft tinea pedis caused by *T. interdigitale*. Generally, topical treatment lasts for 4 weeks, although some patients may experience symptom resolution sooner. Terbinafine 1% can provide effective results for interdigital tinea pedis after 1 week. Repeated KOH scrapings and cultures should yield negative results.



Generic Name	Trade Name(s)	Chemical Structure	Clinical Use
Econazole	Spectol Spectol-Plus Spectol-Plus Spectol-Plus		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Isotretinoin	Accutane		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Terbinafine	Altram		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Amorolfine	Amorolfine		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Clotrimazole	Lotrimin		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Sulconazole	Sulconazole		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Ketoconazole	Nizoral		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Miconazole	Daktarin		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Isoconazole	Isotrex		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.
Tioconazole	Tioconazole		Systemic fungal infections, including dermatomycosis, candidiasis, and cryptococcosis. Also used for the treatment of tinea pedis, tinea corporis, and tinea capitis.

BAKING SODA-SODIUM BICARBONATE



Baking soda is notably anti-fungal, and it controls odors. Adding it to one's shoes is a rapid way to resolve both foot fungus and foot odor. The baking soda tends to have a drawing effect, increasing the amount of sweat from the feet, it is imperative to keep the feet as dry as possible—a second or third pair of shoes to change into with fresh socks through the day. Baking soda is not kind to all of the materials that shoes are made from and can seep through the fabric as a white crust, no one loves that but it may be a small price to pay.

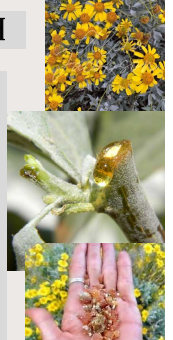


ENCELIA FARINOSA-BRITTLE BRUSH

A member of the Asteraceae family, a perennial shrub with a native distribution that grows throughout the Sonoran desert from northern Mexico to Arizona including the Mojave Desert and the coastal chaparral of southern California, the interior valleys of southern California, and southwestern Utah. This shrub is very drought tolerant and important for revegetation and erosion control and habitat restoration.

It reproduces asexually by being easily broken and portions of branches get deposited elsewhere and root. The broken ends secrete a yellow resin that dries and can be easily collected. A standard beeswax and olive oil salve with 10% Encelia resin added to it is amazingly antifungal and smells wonderful—you too could garner the nickname honeyfoot.

Depending on the presentation of the fungal infection, a beeswax and olive oil preparation may not suit your needs, it tends to be heating.

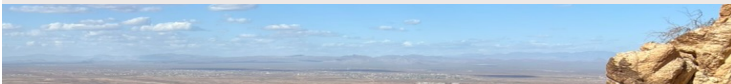


WARTS-VERRUC A VULGARIS

Sometimes the practitioner can “purchase” the warts of their younger patients, giving them a dollar for each wart usually makes the wart disappear in 1-2 weeks. Psychotherapy, homeopathy and constitutional botanical prescribing: including a lengthy interview is usually successful in adult patients.

Topical interventions like 25% Podophyllum in alcohol, Thuja oil, salicylic acid, liquid nitrogen and surgical removal can be construed as superficial and suppressive, some level of internal treatment with agents that enhance host anti-viral defenses may be more ideal, consider botanical 'anti-viral' agents like Lomatium, Hypericum, Glycyrrhiza, vitamin A and Melissa.

This concept of an herbal antiviral can get complicated—these are not necessarily items that kill viruses in a petri-dish—nor in the far more complicated living organism. The plant and its constituents stimulate a wide range of host defenses that include some responses to viral organisms that might lead to their eradication, or their assimilation into the micro-ecology of the body, as the case may be.



MOLLUSCUM CONTAGIOSUM

Also called water warts, a benign condition of the skin caused by a double-stranded DNA poxvirus called molluscum contagiosum virus (MCV). Four subtypes of the molluscum contagiosum virus are known; MCV-1 (98% of cases) is mostly seen in children, while MCV-2 is mainly responsible for skin lesions in people living with HIV. MCV-3 and MCV-4 are present in Asia and Australia. The skin lesions are called Mollusca and appear as dome-shaped, round, and pinkish-purple in color. In 2010, there were about 122 million cases, although it occurs worldwide, it is more frequent in warm, humid regions. Molluscum contagiosum is diagnosed mainly in children aged two to five years, but also in sexually active teenagers and adults, and immunocompromised persons

Molluscum contagiosum lesions are transmitted by direct skin-to-skin or indirect (towels, underclothes, toys, razor, tattoo supplies) contact. Molluscum contagiosum may also disseminate by autoinoculation to normal skin after mollusca scraping by the patients. Transmission from sharing swimming pools and other wet environments is possible but not fully proven. In utero and prepartum transmissions are occasionally reported, resulting in congenital molluscum contagiosum or skin lesions developing during the early months of life.

Topical application of a 0.25% tretinoin hydrogel (10 mg/ml hyaluronic acid) is usually very effective.



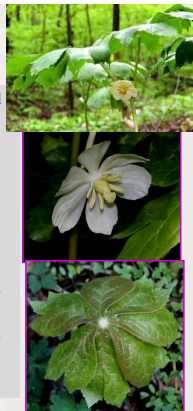
PODOPHYLLUM PELTATUM-MAYAPPLE

Podophyllotoxin is the basis for two chemotherapy drugs (etoposide and teniposide) both microtubule inhibitors, binding to tubulin and preventing formation of microtubules resulting in mitotic arrest

Podophyllum resin is a mixture of resins derived from the mandrake plant, primarily used as an antimitotic agent for treating genital or perianal warts.

Exercises many biologic effects such as damages endothelium of small blood vessels, attenuates nucleoside transport, suppresses immune responses, inhibits macrophage metabolism, induces interleukin-1 and interleukin-2, decreases lymphocyte response to mitogens, and enhances macrophage growth.

Apply 0.5% solution or gel q12h in the morning and evening for 3 days, then withhold for 4 days. Repeat cycle up to 4 times.



The Six Exanthemas of Childhood

An “exanthem” is a widespread rash and there were 6 distinct exanthemas of childhood that were numerically designated 1-6 in 1905. Today we only really refer to Fifth Disease, and sometimes Sixth, by this older categorization. The six original exanthemas were:

- First disease: Measles/Rubeola
- Second disease: Scarlet Fever
- Third disease: Rubella (AKA German Measles)
- Fourth disease: Dukes' Disease
- Fifth disease: Parvovirus B19
- Sixth disease: Roseola Infantum



First Disease: Rubeola/Measles

Historically considered the greatest killer of children, still responsible for more than 1 million deaths worldwide (mostly in developing countries where the death rate can be as high as 10%-while the child fatality rate in industrialized nations is only 0.1%-0.2%).

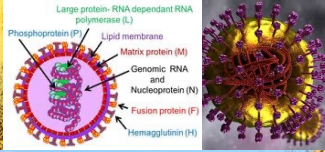
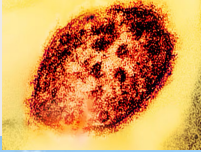
It is highly transmissible, with an infectivity rate of 76%, it is contagious from just before the prodromal symptoms until four days after the onset of the rash.

Classic symptoms include cough, coryza, and conjunctivitis, photophobia and fever. Patients may have Koplik spots in the mouth that present in the beginning of infection and resolve as the rash erupts. Infection leads to a prolonged immunosuppression, which accounts for the morbidity and mortality—often from secondary infections with pneumonias at the top of the list.

The rash begins on the fourth or fifth day of symptoms and usually begins on the face and behind the ears before spreading to the trunk and extremities.

Summary of Symptoms:

- Days 0-1: Prodrome begins
- Days 2-3 Koplik spots appear
- Day 4-5: Morbilliform rash begins
- Days 6: Koplik spots regress
- Days 7-8: Rash is most intense
- Day 10: Rash begins to resolve

**Measles/Rubeola**

Maculo-papular rash and Koplik's spots



Treatment is generally supportive with attention to hydration, and quarantine until no longer infectious. The WHO also recommends supplementation with Vitamin A because these levels drop during the infection, and in developing countries these levels may already be very low, which predisposes one to secondary infections.

The most common serious and sometimes fatal complications from measles usually occur in developing countries, and include: dehydration from diarrhea, pneumonia, vitamin A deficiency (leading to corneal ulceration and blindness) and immunosuppression.

Suspected cases of measles are reportable to the public health department, and a blood sample from the patient should be obtained for confirmatory testing.

**Second Disease-Scarlet fever**

Associated with *group A streptococcus* infection, usually *tonsillitis*. It is not caused by a virus, it is caused by an exotoxin produced by the *streptococcus pyogenes* (group A strep) bacteria. It is characterized by a red-pink, blotchy, macular rash with rough "sandpaper" skin that starts on the trunk and spreads outwards, it has a 24-96 hour incubation period, and the illness tends to start with an abrupt fever, sore throat, vomiting, abdominal pain and myalgia. Rash usually appears 12-48 hours after fever, often starting with red, flushed cheeks and a strawberry tongue with cervical lymphadenopathy.

Treatment is often with antibiotics for the underlying streptococcal bacterial infection. Historically, with *phenoxymethyl-penicillin (penicillin V)* for 10 days. Scarlet fever is a *notifiable disease* and all cases need to be reported to *public health*. Children should be kept out of school until 24 hrs after starting antibacterial.

Patients can have other conditions associated with group A strep infection:

- *Post-streptococcal glomerulonephritis (occurs in 10-15% of children)*
- *Acute rheumatic fever*

By the time children are 10, about 80% have developed lifelong antibodies against streptococcal exotoxins. The resolving rash may cause peeling of the skin on the hands, feet, axillae and groin.

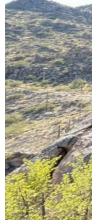
**Third Disease-Rubella**

Rubella is caused by the rubella virus. It is highly contagious and spread by respiratory droplets. Symptoms start 2 weeks after exposure-nearly half of the infections are asymptomatic.

It presents with a milder erythematous macular rash compared with measles. The rash starts on the face and spreads to the rest of the body. The rash classically lasts 3 days. It can be associated with a mild fever, joint pain and a sore throat. Patients often have enlarged lymph nodes (lymphadenopathy) behind the ears and at the back of the neck. Patients may also complain of pain on lateral and upward eye movement.

Management is supportive and the condition is self limiting. Rubella is a notifiable disease and all cases need to be reported to public health. Children should stay off school for at least 5 days after the rash appears. Children should avoid pregnant women as this is a viral infection that primarily causes morbidity and mortality (to the fetus) through teratogenic effects when pregnant women contract the disease (especially in first trimester).

Complications are rare but include thrombocytopenia and encephalitis. Rubella is dangerous in pregnancy and can lead to congenital rubella syndrome, which is a triad of deafness, blindness and congenital heart disease.





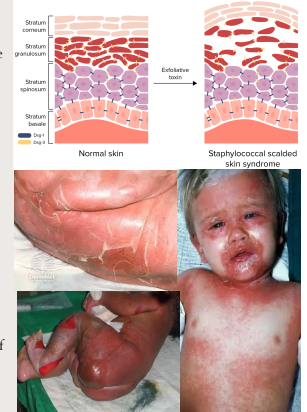
Fourth Disease: Sometimes called Dukes Disease.

No specific cause has ever been identified. Many believe Dukes disease was actually a nonspecific viral rash, others believe fourth disease was actually an infection related to endotoxin-producing *Staphylococcus aureus*, causing Staphylococcal scalded skin syndrome—SSSS.

It has very interestingly been mostly forgotten and is never used in clinical practice. Even when it was first described as a similar disease to rubella, there was disagreement about whether it actually existed or whether doctors were simply misdiagnosing a different illness. Since viral and bacterial testing has become possible, no organism has been found that could explain a specific "fourth disease".

It is very common for children to get non-specific "viral rashes". It is likely that "fourth disease" was used to describe these non-specific viral rashes that are now understood to be caused by many potential viruses.

SSSS is common enough to warrant its inclusion as a rash condition of relevance in children—of course, not a virus, but a bacteria.



Fifth Disease: Parvovirus B19

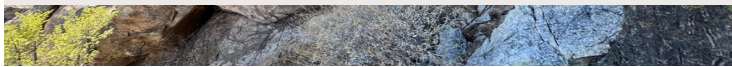
"Slapped cheek syndrome" and *Erythema infectiosum*.

Infection starts with mild fever, coryza and non-specific viral symptoms such as muscle aches and lethargy. After 2 – 5 days the rash appears quite rapidly as a diffuse bright red rash on both cheeks, as though they have "slapped cheeks". A few days later a reticular or lacy mildly erythematous rash affecting the trunk and limbs appears that can be raised and itchy and could last as long as 3 weeks.

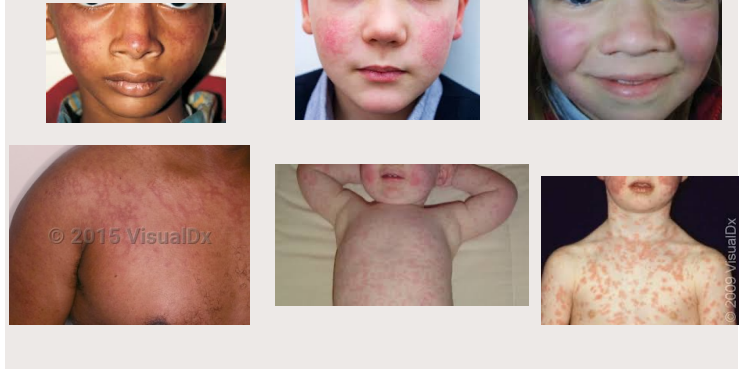
The illness is self limiting and the rash and symptoms usually fade over 1–2 weeks. Healthy children and adults have a low risk of any complications and are managed supportively with plenty of fluids and simple analgesia. It is infectious prior to the rash forming, but once the rash is present, they are no longer infectious and do not need to stay out of school.

Patients that are at risk of complications include immunocompromised patients, pregnant women and patients with hematological conditions such as sickle cell anaemia, thalassaemia, hereditary spherocytosis and haemolytic anaemia.

Adult women are more likely to develop a self-limited acute arthropathy (sometimes without the rash). Individuals at risk for severe problems are those patients who are immunocompromised, and sickle cell anemia patients who are at risk for transient aplastic crisis. In fact, Parvovirus B-19 infection is the only infectious cause of transient aplastic crisis and is believed to be the cause in over 80% of patients with sickle cell disease.



Fifth Disease



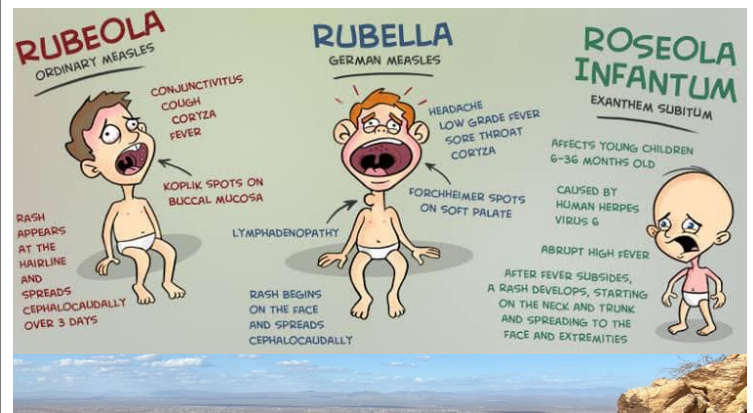
Sixth Disease: Roseola Infantum, Exanthema Subitum



Roseola is caused by human herpesviruses 6 (HHV-6) and affects infants and children younger than three years of age. It is characterized by the abrupt onset of high fever lasting one to five days, children often appear well with little to no focal clinical signs except possible mild cough, rhinorrhea, or mild diarrhea. Once the fever resolves, an erythematous macular to maculopapular rash usually appears, starting on the trunk and spreading peripherally.

This rash is similar in appearance to that of rubella (measles). In contrast with roseola, the rash associated with measles starts on the face (usually behind the ear) or mouth (Koplik spots) and moves downward.

Children with roseola usually appear well, whereas those with measles are typically more ill-appearing. Roseola is a self-limited illness requiring no treatment, and the diagnosis is clinical.



Characteristics of Some Common Rashes of Childhood

Condition	Location	Appearance
Roseola infantum (exanthema subitum)	Trunk, spreads peripherally	Macular to maculopapular
Pityriasis rosea	Trunk, bilateral and symmetric, Christmas tree distribution	Herald patch on the trunk may present first, followed by smaller similar lesions; oval-shaped, rose-colored patches with slight scale
Scarlet fever	Upper trunk, spreads throughout body, spares palms and soles	Erythematous, blanching, fine macules, resembling a sunburn; sandpaper-like papules
Impetigo	Anywhere; face and extremities are most common	Vesicles or pustules that form a thick, yellow crust
Erythema infectiosum (fifth disease)	Face and thighs	Erythematous "slapped cheek" rash followed by pink papules and macules in a lacy, reticular pattern
Molluscum contagiosum	Anywhere; rarely on oral mucosa	Flesh-colored or pearly white, small papules with central umbilication
Tinea infection	Anywhere	Alopecia or broken hair follicles on the scalp (tinea capitis), erythematous annular patch or plaque with a raised border and central clearing on the body (tinea corporis)
Atopic dermatitis	Extensor surfaces of extremities, cheeks, and scalp in infants and younger children; flexor surfaces in older children	Erythematous plaques, excoriation, severely dry skin, scaling, vesicular lesions

Varicella-zoster-Chicken pox/Shingles

Chickenpox is an airborne disease spread worldwide by coughing, sneezing, and contact with skin lesions. Symptoms begin 10 to 21 days after exposure with the average incubation period about 2 weeks. Chickenpox results in a skin rash forming small, itchy blisters that scab over, it typically starts on the chest, back, and face and then spreads, accompanied by fever, fatigue, pharyngitis, and headaches, usually lasting 5 to 7 days. People are contagious 1 to 2 days before the rash appears until all lesions are crusted over. Complications include pneumonia, encephalitis, and bacterial skin infections. The disease is more severe in adults than in children. Shingles follows many of the same rules but typically leads to a blistering rash that may burn, tingle, or itch, even if there no blisters are present at first. Shingles may involve clusters of fluid-filled blisters that break easily and weep fluid and/or a very contagious rash that emerges in a band-like pattern, most commonly on the torso.



FEVER THERAPY/HYDROTHERAPY

"Give me the power to induce fever and I will cure all diseases" Parmenides (ca. 540-480 B.C.)

"Fever is a mighty engine, which nature brings into the world for the conquest of her enemies" Sydenham (1624-1689)

Fever as the imminent sign of infectious diseases has been used as a diagnostic indicator since ancient times. It is one of the oldest nonspecific responses to infection, both in vertebrates and invertebrates.

Temperature rise during fever establishes a cascade of host defense mechanisms that increases host survival and induces T cell proliferation and differentiation, secretion of interferons (IFNs), antibodies and neutrophil migration. Fever as a part of the acute-phase reaction and the role of cytokines in thermoregulation have been reviewed extensively.



BENEFITS OF FEVER

Enhances the effects of interferons
Inhibits the growth of some organisms
Enhances the performance of Phagocytes
Specific immune response
Accelerates tissue remodeling/repair

Adverse Effects of Fever
Denatures proteins
Inhibits nerve impulses



MECHANISM OF FEVER PRODUCTION

IL-1 or other pyrogens like bacterial toxins or antigen-antibody complexes stimulate hypothalamus to secrete prostaglandins that reset the hypothalamic thermostat

*CNS response initiates increase in temperature through Muscle contractions (shivering, rigors)
Increased metabolic activity
Constriction of blood vessels (to reduce heat loss-but also causes chills)*

Decreasing IL-1 results in body temperature normalizing through sweating, vasodilation and decreased metabolic rate



Fever - Myths Versus Facts

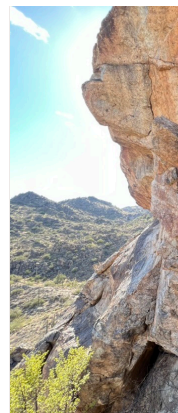
Many parents have anxiety about fevers, thinking the fever will hurt their child. The vast majority of fevers are harmless and often helpful-hydration is critical.

About 80% of children who act sick and feel warm do have a fever. If you want to be sure, take their temperature. These are the cutoffs for fever using different types of thermometers:

- Rectal, ear or forehead temperature: 100.4° F (38.0° C) or higher
- Oral (mouth) temperature: 100° F (37.8° C) or higher
- Under the arm (Armpit) temperature: 99° F (37.2° C) or higher

Fevers turn on the body's immune system. They help the body fight infection. Normal fevers between 100° and 104° F (37.8° - 40° C) are good.

Fevers with infections don't cause brain damage. Only temperatures above 108° F (42° C) can cause brain damage. It's very rare for the body temperature to climb this high and generally only happens if the air temperature is also very high.



Febrile Seizures

Only 4% of children have seizures associated with fever.

These seizures are scary to watch, but they generally stop within 5 minutes without causing any permanent harm.

Fevers only need to be treated if they cause discomfort, which is usually if they go above 102° or 103° F (39° or 39.5° C).

The brain has a thermostat. Most fevers from infection don't go above 103° or 104° F (39.5°- 40° C). They rarely go to 105° or 106° F (40.6° or 41.1° C). While these are "high" fevers, they also are still harmless.

With treatment, most fevers only come down 2° or 3° F (1° or 1.5° C).

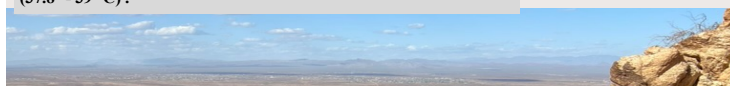
Fevers that don't come down to normal can be caused by viruses or bacteria. The response to fever medicines tells us nothing about the cause of the infection.



It's normal for fevers with most viral infections to last for 2 or 3 days. When the fever suppressant wears off, the fever will come back. It may need to be treated again. The fever will go away and not return once the body overpowers the virus. Most often, this is day 3 or 4. If the fever goes high, the cause may or may not be serious. If the patient looks very sick, the cause is more likely to be serious.

How a person presents is what's important. The exact temperature number is not.

Oral temperatures between 98.7° and 100° F (37.1° to 37.8° C) are not low-grade fevers. These temperatures are normal. The body's normal temperature changes throughout the day. It peaks in the late afternoon and evening. A true low-grade fever is 100° F to 102° F (37.8° - 39° C).



NUTRITIONAL CONSIDERATIONS

Simple sugars tend to make all of these conditions worse.

Pain makes swallowing difficult, so rough textured foods can be problematic

Soups, porridges, smoothies, juices (watching sugar content)

Frozen Emergen-C, Airborne, etc. is helpful, and soothing to a throat as homemade popsicles

Warm/hot teas with a bit of honey and ginger can be wildly helpful

Fermented 'Ginger Bug' is often very helpful for chronic thrush and acute infections

In a jar on top of the refrigerator—1 tbsp ground ginger (with peel), 1 tbsp sugar, 2-4 ounces of water, cover with a towel or cheese cloth and let it sit for a day or two to ferment...you will hear it bubble and fizz. Keep adding water, sugar and ginger to keep it growing, ultimately expanding the volume to 1 liter bottles and allowing to continue fermentation.

Store at room temperature in a pressurized bottle



NUTRITIONAL CONSIDERATIONS

- Bottles and sippy cups become problematic here...as the child lays back and suction sugars and bacteria are able to colonize into the meatus of the Eustachian tube, contributing to ear infections.
- Good quality proteins are important, cheese, dairy, soy and wheat can contribute to a more sticky and globular quaternary structure to the mucous.
- N-Acetyl-Cysteine-300-1000 mg/day can be a great mucolytic, creating more planar and easier to expectorate mucus.
- Avoiding simple sugars can be profoundly helpful
- Staying hydrated can be very helpful
- Consider environmental mold exposure if condition persists
- Supplementation with Vitamin A, 10,000-25,000 ius/day



N-Acetyl-Cysteine

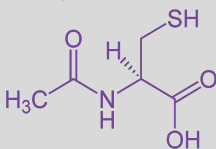
An antioxidant component of Glutathione

Plays a protective, reducing role in the compound

A major reagent in Phase II sulfation reactions crucial for appropriate detoxification, including histamines and heavy metals

Improves antibody production, esp. IgA

Displays significant antiviral activity against influenza viruses mucolytic



Exhibits bactericidal properties, breaks down bacterial biofilms of clinically relevant pathogens including *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Enterococcus faecalis*, *Enterobacter cloacae*, *Staphylococcus epidermidis* and *Klebsiella pneumoniae*

600-1200 mg/day



BOTANICAL MEDICINE CONSIDERATIONS



There is no shortage of botanical agents that share a myriad of host immune stimulating effects as well as antimicrobial influences. Nearly every system of traditional medicine from every culture on the planet has their favorites, from *Glycyrrhiza*, *Grindelia*, *Sambucus*, *Ocimum*, *Eupatorium*, *Mentha*, *Melissa*, *Hypericum* and *Azadirachta*.



It may suffice to say that frequent consumption of warm herbal beverages is sensorially pleasing and impactful of immune systems while helping to mitigate some of the presenting symptoms of a viral infection. Inasmuch as they contribute to hydration, manage nausea, encourage expectoration and occupy the mind, they are immeasurably helpful. A little honey and a crazy straw will entice even the most reluctant toddler to consume some *Melissa*, *Sambucus* or *Zingiber* tea.



The value of many botanical medicine interventions is their safety profile. Plants with rich terpene profiles and high amounts of volatile constituents are most helpful. Essential oils are helpful when diffused into the environment and added to steams and baths.

BOTANICAL MEDICINE CONSIDERATIONS

Throat spray-Topical applications of botanical agents like:

Echinacea, *Zanthoxylum*, *Spilanthes*, *Rudbeckia*, *Anemopsis*, and *Piper methysticum* can be topically soothing as well as stimulating to local immune response.

Lymphatic alternatives can be applied topically as well as internally with specific indications:

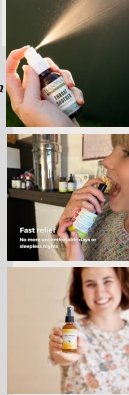
Baptisia tinctoria there is a particular duskyness of a bluish or purplish hue of the skin and mucus structures—consider in cases of cellulitis.

Scrophularia lymphatic swelling with ulceration of the mucus membranes

Stillingia Mucosa red, glistening and without secretion

Phytolacca Chronically swollen tonsils and cervical lymph nodes

Most of these botanicals are dosed on the order of 3-5 drops 4-5 times a day...they are very conducive to be put in throat sprays where the child can administer something soothing and helpful as often as they might see fit, takes an uncomfortable and disempowering situation, being ill, and allows a sense of agency.



HYDROTHERAPY CONSIDERATIONS

Wet sheet Packs and Wet Socks are very helpful measures

Salt water gargle—a hypertonic solution of salt (1-2 tablespoons of salt per quart of water)—iodized salt may be more effective

Carrot or potato poultice wrapped around the throat with a scarf or a towel.

Using a damp material helps promote better circulation into and out of the tissues of the throat. As the poultice warms to body temperature, cool it down with a cold water rinse. Can be done throughout the day and night.

Alternating hot-cold packs to the neck can help reduce acute swelling

Hot foot baths and cold on the back of the neck can be really helpful for delirium in fevers

Chest rubs are often very soothing and help with circulation

Vaporub/volatile terpenes

Mustard plaster—can be irritating to skin



GLYCYRRHIZIC ACID

Triterpenoid saponin from *Glycyrrhiza glabra*—licorice

Hydrolysed to the biologically more active compound glycyrrhetic acid, which inhibits the enzyme 11 beta-hydroxysteroid dehydrogenase leading to increased cortisol levels.

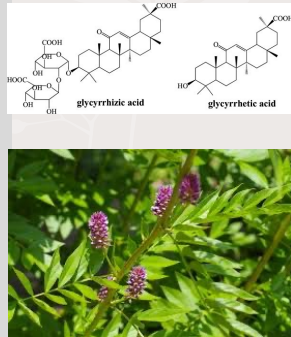
The result is a hypermineralocorticoid effect of cortisol as it binds with the same affinity as aldosterone to the mineralocorticoid receptor.

The inhibitory effect on 11 beta-hydroxysteroid dehydrogenase is reversible; however, depression of the renin-angiotensin system may last several months. Used in the clinical treatment of hepatitis, bronchitis, gastric ulcer, AIDS, certain cancers and skin diseases.

It exerts anti-microbial and anti-inflammatory activity through several different mechanisms.

Topically, very helpful to inflamed mucus membranes.

10-20 mg/day through a nebulizer or nasal spray glycyrrhizic acid represents a safe dose.



Anemopsis californica--Yerba mansa

Native to the Southwestern part of North America. It is a perennial flowering plant that blooms in spring. The rhizome is the most common part of the plant that is used for its medicinal value.

The name Yerba is a Spanish word which means herb owing to the herbal properties of this plant. Although the word Mansa means "tranquil" in Spanish, the Yerba Mansa plant does not actually have any sedative properties. It has a reputation for use as an antimicrobial treatment for swollen gums and sore throats, and many other diseases of the mucus membranes. Yerba Mansa is used as a poultice that can be directly applied to wounds, boils and burns. It has a history of use as an anti-inflammatory that can be used to treat pain and swelling of arthritic joints, and fascial pain. It is very rich in aromatic terpenes and very soothing to a sore throat and inflamed lungs.

Dosage of tincture is 15-20 drops 2-3 times a day

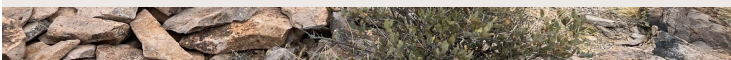


ERIODICTYON ANGUSTIFOLIA--YERBA SANTA

Native to the southwest US it is a warming, diffusive and drying botanical with a sweet flavor. As a tea or a tincture it is helpful in viral URI's and allergic asthma. It is generally anti-microbial and anti-inflammatory.

Dosage is 20-40 drops of tincture (1:5) 3-5 times a day
It mixes well with other respiratory agents.

The tea is full of volatile constituents that are soothing and relaxing...although too much will cause nausea and vomiting.



HYPTIS EMORYI-DESERT LAVENDER

Native to the Desert Southwest of the US, a member of the mint family and full of volatile terpenes that are anti-microbial and anti-inflammatory. It grows freely and wildly all over the southwest and makes a great landscape medicinal plant.

Particularly helpful in respiratory conditions, coughs, viral infections like colds, flus, covid 19, asthma and allergies.

The hot tea has a distinctly diaphoretic action and is nicely expectorant.

The tincture (1:5) dosed at 10-30 drops 3-5 times a day combines nicely with other respiratory agents.

Along with *Bursera microphylla*, *Hyptis* is a spiritually significant plant to the Seri/Comcaac people. As a protection as well as a connection to the spirit world.



ATOPIC DERMATITIS-ECZEMA

The "itch that rashes" due to the rash that results from scratching or rubbing, the hallmark of eczema is dry, itchy skin prone to infections.

Research shows there is a genetic component to eczema with a common mutation in the gene responsible for creating the tough, flat corneocytes that form the outermost protective layer of the skin. In a patient with normal skin cells, the corneocytes are tightly packed in an organized manner. A patient with this mutation will have a dysfunctional skin barrier due to the haphazard organization of the skin cells. This dysfunction causes a "leaky" skin barrier, allowing water loss and decreased protection from harmful substances.

People with eczema also have reduced numbers of β -defensins in the skin. β -defensins are host defense peptides vital for fighting off certain bacteria, viruses, and fungi. A decrease in these peptides leads to increased colonization and infection, especially with *Staphylococcus aureus*.



Atopic Dermatitis/Eczema



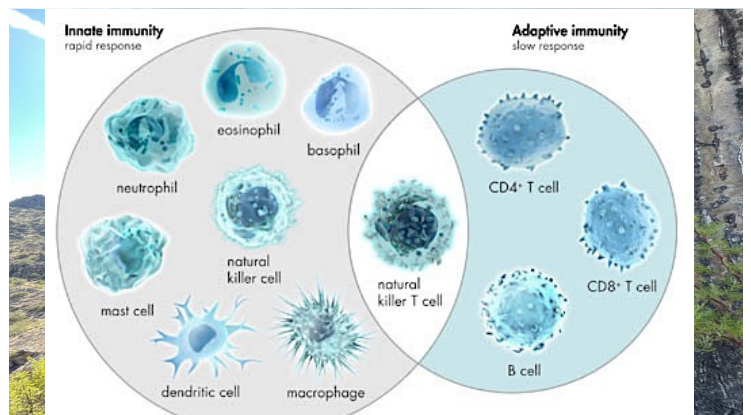
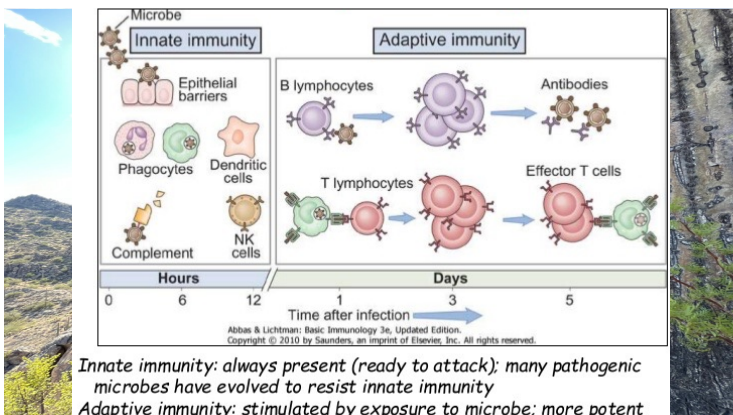
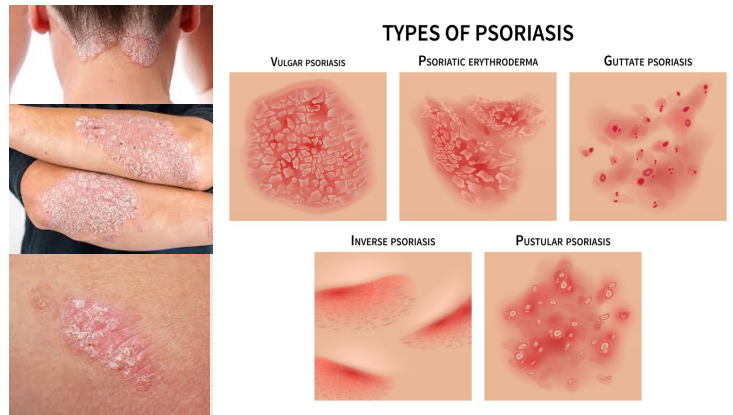
PSORIASIS

Psoriasis is a chronic proliferative and inflammatory condition of the skin that is characterized by erythematous plaques covered with silvery scales, particularly over the extensor surfaces, scalp, and lumbosacral region.

The pathophysiology of psoriasis involves infiltration of the skin by activated T cells which stimulate the proliferation of keratinocytes. This dysregulation in keratinocyte turnover results in the formation of thick plaques. Other associated features include epidermal hyperplasia and parakeratosis. In addition, the epidermal cells fail to secrete lipids which results in the typical flaking and scaling skin.



TYPES OF PSORIASIS










Innate Immunity

First line of defense against pathogenic microbes
Physical infrastructure exists before exposure to potential pathogens
physical barriers/tight junctions
Found in plants, insects and vertebrates

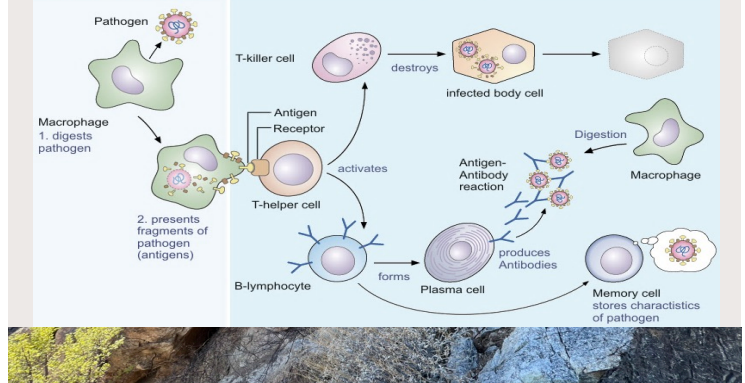
3 Essential Functions
Initial resistance to microbial infiltration
Eliminates damaged cells and initiates the process of repair
Invokes adaptive immune response

2 major categories of active response
Inflammation
Antiviral defenses

Cell type	Characteristics	Location	Image
Macrophage	Phagocytic cell that consumes large pathogens and cancer cells. Functions as a scavenger for debris and dead cells.	Connective tissues, various membranes	
Natural killer cell	Kills tumor cells and virus-infected cells.	Circulates in blood and lymphatic systems	
Dendritic cell	Presents antigens on its surface, thereby triggering adaptive immunity.	Present in epithelial tissue, including skin, lung, and tissues of the digestive tract. Moves to lymph nodes upon activation.	
Mast cell	Releases histamine and other chemicals in response to inflammation.	Found in epithelial tissue, including skin, lung, and tissues of the digestive tract. Moves to lymph nodes upon activation.	
Neutrophil	First responder in the site of infection or trauma. Its granular phagocytic cell responds to all types of pathogens. Releases toxic granules that kill or injure bacteria and fungi and destroy other immune cells when all else fails.	Connects in blood and lymphatic systems	
Eosinophil	Responds to allergic agent parasites. Releases histamine that causes tissue damage and may be responsible for allergic reactions.	Circulates in blood and lymphatic systems	
Basophil	Releases histamine that causes tissue damage and may be responsible for allergic reactions.	Circulates in blood and lymphatic systems	



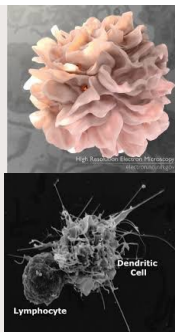
Specific or Adaptive Immune Response is dependent on non-specific immune response



DENDRITIC CELLS

Antigen-presenting cells (APCs) also known as accessory cells
Their main function is to process antigen material and present it on the cell surface to the T cells

They act as messengers between the innate and the adaptive immune systems



Specific or Adaptive Immune Response

Specific immunity has the qualities of learning, adaptability, and memory.

The cellular component of specific immunity are the lymphocytes (B-cells, T-cells and Dendritic cells)

B-cells mature in bone marrow and produce Abs

T-cells mature in the Thymus and Lymph glands and represent the cellular response system

The soluble component is composed of immunoglobulins, or antibodies, of which there are five classes, IgG, IgM, IgE, IgA and IgD

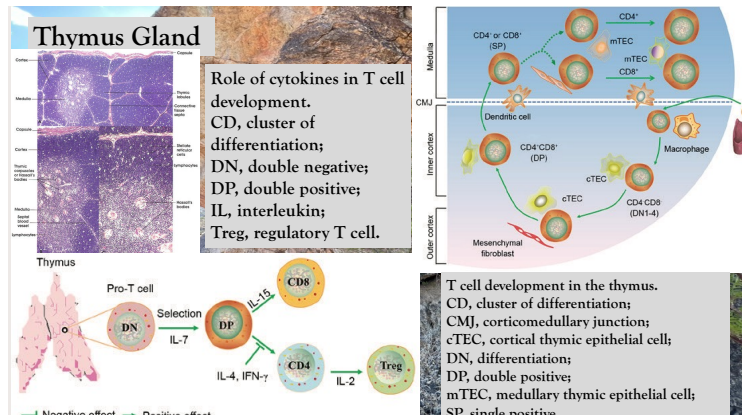
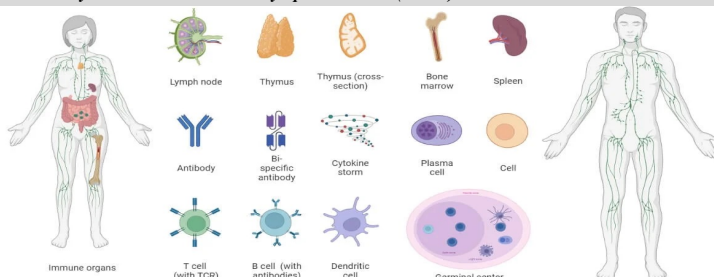


Organs of the Immune System

Primary: Thymus and Bone marrow where lymphocytes are matured.

Secondary: Lymph nodes, spleen, mucosal-associated lymphoid tissues (MALT), and gut-associated lymphoid tissue (GALT)

Tertiary: Cutaneous associated lymphoid tissues (CALT).



Thymosins

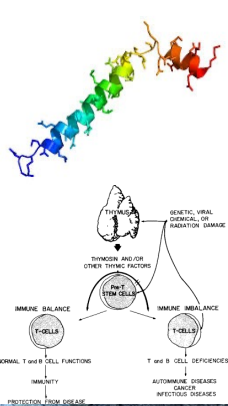
A family of biologically active molecules with hormone-like properties. First isolated from the thymus gland and described in 1966 by AL Goldstein and A White.

Thymosins play a significant role in establishing immunity and modulating several growth factors, cytokines and chemokines.

In the early 1970s, preclinical studies established the immuno-restorative effects of a partially purified thymosin preparation termed thymosin fraction 5 (TF5) from calf thymus glands that provided the scientific foundation for the first clinical trials with TF5 in 1974.

TF5 was effective in turning on the immune systems of a number of children with DiGeorge syndrome and other thymic dysplasias. These trials led to further interest in the active components in TF5 and to the chemical characterization of the biologically active thymosins.

Several of these molecules are showing significant promise in the clinic in the areas of cancer, infectious diseases and wound healing.



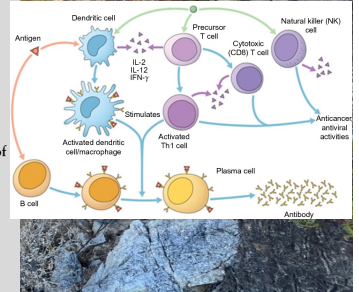
Thymosin α -1

Thymosin α -1 is a major component of Thymosin Fraction 5 and is responsible for restoring and modulating immune function, particularly cell mediated immune function.

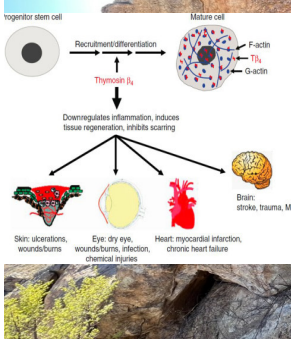
Recent studies showed that Thymosin Alpha-1 molecule increased major histocompatibility complex (MHC) class-I and Toll-like receptor expression as well as cytokine production, suggesting an immunoregulatory role.

It is an FDA approved medication under the trade name zadaxin after it received orphan drug approval status. It is widely used and studied in the treatment of multiple types of cancer, viral illnesses and autoimmune conditions.

TA 1 plays a role in modulating immune response by stimulating T-cell differentiation.



Thymosin β 4



The most abundant member of the thymosin family of proteins, expressed in many different tissues. Thymosin β 4 is the principal G-actin sequestering molecule in mammalian cells, playing an important role in the organization of the cytoskeleton.

Thymosin β 4 is involved in: promotion of cell migration, blood vessel formation, survival of cells, differentiation of stem cells, modulation of cytokines, chemokines, and certain proteases as well as up-regulation of matrix molecules and gene expression.

Notably, thymosin β 4 is secreted from platelets and aids in the formation of crosslinks with fibrin in a time- and calcium-dependent manner in the process of clot formation.

CEANOTHUS AMERICANUS/GREGGII/FENDLERI RED ROOT

Indicated historically for lymph system; splenomegaly; acute tonsillitis and pharyngitis.

Used as a gargle in acute pharyngitis and tonsillitis

Fibrocystic breast disease and acute mastitis

Lymphadenitis, in chronic conditions

Mononucleosis, with widespread and inflamed nodes

Three triterpenes (ceanothic acid, 27-hydroxy ceanothic acid and ceanothetric acid) have demonstrated growth inhibitory effect against *Streptococcus mutans*, *Actinomyces viscosus*, *Porphyromonas gingivalis*, and *Prevotella intermedia*

Betulin and Betulinic acid constituents are active as anti-inflammatory, anti-tumor agents as well as modulating the immune system.



Scutellaria baicalensis-Huang Qin

Also known as Baikal skullcap or golden root

In TCM, it is well established as an agent that clears the heat of inflammation, dries dampness, and also acts as a mast cell stabilizer

Exerts some anti-inflammatory activity through inhibition of lipoxygenases, interleukin 1B and IL-4, and prostaglandin E2

Wogonin, Baicalein and Baicalin are considered to be its most anti-inflammatory constituents.

Baicalein has potential in reinforcing remyelination of nerve sheaths.

Dosage 500 mg-2gms/day of powder or 1-4 ml of tincture (1:2)



PHYTOLACCA AMERICANA POKEROOT

Poke has a long tradition of use in western botanical medicine for lymphatic swelling, respiratory conditions and chronic illness. It is potentially toxic in larger amounts, the toxicity manifesting as gastroenteritis, vomiting and diarrhea.

Therapeutic effect can be achieved with doses of 15-30 drops 3-4 times per day. Studies have shown that, presumably through the action of pokeweed mitogen, the plant extract has a measurable effect on lymphocyte proliferation and induces lymphoblastic transformation in B-cells. It is a well-regarded lymph mover by modern herbal practitioners.

Poke oil and castor oil, mixed 50:50, can be used with good effect topically on congested and swollen breast tissue and any enlarged lymph nodes or areas of congestion and pain.

Pokeweed mitogen is a glycoprotein lectin that impacts both T-cells and B-cells at a wide range of dosages, the whole plant preparation exhibits anti-viral activity and can be useful in helping the body eliminate microbial offenders. Also helpful in reprogramming B-cell production of auto-reactive antibodies and motivating lymphatic structures to weed such antibodies from circulation.

Dosage of a 1:5 tincture 5-15 drops 2-4 times per day





ZANTHOXYLUM AMERICANUM PRICKLY ASH

Traditionally used in the treatment of fevers, ague, and poor circulation. The fruits are considered more active than the bark, they are also antispasmodic, carminative, diuretic and antirheumatic. The root and bark can be used for toothache. The berries are more stimulating than the bark and not as bitter. Prickly Ash is indicated in atonic states of the mucous membranes, with relaxation and hypersecretory states. In larger doses it is indicated in depressive states of the nervous system, with capillary congestion and sluggish circulation, dryness of the mouth and pharynx, gastric deficiency with hyposecretory states, abdominal distention and gas, uterine cramping and pain, and neuralgia.

Prickly Ash is an important remedy in disorders of the mouth and throat, as well as of the digestive tract.

The dosage of 1:5 tincture is 10-30 drops 2-3 times a day
This plant is often not sustainably harvested...did I mention the effectiveness of the berries?



Low Dose Naltrexone-LDN

The use of low doses of naltrexone for the treatment of autoimmune conditions enjoys a worldwide following.

There is overwhelming anecdotal evidence, that low dose naltrexone not only prevents relapses but also reduces the progression of the disease.

It is proposed that naltrexone acts by reducing apoptosis of oligodendrocytes and interfering with excitatory neurotoxicity of glutamate on neuronal cells.

Dosage usually begins at 3 mg before bed and is raised in 0.25-0.5 mg increments every week to 2 weeks to 4.5 mg before bed.

- Naltrexone is a mu opiate receptor antagonist US FDA approved for treatment of opiate addiction
- More recently naltrexone in low dose was found to enhance the effects of opiate agonists¹
- In 1985 Dr. Bernard Bihari found that HIV infected patients had low levels of endogenous endorphins and hypothesized that increasing their levels would be beneficial
- Dr. Bihari began using a low dose of 4.5 mg naltrexone taken nightly in the treatment of HIV infected patients with the goal of "normalizing" endogenous endorphin levels
- Anecdotal reports suggest that this low dose of naltrexone (LDN) might also benefit MS patients
- A small (N=17) open label study in Crohns disease found that LDN improved active disease as measured by the Crohns disease activity index²



Saponins in Licorice

Triterpene skeleton has 30 carbons in five rings: 'pentacyclic'
Most have 3 – 5 sugars attached, occur as complex mixtures in all plant parts

Many are anti-inflammatory compounds and the saponins disrupt the formation of biofilm

Anti-inflammatory (synergistic with the flavanones)

Inhibit secretion of stomach acid

Inhibit deactivation of cortisol

Responsible for raising blood pressure w/excess ingestion (sodium & water retention, potassium excretion, diuresis)

Immunostimulating, antihepatotoxic, antiviral, disrupts biofilm

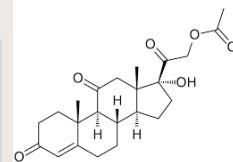


Cortisol—"Licort" and "Eleutheroctort"

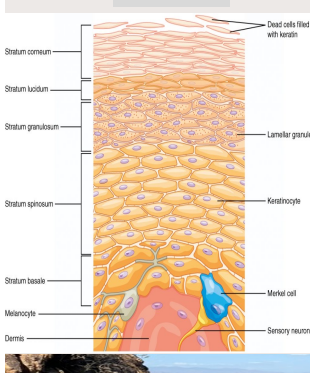
I produce this in my office by adding a specially prepared and micronized cortisol acetate to a 1:1 fluid extract of *Glycyrrhiza glabra* or *Eleutherococcus senticosus* in a 3% concentration, this produces a tincture that contains 1 mg of cortisol per drop.

The average daily equivalent of cortisol output for most people is 25-30 mg. When a patient is given more than this quantity it can be too suppressive and disruptive of normal physiology. This is not to say that some people aren't able to produce quantities of cortisol that are far above this level, just that from a supplementation basis, we may not want to risk suppression or disruption in our interventions. I have found that replacing an existing steroid regimen with an equivalent dosage of cortisol tincture makes it far easier to wean the patient down later, with very little to no ill effects after discontinuation.

For those patients who seem to need some kind of cortisolic augmentation, I will add the licort or eleutheroctort tincture to their existing botanical preparation and dose it 5 drops 4 times a day. I find that it mixes quite well with any preparation that would benefit from the addition of licorice or Eleutherococcus.

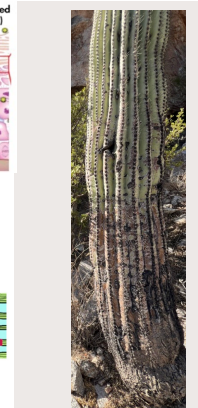
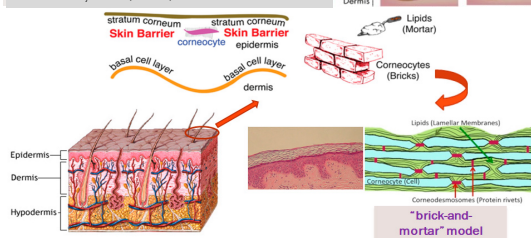


Ceramides



Ceramides and sphingolipids are long chain fatty acid components of the stratum corneum layer of the skin. The composition of ceramides, sphingolipids and other lipids is important for the formation of a healthy skin barrier, which may be compromised in skin conditions such as atopic dermatitis and psoriasis. Ceramides and sphingolipids are also involved in the control of keratinocyte proliferation and differentiation, as well as modulating the immune system within the skin. Marked clinical benefits of topical ceramide products in patients with atopic dermatitis or psoriasis.

The **stratum corneum** is composed of terminally differentiated and enucleated corneocytes that reside within a lipid matrix, like "bricks and mortar." Cholesterol, free fatty acids, and ceramides form the lipid mortar, a water-impermeable barrier that prevents dehydration and microbial invasion. The epidermal lipid matrix is composed of a mixture of ceramides (~50%), cholesterol (~25%), and free fatty acids (~15%).



Hyaluronic Acid/Glycyrrhizic acid Hydrogel

Per 100 mls of finished hydrogel:

10 mg/ml Hyaluronic acid—80 ml—800 mg

5 mg/ml Glycyrrhic acid—20 ml—100 mg

Ceramide x-blend—4.5 mls (4500 mg)

Allantoin 1%—1000 mg

Mix each gel in water separately, a fast spin on a magnetic stirrer or extrusion through a luer lock to luer lock adaptor and two syringes. Once the gel has formed, the two can be folded together and the ceramides added, making a creamy gel.

Make the allantoin into a slurry with a small amount of water and mix into hydrogel

It is remarkable for patients with eczema and psoriasis...

If necessary, licort can be suspended in cyclodextrin and added to the hydrogel. With all due caution.



WHERE DOES STEEL WOOL COME FROM?



METAL SHEEP