

Study Guide to the Six Tissue States

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Conventional biomedicine treats a specific molecular lesion rather than the whole person. The drug, its action, and the disease are all defined in terms of molecular structure. This is an example of reductionism in science: the phenomenon is reduced to its smallest components. In complementary and alternative medicine, on the other hand, the attempt is made to understand the whole person and use a whole plant to treat the whole disease. This is known as holism and is one of the major differences between biomedicine and complimentary and alternative medicine (CAM).

In order to practice herbalism in a holistic fashion we need to have a system for recognizing and describing patterns. All traditional systems of medicine and herbalism use such patterns. For instance, Traditional Chinese Medicine (TCM) uses yin and yang and the five elements. Ayurvedic medicine uses the three doshas and the five elements. Greek/Arabic medicine uses the four elements, the four qualities, the four temperaments, and the two tissue states. Nineteenth century Western herbalism used a system of six 'tissue states.' In this presentation we will study this particular system of pattern based analysis.

Energetics

The word 'energetic' was introduced in the last decades of the twentieth century – I believe it originated with Randolph Stone, DC, ND, founder of polarity therapy – to describe 'patterns of energy' such as hot and cold, damp and dry, yin and yang, and the four or five elements.

This approach utilizes the faculty that perceives the whole pattern. This is known as the intuition. Through the intuition we are able to see the pattern emerge from a field of data. Intuitive realization comes upon us suddenly, and is known as the 'aha moment.' However, intuitive analysis requires observation and data,

just as does ordinary science. It is necessary to collect information, in order to determine if something is 'hot' or 'cold,' or yin or yang. The intuition does not yield objective facts, obvious to all, as in scientific research and demonstration, but it shows us patterns that can be described and shared with others. Thus, intuitive information can be agreed upon and discussed. For thousands of years, Chinese, Ayurvedic, Greek, and Arabic doctors were able to describe patterns of disease and constitution to their students and patients. Thus, intuitive information can approach the objective level.

If we look at the most basic patterns utilized in traditional medicine we will see that they represent attempts to quantify levels of heat and moisture. Thus, for instance, yin and yang, in Chinese medicine, are essentially equivalent to fire and water, while the four qualities of Greek medicine represent excess or deficiency of heat and moisture. Ayurveda uses the three doshas, which more or less measure heat and dampness.

Several prominent herbalists have attempted to work out a modern system of energetics for Western herbalism. Several have attempted to use the Chinese rubric (Michael Tierra, Peter Holmes) or the Ayurvedic (David Frawley, Vasant Lad). Such efforts, however, are not capable of capturing many of the nuances of Western herbs and herbalism, which are encoded in a difference intellectual and cultural tradition. In order to understand Western herbs holistically, we need to be able to communicate in terminology native to the Western tradition.

Other prominent herbalists have attempted to preserve more of the heritage and flavor of Western herbalism. This would include Simon Mills (1991) and David Winston (1998, 2006). The latter has originated a well-organized, efficient system, although it has not been widely published. I have used this model, making minor modifications.

Some people believe that pharmacology and energetics are incompatible. This is not true. As David Winston has shown, we can bridge from constituents through tastes to energetics. Holistic herbalism is that which unites tradition, pharmacology, and energetics.

Pharmacology and Herbalism

Although herbalists were an important part of health care for the British working class prior to World War II, after the war the new national health system displaced them and the profession was, for a time, outlawed. Fortunately, the law was rescinded but NIMH, feeling under pressure, began a revision of the practice of herbalism, with an intention to keep it more in step with modern biomedicine. Under the leadership of Fred Fletcher Hyde, a number of steps were taken in this direction.

Hyde came from an old family of herbal practitioners but he was the first member of NIMH to be educated with a pharmacy degree. He began a survey of NIMH members to establish standards of practice and was shocked to find a wide variety of astrologers, palmists, and mystics mixed in with the general population of practitioners. Although he accepted all accredited members, he attempted to make herbal education for future generations soundly based on pharmacology.

One effort involved the selection of a promising young student who could carry on the pharmacological view. A scholarship was awarded to the best candidate and a very excellent choice was in fact made. This was David Hoffmann, who has been a major advocate of the pharmacological approach to herbalism.

As Hoffmann saw, ordinary pharmacology was not holistic because it attempted to isolate a single 'active ingredient' and define the actions of an herb thereon. Instead, he realized that the whole plant represented a selection of constituents, and that the property of the plant needed to be understood based upon this array. Thus, an herb might be an astringent, but also a stimulant. In this category we have such plants as horse chestnut and collinsonia, which are ideal for toning varicose veins in the legs. However, an astringent could also be sweet, such as raspberry leaf, making it a gentle nutritive tonic. Bitter, stimulant, and astringent, elecampane would be applicable to mucosa needed renewed secretion (bitters), stimulation and antimicrobial cleaning (pungent stimulation), and toning (astringent) to remove relaxed, atonic tissue. Thus, David Hoffmann's approach is both in keeping with modern science and holism. Simon Mills (1991, 265) makes the same point:

Any assumption about the action of a plant that relies solely on the basis of the action of a constituent should be resisted. It should always be recalled that the action of the whole plant is more than the action of its parts.

And I would add that any attempt to understand a plant independent of the folk and professional tradition that utilized it for centuries or millennia should not be considered credible. To ignore the *experience* of people trained in the science of their day, or simply expert in the practical application of folk medicine, is both culturally bigoted and unscientific. We cannot presume that conventional modern science knows everything. Folk tradition includes many more layers of nuanced experience, including information drawn from the imagination, intuition, observation of animals, bedside experience, taste and smell, that the inherently limited boundaries of modern science cannot include. These layers of knowledge enrich, rather than deduct from scientific endeavor.

The Four Qualities

The four qualities and the two tissue states of Greek medicine are the foundation upon which originated the six tissue state model of nineteenth century Western herbalism. Thus, a full understanding of the latter subject depends upon knowledge of the former. Western science has an unfortunate tendency to dismiss and ignore past systems of science and evidence. We must, instead, learn to see the transition points that explain the development of knowledge. This too is the basis of holistic analysis.

Aristotle introduced the four qualities (hot, cold, damp, dry) to describe differences in heat and moisture, just as the Chinese use yang and yin to describe fire and water. Galen applied the qualities to disease and medicines according to the principle of contraries, or treatment by 'hot to cold.' Thus, hot medicines are used to warm up cold conditions. There was another school of Greek physicians, the Methodists, who reduced all medical phenomena to two basic conditions, *status strictus* (tension) and *status laxis* (relaxation). Although the Greeks did not unify the two separate approaches (four qualities and two tissue states), in fact they correspond nicely with the six tissue state model. Thus, there is a relatively seamless transition from classical Greek medicine to nineteenth century botanical medicine.

The Greeks did not have thermometers, therefore they were unable to measure or think of heat and cold as we do today, as definite, measurable quantities. Instead, they observed what the four

qualities did when they acted on substances and they attributed to each of the qualities four degrees of intensity, from one to four.

Hot Remedies	First degree	Opens the pores
	Second degree	Thins the fluids
	Third degree	Warms the center (Raises)
	Fourth degree	Burns

Thus, heat warms the center to drive fluids to the surface, thins the fluids, and drives them out through the pores. It gets rid of impurities and restores the organism or system to its original type or self expression. Warmth in the third degree warms the center and 'raises' the heat, bringing it towards the exterior.

Cold Remedies	First Degree	Refreshes
	Second Degree	Cools
	Third Degree	Sedates (Lowers)
	Fourth Degree	Anodyne

Cold in the first degree refreshes, like watermelon on a hot day. In the second degree it cools fever. In the third, it lowers or resists the uprising of vapors, which cause restlessness of the mind. Just as in Chinese medicine, heaviness moves things downwards, the lowering or thickening action of Greek medicine restrains immoderate upward movement and conduces an appropriate downward movement. By cooling and restraining vapors, cold in the third degree is sedative. Cold in the fourth degree benumbs or dulls consciousness, like opium or poison hemlock. It is used to fight pain or kill. The opposite of heat, cold binds together substances or organs that are opposite in nature, so that they can work together in the same system or if incompatible they destroy.

Dry Remedies	First Degree	Binds or Closes
	Second Degree	Dries
	Third Degree	"Strengthens Nature"
	Fourth Degree	Hardens

Dry is astringent, so in the first degree it is binding, the tissue so that it does not fall down (prolapse), and in the second degree it is drying (restrains flow of fluid through pores). In the third degree it "Strengthens Nature," an old phrase that meant that by closing the pores it strengthens against winter cold, because cold, clammy skin in

the winter is detrimental. In the fourth degree it hardens tissue, or improves it's tone to resist stretching and breaking.

Damp Remedies	First Degree	Moistens
	Second Degree	Softens
	Third Degree	Nourishes
	Fourth Degree	Purges

Thus, damp in the first degree moistens, like a mucilage (marshmallow root, slippery elm). In the second degree it softens, like an emollient. In the third degree it nourishes – food needs water and oil to move from the digestive tract to the cell – while in the fourth it purges, cleanses, and discharges. Hence, bitter alteratives and purgatives were thought to be moistening.

In general, drying remedies are mildly warming because they keep in heat, hence their use to 'strengthen nature' during the fall and winter. Damp medicines, in contrast, are usually considered cooling because water is cooling. However, purgatives and alteratives can be either cooling or warming.

From the properties of the degrees the Greeks derived their tables of actions, including: opening, closing, thinning, thickening, moistening, drying, hardening, softening, etc.

The Six Tissue States

The theory of the four qualities was replaced in the eighteenth century by the theory of 'irritation.' Experimentation revealed that nerve fibers responded to irritation or stimulation. The nerve contracted, then relaxed. From this, Dr. John Brown developed a doctrine of two basic and opposite states in the organism requiring two opposite categories of treatment: sedation and stimulation. Either the organism was too stimulated, or not stimulated enough. These two categories, in effect, represented the old categories of 'heat' and 'cold' in Greek medicine.

Samuel Thomson, the great popularizer of herbal medicine in early nineteenth century United States, taught that all disease was due to cold, either the dying down of the heat within the body or the invasion and retention of cold from the exterior. This, we can see, is a folk medical reworking of the theory of the two basic conditions of the Brunian system.

Thomson was possessive of his system and litigious. Also he was uneducated and lacked technical terms for his system. Thus, for example, he recognized six basic actions of herbs, which he called “no. 1” through “no. 6.” For these reasons, Dr. Alvah Curtis, reformulated his system and gave it the name physiomedicalism, from the Greek *physis* (nature) and *medicine*.

Curtis recognized Thomson’s basic categories, numbers one to three, corresponded to the three basic tissue states associated with nerve irritation: stimulation, contraction, and relaxation. Thus, Curtis used these terms to describe the basic action of medicinal plants. A contemporary physiomedicalist, Dr. William Cook, added depression (inability to respond to stimulation). Nineteenth century literature shows that these terms were widely and informally used by doctors of all schools, including allopaths and homeopaths. Indeed, they are still applied today in neurology and common speech.

In 1900 Dr. Joseph M. Thurston laid out a comprehensive system of six tissue states. To the four basic states described by Curtis and Cook he added atrophy (malnourishment) and torpor (the state that requires alteratives or bitters). Unfortunately, Thurston’s terminology doomed his work to obscurity. Stimulation became vasoexaggeration, relaxation became vasodilation.

Physiomedicalism was brought to Britain by Isaiah Coffin and remains as an important movement within the herbal community down to the present. Meanwhile, it died out in North America, under persecution from conventional medicine. Thus, physiomedical doctrines have been preserved in the United Kingdom, not in their native land. Thus, the English herbalists A. W. Priest and L. R. Priest (1984, 34) bring this theory down to the present, representing it pictorially:

stimulate

contract

relax

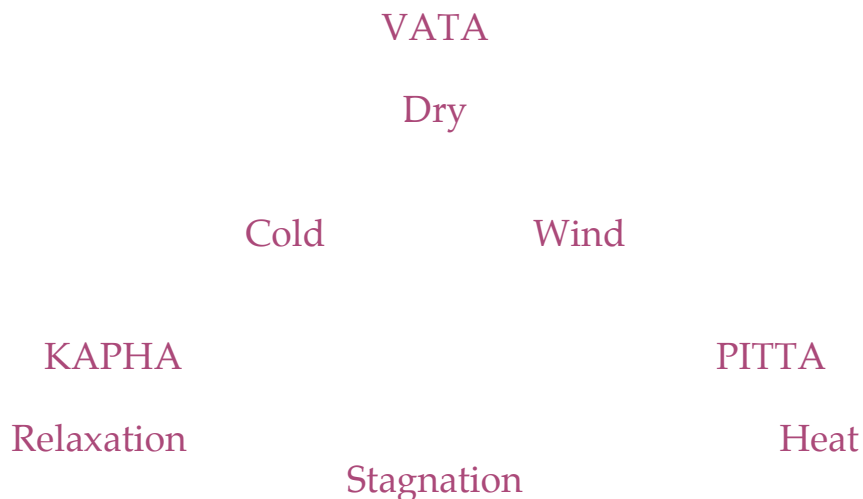
sedate

Unfortunately, this system of thought has been suppressed in British herbal education in favor of the pharmacological model. I interviewed several herbalists trained by Heim Zelstra, the official educator for the British National Institute of Medical Herbalists (NIMB) in the 1980s. Although he mentioned this model in his teachings, he did not utilize it in practice. One student, Mary Bove, asked him how he “really practiced,” as opposed to how he was teaching. Zelstra replied that he used this fourfold model. Another student, Keith Robertson, said he thought these four actions were “a psychological metaphor.” We see, therefore, how the old system lying at the back of physiomedicalism has nearly been lost in the last decades.

The sixfold model of Thurston is the most complete. Actually, Priest and Priest recognized a fifth tissue state that he described, atrophy, and an unnamed sixth state, the one that needs alteratives (Thomson’s “no. 4”). The sixfold model also represents the entire scope of Greek energetics, including both the four qualities and the two tissue states. They align fairly closely (not perfectly), as follows:

Hot	Excitation, Irritation, Stimulation
Cold	Depression
Dry	Atrophy
Damp	Stagnation
Constriction	Tension, Constriction, Contraction
Relaxation	Relaxation

The six tissue states can be associated with the three doshas of Ayurveda as follows:



HEAT/EXCITATION

This tissue state depends for its existence on an *exaggeration* of function. The tissues are in a state of excitation, irritation, or over stimulation. The appearance of heat is secondary to this tissue condition. Blood rushes to an area that is over functioning, resulting in the classical symptoms of inflammation: heat, redness, swelling, and pain. This tissue state is not equivalent to inflammation, which can result from all sorts of stimuli and interference, including cold, spasm, dryness, dampness, and burning. Rather, it is analogous to a state where the organism is too easily pushed into an inflammatory state. The tissues are over performing, over stimulated, requiring too much blood, and therefore too hot, full, red, and sensitive. The last symptom, sensitivity, tenderness, or pain, reminds us that the nervous system can be over stimulated as well as the blood and circulation.

Heat, however, is the term by which this tissue state was known to the Greeks. They were not thinking of heat per se, but of an over action of the constitution or organism. For them, heat removed that which was impure, which represented a force outside the organism that had gotten inside. To remove it heat, fever, or inflammation, was required. Then the organism returned to unfettered self-governance.

In the seventeenth and eighteenth centuries the term 'hot' was dropped and the term 'irritation' was introduced. Thus, instead of being hot the organism is 'irritated' or over stimulated. At present we could well identify this condition with autoimmune disease, or over reaction to disease stimuli. We would also have to include nervous over stimulation.

Because this state over reacts to allergens, toxins, and bacteria, it produces a very clean environment. There is no room for microorganisms; they are going to get burned up immediately. These people don't need blood-cleansers or detoxifiers; they over react to toxins and destroy them. They don't need antibiotics because they over respond to bacteria. What they need is sedation.

The word 'sedation' is well suited to this tissue state; it represents a quieting down, both of the febrile and the nervous excitation.

SYMPTOMS: heat, redness, swelling, and tenderness associated with autoimmune excess and exaggeration of function; mucosa and skin pink/red (carmine) to dark red; urine dark and concentrated; pulse elevated (beats towards the surface, high in the vessel), rapid; tongue elongated, pointed, red, carmine red, flame-shaped.

PATHOLOGY: these are the classical symptoms of inflammation, due not to infection or injury, but to an exaggeration of function, over reaction, or over stimulation, so that tissues are unnecessarily inflamed; autoimmune over reaction.

CHARACTERISTIC REMEDIES

To determine what flavor is cooling we can turn to our own experience. In hot summer weather we eat fruits and berries. We drink lemonade and fruit juices. These are naturally available during the height of summer. Fruits and berries not only offer sweet, tasty food for animals and people, but flavonoids, fruit acids, and limonene (lemon oil), which have a cooling effect. The flavonoids are usually present in such small doses that they do not influence the taste, but we know from direct experience that fruit acids and limonene are sour or acidic. This is the predominant taste associated with cooling foods.

This conclusion, though based on direct experience, runs against the grain of Ayurvedic medicine, which states that the sour flavor is heating. This may well be true of large quantities of chemically pure acid, which admittedly burn the tissues, but it simply isn't true of small doses of natural food acids. Indeed, the majority of fruits used in Ayurvedic medicine are classified under the anomalous category of taste because they are sour but cooling. This is true, for instance, of the three fruits that make up the famous formula triphala.

Another cooling constituent found in some fruit, especially in the rose family, are the cyanogenic glycosides. These change from an inactive form to cyanide when the tissues of the fruit or bark is disturbed by grazing animals, insects, or people. The purpose is believed to be protective, since the taste is bitter and the effect is toxic. However, small doses of cyanogens are flavorful and used in cooking. They are also cooling.

Cyanogens cool because they enter the Kreb's cycle in the mitochondria and block it. Since this is the mechanism used by the

body to generate energy, cyanogens clearly decrease energy or heat by blocking its production. In small doses we use the cyanogenic plants, wild cherry bark and peach leaf, to cool.

The flavonoid glycosides, by contrast, cool in less destructive ways. The flavonoid rutin enters into the repair of nicks and scratches in the capillaries, thus making the passage of the blood quicker and more efficient. Since inflammation is characterized by increased circulation to the part – resulting in the characteristic symptoms of inflammation (heat, redness, swelling, and tenderness) – rutin is anti-inflammatory. The other major cooling flavonoid is quercitan, which decreases excessive immune reaction in the lungs.

Limonene is one of the only volatile oils that is cooling. It is used to give soda pops an ‘effervescent,’ refreshing quality, and is indeed cooling in effect. It is found in lemon, lime, and some of the mints. The most cooling of all mints is lemon balm, in which the limonene is easily tasted. Sweet oranges are irritating (or stimulating) to the stomach, thus heating more than cooling.

Sometimes the energetic action of an herb is not due to the presence of a constituent but to its functional action. Thus, herbs that stimulate peripheral circulation are sometimes cooling instead of warming. They flush blood to the surface to remove heat. This includes yarrow, echinacea, and lavender. Ironically, Simon Mills (1991) ranks these plants as warming, thinking that by bringing the blood to the surface they warm the surface. However, exposing the blood in the surface allows for the loss of heat through convection.

Another set of remedies that are warming stimulants, but have a cooling effect, are the stimulating diaphoretics (herbs warm in the third degree in Greek medicine). They warm the center to drive fluids to the surface and produce a sweat, which is cooling. They are frequently used in tropical countries as antiparasitics and cooling diaphoretics. These herbs are true stimulants, however, can have to be considered energetically warming.

Let us close by remembering the properties of the cooling herbs in Greek medicine. In the first degree they are refreshing, that is, they restore one to normal body temperature on a hot day. In the second degree they are cooling, that is, reduce excessive reactions to inflammation. In the third degree they are sedative. The original word here is ‘corroborant,’ meaning they make things heavy and move them downwards to counter upward rising heat and ‘vapors’ (hysteria). Sedatives calm the mind and spirits by reducing upward rising heat. A very characteristic effect of a cooling remedy is to reduce mental restlessness and over activity. In the fourth degree

cooling herbs reduce consciousness and are either anodyne (pain-relievers) or deadly. Here we would think of poison hemlock or opium.

TASTE: sour

ACTIONS: refrigerant, sedative

CONSTITUENTS:

- flavonoids
- cyanogenic glycosides
- limonene (lemon oil)
- fruit acids (malic, citric)

REMEDIES:

Rose family (*Rosaceae*)

Rosehips
Strawberry Leaf
Hawthorn
Peach Leaf
Wild Cherry Bark

Honeysuckle family (*Caprifoliaceae*)

Elder Flower and Berry
Honeysuckle
Cramp Bark

Rhubarb family (*Polygonaceae*)

Rhubarb Root
Yellow Dock Root
Sheep Sorrel
Garden Sorrel

Citrus family (*Rutaceae*)

Lemon
Lime

Heath family (*Ericaceae*)

Blueberry fruit

Anomalous

Lemon Balm (contains limonene)
Linden Flower (peripheral stimulant)
Yarrow (peripheral stimulant)
Lavender (peripheral stimulant)

COLD/DEPRESSION

Cold in the sense used here means 'failure to respond to stimulation.' Thus the term depression is more accurate. This tissue state usually occurs in conjunction with a cold temperature, but there are exceptions. Depression in the peripheral vasculature can cause heat symptoms. Hence, a number of remedies that are stimulating and reduce tissue depression, such as yarrow, lavender, and echinacea are cooling. Extreme tissue depression results in putrefaction, sepsis, and necrosis, states in which heat appears. These severe manifestations of tissue depression are still to be treated with stimulants, however, since the heat 'arises from cold.'

Cold external temperature frequently causes spasm and therefore environmental cold is more often to be associated with the wind/tension tissue state. Internal cold, from a dying back of the inner flame of life, is the type of cold to be associated with tissue depression. Persons suffering from this tissue state are usually bothered by external cold.

Because depressed tissue cannot consume nutrition or eliminate waste products effectively, this tissue state frequently engenders bacteria, microorganisms, and parasites. Or, rather, these organisms, gaining admission to the body, excrete exotoxins into the cellular environment in order to depress cellular activity, so that they can feed on the poorly utilized nutrients and the retained waste products.

Stimulants, the remedies traditionally used to treat tissue depression, are usually aromatic because they contain volatile oils that readily vaporize, allyl sulfides (smell of garlic or mustard), and scent-bearing resins. Volatile oils are known for their antimicrobial properties. Allyl sulfides are germicidal. They provide the characteristic smell and flavor of garlic, mustard, and the cabbage clan. Sesquiterpene lactones and triterpenes are antiparasitic. They are found in the vermifuges. David Winston introduced the term 'fragrant bitters' to give a sensory description to this last category. All these substances are aromatic.

The depressed tissue states frequently causes or occurs in conjunction with the condition called 'congealed blood' in traditional Chinese medicine. This is a situation in which blood coagulates easily, producing darkened complexion in and around veins. Stimulants sometimes increase circulation of the blood, but there are special remedies here that contain the sweet-scented coumarins

(smell like new mown hay, or vanilla). Again, the coumarins are aromatic.

CHARACTERISTIC SYMPTOMS AND CONDITIONS

SYMPTOMS: deep cold; tissues pale, white, dark, grey, blue, purple, or black, showing lessened oxygenation; skin inactive; lessened sensation and function; lack of response to stimulation; cold hands and feet (also see wind/tension); pulse low and slow; tongue body pale or dark.

PATHOLOGY: this tissue state represents the opposite condition to the preceding: tissues fail to respond to stimulation, hence there is a generalized or local depression. The extremities are usually cold, the skin is cold and inactive, fails to perspire and lacks in oils. Complexion is pale, due to lack of blood to the surface, or lack of good blood, or darkish due to lack of oxygen (grey), coagulation (blue), sepsis (purple), or necrosis (black).

CHARACTERISTIC REMEDIES

The characteristic action necessary to combat tissue depression is stimulation. Most herbal stimulants are warming, but a few are cooling. Stimulating substances in large doses can be irritating to the skin and mucosa, causing redness, heat, tenderness, and swelling (inflammation). In fact, another name for a stimulant is 'irritant.'

Most stimulants are strongly scented. Thus, they are also called 'aromatics' or in Greek medicine, 'pontics.' They have the pungent or spicy flavor that is caused by aromatic oils. This is not one of the 'real' tastes registered by the taste buds on the tongue, but an 'illusion of taste' caused by the sense of smell.

TASTE: pungent, spicy

ACTION: stimulant, aromatic, antiseptic

CONSTITUENTS:

- volatile oils (pungent aromatics)
- terpenes (carminatives)

- sesquiterpenes and triterpenes (bitter aromatics)
- allyl sulfides (hot, spicy aromatics)
- coumarins (sweet aromatics)
- resins

REMEDIES: Divided according to the kind of aromatic

Pungent aromatics

Mint family (*Lamiaceae*)

Rosemary

Thyme

Sage

Basil

Hyssop

Oregano

Wild Bergamot (*Monarda fistulosa*)

Composite family (*Asteraceae*)

Arnica

Safflower

Goldenrod

Erigeron

Hot, spicy aromatics

Mustard family (*Brassicaceae*)

Mustard

Cabbage

Horseradish

Shepherd's Purse

Carminatives (warming bitters)

Parsley family (*Apiaceae*)

Angelica

Osha Root

Fennel

Dill

Fragrant bitters

Artemisia clan of the *Asteraceae*

Wormwood
Wormseed
Sweet Annie

Anomalous fragrant bitters

Black Walnut Hull
Elecampane

Sweet aromatics

Coffee family (*Rubiaceae*)

Madder
Cleavers
Sweet Woodruff

Clover family (*Fabiaceae*)

Yellow Clover
Red Clover
Alfalfa

Composite family (*Asteraceae*)

Helichrysum
Sweet Everlasting (*Gnaphalium obtusifolium*)

Antiseptics

White Pine, Pine
Canada Hemlock
Calendula
Baptisia
Isatis
Helianthemum
Thyme
Lavender
Echinacea

DRY/ATROPHY

Dryness and atrophy have two different meanings, both of which are essential to the definition of this tissue state. Dryness refers to a lack of moisture in the tissues, while atrophy refers to weakness, wasting or withering, and lack of function (troph) of the tissues. Thus, a condition of dryness causes atrophy. However, dryness can exist by itself, for some time, before serious atrophy occurs. The difference between these two states, by the way, is easily determined. A dry constitution has a dry, thin tongue, but a malnourished or atrophic state has a dry, thin, and withered tongue.

There are two kinds of moisture, water and oil, and both of them are needed to cure different manifestations of dry/atrophy. The body has water-soluble and oil soluble pathways, so it needs substances not only for food but for movement. Dry/atrophy can therefore be caused by a lack of water, oil, or nutrition, by a lack of the substances themselves, or a lack of ability the body to handle them. This in turn requires a wide variety of medicinal agents, with a wide variety of tastes, actions, and constituents, to be described below.

CHARACTERISTIC SYMPTOMS AND CONDITIONS

SYMPTOMS: tissues dry, wrinkled, withered, hardened; falling out of hair; weakness; bloating, gas, constipation, hard stool; tongue thin (side to side or up and down) in all cases, cracked in some cases, and withered in severe cases; pulse thin on one or both sides, sometimes tense on one side.

PATHOLOGY: lack of water and oil cause dryness and lack of lubrication. They also prevent the movement of food to the tissues resulting in malnutrition, weakness, and withering. Hence, the early signs of dry/atrophy are dryness while the latter signs are those of withering. Due to lack of secretion in the digestive tract there is dryness, gas, bloating, constipation, and malnutrition. This condition requires the use of bitter aperients.

CHARACTERISTIC REMEDIES

The substances needed to treat this tissue state are wide and diverse. Water is the first and most essential. Soft water (not too alkaline) is the most potable. The next most moistening agent is mucilage, consisting of polysaccharides that are nearly equivalent to mucus. They coat and sooth the membranes when mucus is not being supplied. They are, therefore, 'moistening' agents, sometimes called 'demulcents.' Examples include marshmallow root, slippery elm, comfrey, and fenugreek.

Since water is attracted to salt, sodium chloride also acts as a moistening agent. We do not use table salt, which is a purified chemical and too strong for the body, but sodium chloride in a natural state in the fresh or dried plant. Salt pulls water into tissues that are dried out. Therefore it operates as an 'emollient,' or softener. It also increases diuresis through the kidneys and lowers blood pressure. Ironically, salty herbs harden tissues that are supposed to be hard, such as bones, teeth, skin, nails, and hair. Examples of emollients include marshmallow root, fenugreek, and mullein (extracted in water).

A lack of digestive juices in the gastrointestinal tract is a 'dry' condition that results in a lack of digestion, hence, malnutrition. The two tastes that stimulate secretion of saliva and of digestive juices in general are bitters and sweets. Thus, 'bitter tonics' are used as 'aperients' to improve digestive juices and digestion. Non-alkaloidal bitters such as artichoke leaf, gentian, centaury, buckbean, dogwood bark, and hops increase secretion of hydrochloric acid, pancreatic enzymes, and bile. They also promote absorption through the walls of the small intestine. Alkaloidal bitters such as goldenseal, Oregon grape root, fringe tree, yellowroot, and coffee increase digestion, bile secretion, and liver function.

Remedies that combine warming/pungent/stimulating properties (see under cold/depression) with bitterness form a special class called the 'carminatives.' These warm and stimulate the stomach, both by stimulation (pungence) and increasing secretion (bitterness).

The category known as 'sweet tonic' has recently been introduced from traditional Chinese medicine. These are remedies with a sweet taste, hence they contain carbohydrates and are nourishing to the constitution. Chinese herbs in this category include astragalus, codonopsis, American ginseng, and rehmannia root. In old time Western herbalism the primary herb in this category was slippery elm, a great nutritive herb.

An interesting property of many sweet herbs is that they ironically control blood sugar levels. Thus, blueberry fruit is one of the sweetest substances and is craved by children who like sugar, yet it controls blood sugar levels and is antidiabetic. Another extraordinarily sweet herb with this property is sweet Cicely (*Myrrhis odorata*, *Osmorrhiza longistylis*). In general, berries and fruits control blood sugar.

In addition to carbohydrates, lipids are required by the body for good nutrition. Dietary fats and oils can be used to supply required lipids. Certain plant oils are, however, especially well known sources of dietary lipids. These include flaxseed oil, sunflower seeds, pumpkin seeds, and sesame seed oil. These are classified in herbal pharmacy as the 'dietary' or 'fixed oils,' in distinction to the volatile oils, which vaporize into the air. There are, however, several 'oily' plants that contain lipids and help increase digestion, utilization, and nutrition. These especially include burdock root, angelica root, and sage.

The body possesses both 'water soluble' and 'oil soluble' pathways to move nutritive substances and hormones through the interior. These pathways have to be 'well-lubricated' with the appropriate fluid – water or oil. Thus, the medicinal effect of some 'oily herbs' may not primarily be to provide food or digestion of food but perhaps to influence these pathways. I think here particularly of burdock, angelica, sage, and fenugreek, which seem not to possess hormonal properties, but to further hormonal activities.

A valuable little group of plants yields the essential fatty acids needed or used in important pathways in the body influencing immunity, hormone production, and blood viscosity. These include evening primrose, borage, black currant, and nigella (black cumin). All of these plants possess tiny black seeds that yield EFAs. Fixed oils can be said to have a 'nutty' flavor.

In addition to carbohydrates and lipids, proteins are required for nutrition. These have a rich, 'meaty' flavor, as in eggplant and mushrooms. Nettle is a plant rich in protein and medicinal impact. The medicinal mushrooms contain proteins and polysaccharides that nourish and strengthen the immune system.

Another plant substance which can act like a food is saponin. This is vegetable 'soap,' an emulsifying agent that combines with water and oil soluble substances to aid in cleansing and removal or elimination. Injected directly into the body saponins cause the immediate breakdown of hemoglobin, so they are, if administered in this way, toxic. However, taken in by the digestive tract they are

broken down into harmless substances before absorption. Some of the saponins stimulate hormone production – these are called the steroidal saponins. They thus act essentially as a nutrient. Examples include the ginsengs, including *Aralia racemosa*, wild yam, and saw palmetto. Simon Mills (1991) considers saponins to have a sweet flavor but this is perhaps being charitable.

The term ‘trophorestorative’ has sometimes been used in herbalism to describe remedies that restore function. It was used by Joseph M. Thurston, in 1900, to describe remedies for the dry/atrophic tissue state – which he called ‘vasotrophesy.’ Technically, this term belongs with the dry/atrophy category, though it is used in an ill-defined sort of way for any remedy that restores function through improvement in any tissue state.

Another poorly defined term is ‘tonic.’ This originally referred to a remedy that improved the tone or *tonus* of the tissues. This can include nutritive tonics, astringent tonics (which contract and improve tone), and bitter tonics (which improve digestion and tissue feeding).

Of particular interest in the treatment of dry/atrophy are those few remedies which unite many or opposite properties. For instance, it is common for mucilages to be cooling, therefore a heating mucilage, fenugreek, is of some interest. So is the fact that it not only contains mucilage but oil. Particularly interesting remedies include burdock (sweet, bitter, oily, moist), American ginseng (sweet, bitter, mucilaginous), and fenugreek (mucilaginous, oily, sweet, warm).

TASTE: moist, sticky (mucilage), sweet (carbohydrate), nutty (oily), meaty (proteinaceous), salty (emollient), bitter (aperient), soapy (steroidal saponins)

ACTION: moistening, softening, aperient (appetite provoking), nutritive

CONSTITUENTS:

- water
- mucilage
- carbohydrates
- dietary (fixed) oils
- proteins
- salt (emollient)

- non-alkaloidal bitters
- steroidal saponins

REMEDIES:

Mucilaginous (sticky):

Marshmallow
Slippery Elm
Comfrey
Fenugreek

Oily Herbs

Burdock Root
Angelica Root
Osha Root
Spikenard
Sage

Vegetable Oils

Sesame
Flaxseed
Sunflower Seed

Essential Fatty Acids

Evening Primrose
Black Cumin
Borage
Black Currant

Sweet Tonics (Carbohydrates)

American Ginseng
Siberian Ginseng
Codonopsis
Rehmannia Root
Red Root
Slippery Elm

Meaty, Proteinaceous Tonics

Eggplant
Nettles
Mushrooms

Salty Emollients
Marshmallow
Shepherd's Purse
Femugreel
Mullein

Earthen (Minerals)
Nettles
Burdock Root
Dandelion Root

Bitter tonics
Oregon Grape Root
Burdock Root
Dandelion Root
American Ginseng

Steroidal Saponins

American Ginseng
Chinese Ginseng
Spikenard
Saw Palmetto

DAMP/STAGNATION

This is the most difficult tissue state to understand. It may be visualized as a condition where the fluids can't get out through the normal channels of elimination. They back up and tend to precipitate and thicken into catarrh, phlegm, or mucus. This old doctors, back to Hippocrates, referred to this as 'humors.' The idea was that the 'humors' were not being cooked down by digestion and metabolism and were collecting in the body. Later this was called 'impure blood' (German) or 'bad blood' (American Indian). Today it is frequently called 'toxic blood' or 'toxic liver.' It is fairly similar to 'damp heat' in traditional Chinese medicine.

This condition is caused by a wide variety of causes conspiring together or alone to block elimination and metabolism. One or more of the channels of elimination may not be open (skin, kidneys, colon, lungs), or the metabolism may be faulty. The latter may be due to low preparatory metabolism in the liver, low thyroid, or low cellular metabolism. There may also be backing up of lymphatic congestion with lowered immunity.

When this condition occurs the tissues were described in nineteenth century medicine as 'torpid,' or in a state of 'torpor.' The tissues were heavy, full of water and phlegm, expressionless, inactive, with lessened activity and expression in the eyes and face. The most frequent symptom associated with this condition is skin eruption, the idea being that metabolic waste products have to leave through the skin instead of the kidneys and lymphatics, or they are not being processed by the liver or skin.

When hypothyroidism was discovered and described in the early twentieth century many doctors realized that it accounted for the symptoms of 'bad blood' (Broda Barnes, 1976), which included thickening of the fluids into catarrh, cool, rough, inactive, expressionless skin, loss of expression in the eyes and face, fatigue, and weight gain. Hypothyroidism can, therefore, be a cause of 'bad blood' or damp/stagnation. However, this is not always the case. Sometimes hypothyroidism can be caused by 'bad blood.' This is particularly the case when T4 levels are high on thyroid tests, showing that T4 is not converting to T3. There is probably a problem in the liver (Randy Kidd, DVM, Phyllis Light, AHG). There are also times when the thyroid is not involved.

SYMPTOMS: fluids retained and thickened; catarrh, phlegm, or mucus; tongue coated white or yellow; expression of skin and musculature dull; facial expression dull; feels like a hang-over, worse in the morning, after eating, after alcohol; pulse obscure (like the beat is obscured to films, or dull edges), turgid (like thickened water in the blood), slippery.

PATHOLOGY: This is the most difficult to define of all the tissue states. It basically represents a condition where there is a back up of metabolic waste matter due either to (1) blockage of the channels of elimination (skin, kidneys, lungs, colon); the lymphatic ducts; or (3) low metabolic function (liver, cells, thyroid). We can understand the thickening of fluids as due to blockage and contamination.

CHARACTERISTIC REMEDIES

The remedies traditionally used to treat this condition in Western herbalism are the 'blood purifiers' or 'alteratives.' The former is a folk medical term, probably of German origin. The latter comes from Greek medicine. The Greeks named the process between digestion (coction) and tissue nutrition 'alteration,' meaning that the food was altered in some way into tissue. When this process – essentially metabolism – was not successful there was a need for alteratives. Later the definition was changed to 'alters the blood and fluids in some unknown fashion.' But that represents a late, scientific, and skeptical nomenclature. Of course, today there is no such thing as 'bad blood' or 'blood purifiers' in regular medicine in the United States.

Most of the alteratives contain bitters. From experience we know that bitters (and sweets) stimulate the flow of saliva the most of any tastes. Hence, they stimulate digestion and sometimes metabolism. Some bitters are alkaloidal and some are not. The alkaloidal bitters, including goldenseal, Oregon Grape root, barberry root, coptis, fringe tree, yellow root, and celandine, stimulate liver function and excretion of bile by the gallbladder. They also enhance digestion, absorption, and nutrition. The non-alkaloidal bitters contain diterpenes and iridoid glycosides. They stimulate salivation and production and secretion of hydrochloric acid, bile, pancreatic enzymes, and cholesterol reduction. Generally, these bitters are cooling (Winston, 2002), fitting with the idea that damp/stagnation

causes aberrant heat as trapped toxins are burned up and correlating with 'damp/heat' in traditional Chinese medicine. There are some warming non-alkaloidal bitters (fenugreek, angelica, turmeric), but these are better described as carminatives and discussed under cold/depression. They act primarily on a cold, depressed digestive canal.

A different set of bitters, the anthroquinones, are used to stimulate peristalsis and promote stool in constipation due to bowel inertia. These include other medicines frequently classified with the alteratives, such as yellow dock root, rhubarb root, cascara sagrada, buckthorn, and senna leaf.

Although bitterness is the primary flavor of the alteratives treating the damp/stagnant tissue state, other flavors (almost any, infact) can enter into this category. If a plant medicine acts on the channels of elimination, liver, lymphatics, thyroid, or cellular metabolism, it can be an alterative. Thus, for example, nettles, red clover, chickweed, scrophularia, black walnut hull, dulse, and bladderwrack can be included here. The definitions of a 'blood purifier' are sometimes cultural and subjective. Despite this, we still can identify classic alteratives and classic tastes and constituents in most of them.

TASTE: bitter ACTIONS: alterative, laxative, purgative

CONSTITUENTS:

- alkaloidal bitters
- non-alkaloidal cooling bitters
 - diterpenes
 - iridoid glycosides
- anthraquinones (laxative)
- anomalous

REMEDIES:

Bitters

Dandelion
Burdock
Iris
Barberry
Oregon Grape Root

Blessed Thistle
Poke Root
Scrophularia
Black Walnut Hull
Yellow Dock Root

Anthroquinones

Yellow Dock Root
Rhubarb Root
Cascara Sagrada
Buckthorn
Senna Leaf

Anomalous

Red Clover
Nettle
Chickweed

WIND/TENSION

This tissue state corresponds to those conditions that occur due to nervous tightening, tension, and spasm. Thus, it includes both psychological and physical tension. It ranges from closure of the sweat pores to torsion, convulsion, and epilepsy, including a wide range in between: tension, spasm, chills, chills alternating with fever, sudden onset of symptoms, alternating or periodic symptoms (diarrhea alternating with constipation, chills with fever, chills at a specific time), backward movement (hiccough, nausea, esophageal reflux), uncontrollable movement, trembling, shaking, etc.

The nerves are involved – without nerves there would be no wind/tension tissue state. When a nerve is stimulated it goes into contraction and then relaxation. In this tissue state it remains too long in the condition of contraction; relaxation is the opposite tissue state. Indeed, some of the old Greek physicians recognized just two tissue conditions: *status strictus* and *status laxus*.

The ancient authorities had no notion of the existence of the nerves, but they knew the symptoms caused by them. These included sudden changes, sudden movements, shaking, convulsions, and so forth. Since they didn't know about nerves they looked for something in nature that was analogous. This was the wind, which suddenly changes status and movement, causing shaking, convulsion, and chills.

Thus, we can call this tissue state 'wind,' 'tension,' or 'constriction.' I have dropped the word sometimes used in old authors, contraction, because it can refer to either tension or atrophy.

SYMPTOMS: tension of mind or body, or both; symptoms come on suddenly; symptoms repeat or alternate, diarrhea alternates with constipation, chills alternate with fever; gas and bloating comes and goes suddenly; symptoms that reverse normal movement, hiccough, nausea, vomiting; cold hands and feet; cold in the joints; tongue shakes; pulse wiry, tense, resistant, hard.

PATHOLOGY: Excess tone in the nervous system results in symptoms of tension or constriction. This can be mental, physical, or both. Frequently caused by psychological tension, but can also be caused by chills and fever or physiological causes.

CHARACTERISTIC REMEDIES

The flavor associated with relaxation of tension is 'acridity' (Winston, 2006, 261). This may be defined as the taste of bile in the back of the throat, a flavor termed 'bilious' in traditional Greek medicine (Rosner, 1989). Acridity is sometimes confused with the pungent, spicy flavor, but it is different in taste, action, and constituent. The active ingredients are resins and alkaloids. In large doses they are toxic to the central nervous system and irritate gastric mucosa. Examples include Kava, skunk cabbage, black cohosh, pulsatilla, blue vervain, lobelia, wild yam, and pulsatilla (Winston, 2006).

In traditional Chinese medicine the acrid flavor, though not one of the five tastes associated with the five elements, is used to open the periphery (relax sweat pores) and relieve spasms, tremors, and palsies associated with 'liver wind.' They would be defined in Western herbalism as relaxing diaphoretics and antispasmodics or spasmolytics. A relaxing diaphoretic opens the sweat pores while a stimulating diaphoretic warms the interior (William Cook, 1869).

Another way to describe the remedies that fit this category is as 'nauseant bitters.' These are bitters so intense that they cause a shiver to run through the system. They relax the vagus nerve, which services the diaphragm and thus promote expectoration from the lungs but also emesis from the stomach. This category is still recognized in biomedicine. Since bitter nauseants raise bile to the back of the throat, this class may be considered identical to the acrid flavored resins and alkaloids. Examples include lobelia, skunk cabbage, boneset, blue vervain, blessed thistle, and hops.

The term 'relaxant' naturally comes to mind as the appropriate name for the action associated with this category. This was the term used by the physiomedicalists and it is reintroduced by Simon Mills (1991, 446) as an all-inclusive description of the action of agents that reduce psychological and physical tension, as well as neuromuscular spasm. I extend it to include the antiperiodics (remedies for fever alternating with chill) and the relaxing diaphoretics. Examples, according to Mills, include the plants containing valerianic acid.

TASTE: acrid, nauseant bitter

ACTION: relaxant

CONSTITUENTS:

- resins
- alkaloids
- valerianic acid (a volatile oil)

ADVERSE REACTIONS: irritate mucosa and central nervous system

REMEDIES:

Contains valerianic acid

Valerian
 Catnip
 Chamomile
 Hops
 Crampbark

Resins and alkaloids

Lobelia
 Passionflower
 Wild Lettuce
 Blessed Thistle
 Boneset
 Blue Vervain
 Florida Dogwood (bark)
 Agrimony
 Catnip
 Passionflower
 Kava kava
 Calendula
 Valerian

EXAMPLE: A fifty eight year old man had a head cold that seemed to be getting better. Suddenly the symptoms got worse. He started having unstoppable coughing jags and felt a severe oppressive weight on his chest. He couldn't sleep due to the coughing and felt miserable. After a day he received kava kava, agrimony, and lobelia, about equal parts, to be taken as needed. He took about 10 drops several times an hour, went to bed, slept 'like a baby' and woke feeling whole and on the path to improvement again.

DAMP/RELAXATION

This is a fairly straightforward tissue state. It refers to a condition where the tissues have lost their 'tone,' i.e., their ability to contract. As a result, they get saggy, the pores in them open up and release fluids, and there is a continual running off of fluids. The word 'relaxation' goes back to Hippocrates, who particularly used it to describe the condition of the bowels that produced diarrhea. According to common experience, minerals and electrolytes are lost when there is diarrhea, or relaxation of the bowel. There is probably low potassium, so urine is not as readily retained. This may result in weak bones and osteoporosis.

Relaxation is one of two states associated with 'damp' in traditional Greek medicine. The other is stagnation. In the former state the tissues are moist, the skin is usually moist because it is an excretory organ, and water readily runs from the body. In the later case the water gets stuck, or stagnant, inside the body cavities. It does not run but fills them up and stays that way. Thus, there is another type of loss of tone, which the old doctors called 'torpor.' This refers to heavy, waterlogged, soggy, toneless tissue. Stagnation or torpor will be referred to under its own heading; at present we simply want to separate these two damp conditions.

One of the qualities of relaxation that I was not aware of until I studied the blood typology of Southern folk medicine, was that this tissue state is characterized by 'watery' or 'thin blood.' This is a folk-medical term, but it is an accurate observation of a condition in the body which medicine ignores. The blood is watery. It does not clot readily. In technical terms it is lacking in viscosity; there is a lack of prostaglandins to thicken the blood. In practical terms, thin blood makes a person more resilient in hot weather, while thick blood pads and insulates the body in cold weather. When the blood is thin the skin is prone to sweat, the intestines to diarrhea, the kidneys to copious, thin urine, the lungs to free secretion of thin, clear mucin. The skin is moist and pale (does not sunburn or darken readily). The veins are visible through the skin because they distend with extra water. The capillaries are less visible because there is less heat, hence the pallor. These people should avoid aspirin, which thins the blood. They do not generally have tendencies to inflammatory conditions anyway (with a cool, watery system).

SYMPTOMS: tissues lacking in tone, collapse, prolapse, leak fluids, free secretion of mucin, sweat; diarrhea; clear, copious urine; cool, clammy skin; skin pale, veins may show through the pallor; relaxed, low energy; tongue moist, streamers down the sides, sometimes a white, yeasty coat; yeast, systemic or vaginitis; easy vomiting in children; pulse relaxed, languid, non-resistant.

PATHOLOGY: Lack of tone in the tissues cause sagging, prolapse, and collapse. At the same time, the pores (under autonomic control) are open and release fluids, so tissues are relaxed and secrete freely.

CHARACTERISTIC REMEDIES

The astringent property is based on the presence of tannins, polyphenol proteins that coat and line the mucosa of the body. They prevent fluid loss from the distended pores and brace up the dilapidated, prolapsed tissue. This gives the body time to rein in the tendency to relaxation.

Astringents have a secondary energetic. They are slightly warming because they close up pores and cause the retention of heat (William Cook). Some sources cite them as cooling, warming, or neutral.

In traditional Chinese medicine astringents are not used very much because it is believed (correctly) that in large doses they will suppress discharges and this will make the organism much sicker. This is indeed true, and astringents should only be used in small, semi-physiological doses that do not force tissues to contract but act more energetically to reestablish the pattern of tissue tone. Or they should be used, as is allowed in China, in large doses where fluid loss is dangerous and needs to be checked quickly. Instead of astringents the Chinese herbalists use warming agents (stimulants) to lift tissue and prevent excessive fluid loss. This condition is looked upon as 'yang deficiency' – the yang is too weak to hold in the yin or fluid – so the remedies are heating (yang). Heat (or yang) is the opposite of water (yin).

TASTE: puckering (astringent) ACTION: astringent

CONSTITUENTS:

- tannins

REMEDIES:

Agrimony
Cinquefoil
Raspberry Leaf
Lady's Mantle
Salad Burnet
Sumach
Bayberry Bark
White Oak Bark

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