

# An Herbalist's View of the Digestive System

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Digestive disorders are some of the most common ailments presented to practitioners, in both first aid stations and at clinics. These maladies may indicate temporary, non-harmful symptoms or they may be a sign of something more insidious. Most people over the course of their lives will have some digestive problems, and many people have chronic digestive disorders. Digestive problems range from: illness induced by ingested bacteria from bad food or water, food allergies, stress-induced digestive pain to chronic disorders such as ulcerative colitis. In general the goal for the herbalist is to initially treat the symptoms while searching for triggers such as food allergens and trying to determine the underlying problem. In treatment it is helpful to consider the patient's pathophysiological state (the abnormal changes to their normal physiology) and their constitution and individuality.

Consider the different categories of treatment such as nervine tonics for irritable bowel syndrome, antimicrobial agents for pathogenic invasion, antiinflammatories for colitis or antispasmodics for cramping. Formulas can be made by incorporating plants from the various categories. Also consider which preparations (i.e., tea or tincture) might work best along with the dosage; both frequency and quantity.

Herbal medicines are particularly helpful for a number of digestive disorders. This is partly due to the ability of these agents to come into direct contact with the digestive tract tissue allowing them to alleviate a number of symptoms while helping with tissue repair.

## Considerations

1. Digestive disorders are one of the most common health problems seen by herbalists, and herbal medicine offers an assortment of treatment options.
2. Deciding what the root of the problem is helpful in determining which treatment course to take.
3. The digestive system is highly innervated with nervous tissue. Because of this, nervous system disorders (such as anxiety) can directly affect the digestive tract.
4. Diarrhea and constipation are symptoms often seen as direct and indirect digestive disorders.
5. Sanitation is key for preventing pathogenic (i.e., bacterial) disorders, especially when working with large groups of people or away from sanitary facilities.
6. Looking for and eliminating potential triggers is an important factor in digestive health.

7. It is helpful to think in terms of categories. When treating a problem, consider what types of herbs might work best i.e., antiinflammatories, antispasmodics or antimicrobials?
8. Any other problem in the body may have a gastrointestinal basis, such as rashes, headaches, autoimmune disorders, allergies and others.
9. Food and eating habits can be central to good gastrointestinal health.
10. Finding information on holistic nutrition is not easy as much of the nutritional information comes in a one-size-fit-all format, which does not take individual body types into account.
11. Food journal-keeping an accurate (instead of a wishful thinking) journal can be helpful into tracking and watching food and eating patterns.
12. Besides pathophysiological considerations, constitution and individuality are helpful directions to approach digestive health.
13. Diet fads and trends can lead to problematic eating.
14. When someone describes a digestive or stomach problem, ask them to show you where it hurts.
  - Are they pointing higher up towards the stomach or lower down towards the intestine or colon?
  - A finger pointing to a specific area may indicate a localized problem.
  - A hand held over a wider area may indicate a more generalized region.
  - The location of problem may affect the herbs and treatments used.
  - Referred pain should also be taken into consideration.

## **Differential Diagnosis**

1. Differential diagnosis is key to understanding the underlying problem that is causing the digestive disorder. It involves the detective work of trying to figure out causes and triggers. This can be done by asking questions, using lab tests or any other form of diagnosis to try and pinpoint the source of the problem. It is a skill that builds on itself with time and use.
2. Is the problem acute or chronic? This is important to differentiate, because if it is acute (non-occurring) it may just be a matter of abating the symptoms or killing the pathological agent (such as a virus or bacteria). If it is chronic, it is important to look for underlying problems or triggers and will likely take time to shore up the system. It can also be an acute flare-up of a chronic problem, which may mean looking to resolve symptoms for the moment while considering long-term tonics.
3. Is the problem intrinsic or extrinsic? Intrinsic means that there is an organ or tissue not functioning properly. In these situations the goal is to help increase the capability of the under-functioning body part. Extrinsic disorders are those caused by an external agent such as food triggers, or pathogens (i.e., bacteria or viruses). In these cases, trying to remove the problem-inducing factor is key. It is also possible that both intrinsic and extrinsic factors are a part of the problem and by toning the sensitive or under-functioning area, it can become resistant to extrinsic causes.
4. The digestive system runs on nervous system and hormonal inputs, both of these should be examined to look for potential causes.

5. Is the problem a primary dysfunction of the digestive system, or related to a different body system affecting digestion?
6. Is this an exacerbation of a pre-existing conditions or a new health problem?
7. Are medical or recreational drugs or other substances involved with the symptoms?
8. What are the triggers affecting the problem? Food intolerances are important considerations.
9. How soon after eating does the pain begin? This may indicate which organ is having the problem since the stomach receives the food soon after eating and it stays there for a few hours. Problems occurring much later may be in the intestine or colon.
10. Since food takes a while to move through the body (see below) people may think that the most recent thing they ate is causing the problem, while it might be something from the day before. This is why food journaling can be helpful.
11. Digestion is tied into parasympathetic activity through the vagus nerve. Try to relax when eating so that the body can release the necessary ingredients for good digestion.

### **Approximate Digestive Tract Times**

1. Knowing these approximate times can be helpful in determining where a digestive problem might lie.
2. There is wide variation in individual transit time depending on the individual and the composition of the food ingested.
3. Generally food takes 24-72 hours to pass entirely through the body.
4. Stomach contents-50% emptied in 2-3 hours with complete emptying in 4-5 hours.
5. Small intestine-50%of the contents are emptied in 2.5-3 hours.
6. Large intestine transit-25-40 hours (feces are stored here).

## **Digestive Organs and Structures**

### **The Gastrointestinal Tract**

1. **Mouth**-where food and fluid enters and where decision-making occurs; to swallow or not. Food is broken down and lubricated for swallowing.
2. **Esophagus**-muscular tube approximately 9" long that moves food from the mouth to the stomach in about 7 seconds.
  - *Lower esophageal sphincter*-a group of muscles where the esophagus meets the stomach that remains tonically closed except when a bolus of food is passing through.
3. **Stomach**-muscular hollow organ where food is churned and exposed to a number of digestive secretions including hydrochloric acid and enzymes to break down proteins and kill microbes, intrinsic factor for B<sub>12</sub> absorption along with a number of hormones, mucous and bicarbonate to protect the lining.
  - *Parietal cells*-secrete hydrochloric acid and intrinsic factor.
  - *Chief cells*-release the pro-enzyme pepsinogen which is converted to pepsin in the presence of gastric acid. Pepsin breaks down proteins. The chief cells also release gastric lipase which breaks down fats.

- *Pyloric valve*-a thickening of smooth muscle connecting the stomach to the small intestine. Through various inputs it controls the rate of gastric emptying, (chyme moving from the stomach to the small intestine)
  - *Mucus secreting cells*-produce mucus for protecting the stomach lining.
4. **Small intestine**-primary area for absorption of nutrients from food. It is approximately 22' long and 1" in diameter. It is attached to the stomach at the pylorus and empties into the large intestine at the cecum. The small intestine has 3 primary divisions. As opposed to the large intestine, the processes for the digestion of food are accomplished with enzymes and other substances, *not* bacteria.
    - *Duodenum*-first section of the small intestine, about 10-15" long. It helps regulate the flow of chyme from the stomach through hormones. It is where the pancreas releases its digestive products and where the liver and gall bladder release bile. Due to this, it is the major area in the small intestine for the breakdown of food. The duodenum transitions into the jejunum.
    - *Jejunum*-the middle part of the small intestine is about 8' long, it absorbs monosaccharides (broken down starches) and amino acids (broken down proteins) as well as fatty acids, vitamins, minerals and other nutrients. It leads into the ileum.
    - *Ileum*-final portion of the small intestine, about 12' long. The ileum shares many functions of the jejunum and absorbs whatever was not previously. It is also specialized to absorb B<sub>12</sub> and bile salts. It contains Peyer's patches, specialized lymphatic tissue. The ileum ends at the ileocecal valve.
    - *Peyer's patches*-groups of lymphoid tissues for surveillance of pathogenic substances and eliciting an immune response when detected.
    - *Ileocecal valve*-transition point between the small and large intestine. This sphincter muscle prevents contents moving from the large intestine back into the small intestine.
  5. **Cecum**-a pouch-like organ connecting the small and large intestine. It absorbs fluids and salts that were not absorbed in the small intestine and also provides lubrication to the liquefied food (chyme) moving through.
    - *Vermiform appendix*-attached to the cecum, houses beneficial gut bacteria and may act as lymph tissue.
  6. **Large intestine** (also known as the colon)-the last part of the GI tract. It is about 5' feet long about 2 ½" in diameter (large in diameter not length). It has large colonies of commensal ('friendly') bacteria that perform a number of functions. Food is broken down by bacteria (not enzymes like the small intestines), which produce vitamin K and some B vitamins. They break down fibers coming from the small intestine through fermentation, which makes gas (flatulence). Another main function is to absorb most of the water that is still in the chyme along with some electrolytes. Feces are the to-be-excreted product made up of dehydrated chyme with bacteria and mucus.
    - *Rectum*-final segment of the large intestine. As peristalsis pushes food from the colon into the rectum, receptors trigger the urge to defecate

- *Anus*-where feces pass from the rectum to the outside of the body. It contains sphincters for control of this movement.

## Accessory Organs and Structures

1. **Brain**-makes choices about what to eat and prepares the body for the incoming food.
2. **Enteric nervous system**-a large network of local nervous tissue that regulates the GI tract. It is sometimes called a 'second brain' as it can control many aspects of these organs with minimal input from the central nervous system. Because of all of these neurons (nerve cells), the GI tract can act autonomously.
3. **Gall bladder**-stores bile produced in the liver
4. **GALT** (Gut-associated lymphoid tissue)-the digestive system's well-developed immune system to protect the body from any of the bacteria, viruses, and other parasites that come in from the external environment.
5. **Liver**-produces bile to help break down fats.
  - *Common bile duct*-duct that connects the liver and gall bladder to the duodenum.
6. **Nose**-smells the food, helping discern edible from non-edible.
7. **Pancreas**-in response to consumed food, it releases a number of substances into the duodenum that breaks down food for absorption and protects the small intestine from gastric acid.
8. **Peritoneum**-a membrane that covers the abdominal cavity and the organs. It supports them and provides a structure for nerves, blood and lymph vessels to move through the organs.
9. **Portal vein**-a blood vessel that carries nutrient-rich, oxygen-poor blood to the liver from the GI tract and the spleen. This allows the liver to detoxify any substances transported with food into the bloodstream.
10. **Salivary glands**-glands in the mouth that help lubricate and break down food.
11. **Teeth**-break the food up into small pieces for easier digestion and swallowing.
12. **Tongue**-moves food side to side for chewing.
13. **Vagus nerve**-The long complex parasympathetic branch that innervates many GI organs.

## Basic Processes of Digestion

1. **Absorption**-movement of substances from the lumen into the bloodstream (such as the amino acids broken down from proteins taken into the intestinal tissue).
2. **Digestion**-chemical and mechanical breakdown of food into smaller pieces.
3. **Excretion**-process of undigested food removed from the body through defecation.
4. **Motility**-movement of foodstuffs through the GI tract by muscular contractions (mainly through peristalsis)
5. **Secretion**-movement of substances from the tissue into the lumen (i.e., hydrochloric acid into the stomach cavity)

## Digestive Terms

1. **Bicarbonate**-an alkaline substance released by the duodenum and the pancreas to neutralize the acidic chyme entering from the stomach.
2. **Bolus**-food that is chewed and swallowed passing into the stomach. Once liquefied in the stomach, it is called chyme.
3. **Carbohydrate**-food substances that are broken down into simple sugars.
4. **Chyme**-liquefied food from the stomach down to the large intestine. When most of the nutrients are removed and it is stored in the rectum, it is then feces.
5. **Electrolyte**-a number of ions with important body functions including regulating movement of fluids in cells and the electrical charge of the nervous system. They include sodium, potassium, calcium and chloride.
6. **Gut**-another term for the digestive tract.
7. **Lipid/Fat**-foods that are broken down into fatty acids and glycerol in the body.
8. **Lumen**-the hollow space in a tubular structure, such as the place where food passes through in the digestive tract.
9. **Mucous**-a slippery secretion that lines the digestive tract to protect it as things pass through.
10. **Nutrient**-a food or substance necessary for health and maintenance. These include water, fats, vitamins, minerals and carbohydrates.
11. **Peristalsis**-the constriction and relaxation of muscles creating a wave-like movement that push the contents forward.
12. **Protein**-foods broken down into amino acids.
13. **Vitamin**-organic compounds that are required in small quantities to maintain normal function. They are generally not synthesized by the body and need to be taken from food sources.

## Hormones, Secretions and Enzymes

### Salivary glands

1. **Salivary amylase**-enzyme that digests carbohydrates
2. **Saliva**-produced by salivary glands. It is mainly water along with mucus, enzymes, antibacterial compounds and a few other substances. The enzymes are important in the early digestion of starches and fats. They also help break down food trapped in the teeth. Saliva is a lubricant aiding in the process of swallowing.

### Stomach

1. **Gastric acid**-the acidic secretion that the stomach produces made up mainly of hydrochloric acid.
2. **Gastrin**-a hormone that stimulates secretion of gastric acid.
3. **Hydrochloric acid (HCl)**-an acidic digestive fluid (pH 1.3-3.5). It helps digest proteins and also inhibits the growth of microorganisms.
4. **Intrinsic factor**-a glycoprotein produced by the stomach that allows absorption of B<sub>12</sub> by the ileum.
5. **Pepsin**-an enzyme that breaks down proteins.

6. **Somatostatin**-inhibitory hormone with a number of targets including decreasing gastric acid and the rate of gastric emptying as well as inhibitory effects on the pancreas.

### Small intestine

1. **Brush border enzymes** (lactase, maltase, sucrose, etc)-enzymes that complete the digestion of starches to simple sugars so they can be absorbed.
2. **Cholecystikinin (CCK)**-a hormone released in the duodenum in response from food coming in from the stomach. It stimulates bile from the gall bladder and enzymes from the pancreas
3. **Gastric inhibitory peptide (GIP)**-released from duodenum and induces insulin release from the pancreas.
4. **Secretin**-hormone released into the duodenum and prevents excess acid in small intestine by increasing bicarbonate by the pancreas and decreasing gastric acid in the stomach.

### Liver/Gall bladder

1. **Bile**-produced by the liver and stored in the gall bladder. It helps emulsify and break down fats for absorption. Bile does this by altering the fats and allowing pancreatic lipase to further break them down.

### Pancreas

1. **Amylase**-enzyme that breaks down carbohydrates.
2. **Lipase**-enzyme that breaks down fats.
3. **Trypsin**-enzyme that breaks down proteins.
4. **Bicarbonate**-neutralizes acid in the small intestine coming from the stomach.

### Selected Digestive Disorders

1. **Amoebic dysentery (Amebiasis)**-an infection caused by the protozoa *Entamoeba histolytica* is spread through food and water. Symptoms range from asymptomatic carriers, to mild diarrhea to dysentery. It causes more than 70,000 deaths worldwide each year.
2. **Constipation**-infrequent and/or difficult bowel movements. It is a symptom that can be due to many causes.
3. **Crohn's disease**-a chronic inflammatory bowel disease caused by an excessive immune response. Symptoms include pain, diarrhea, fatigue, loss of appetite, and weight loss. Symptoms can also occur outside of the GI tract (i.e., rashes). It generally affects the ileum and large intestine, but can occur anywhere in the GI tract. Many symptoms are similar to ulcerative colitis, though there are some differences between which tissues can be affected. Treatment can vary between these two inflammatory bowel diseases.
4. **Diarrhea**-is frequent and excessive evacuation of watery feces. It is a common symptom occurring from many possible causes. It can be acute or chronic. Diarrhea

with vomiting can be dangerous due to the loss of water and electrolytes that cannot be replaced by drinking.

5. **Diverticulitis**-starts with formation of pouches (diverticula) in the wall of the large intestine (diverticulosis). When they become infected or inflamed it is called diverticulitis. A low fiber diet can lead to the diverticulosis, at this stage there are often no symptoms. When it progresses to diverticulitis, there may be abdominal pain and complications including possible tears in the colonic tissue.
6. **Dysentery**-is a disease state of the intestinal tract with severe diarrhea, which may contain mucus or blood. It is an infection which may be caused by any pathogen including bacteria, viruses or protozoa.
7. **Escherichia coli (E. coli)**-a common bacteria with some strains causing digestive problems such as gastroenteritis and traveler's diarrhea.
8. **Gastroenteritis**-inflammation of the stomach and intestines usually caused by a virus, but sometimes by bacteria or other agents. Main symptoms are diarrhea, cramping and vomiting.
9. **GERD (Gastroesophageal reflux disease)**-heartburn is the most common type. It is due to gastric acid coming into the esophagus from the stomach.
10. **Giardiasis**-is an infection caused by the protozoa Giardia lamblia. It is one of the most prevalent digestive system parasites affecting an estimated 200 million people worldwide. The symptoms are caused by the organisms attaching to the small intestine and include; diarrhea, stomach cramps, bloating, and sulfury burps.
11. **Irritable bowel syndrome (IBS)**-a digestive disorder of unknown cause that does not show any abnormal changes to the intestinal tissue, its diagnosis is generally based on excluding other disorders. It is likely due to a disruption of nervous system inputs of/to the intestines. Symptoms include abdominal pain and alternating bouts of diarrhea and constipation (though many people tend towards diarrhea or constipation). It mainly affects the large intestine.
12. **Shigellosis**-is an infection caused by the bacteria Shigella (closely related to E. coli). Symptoms tend to appear soon after exposure, within a day or two, and resolve on their own within 5 to 7 days. Symptoms include; abdominal pain and cramping, nausea, diarrhea (may contains blood, pus or mucus), fever and tenesmus.
13. **Tenesmus**-is a symptom of a number of digestive disorders, it is a painful feeling with the constant need to defecate even though the bowels may be empty.
14. **Traveler's diarrhea**-a very common digestive disorder affecting people traveling to new places. Symptoms include diarrhea, cramps, nausea and bloating. There are a number of causes (including anxiety) but E. coli is the most common pathogen associated with it. It often gets better with no treatment. It is important to rule out dangerous causes such as cholera.
15. **Ulcerative colitis**-an inflammatory bowel disease (IBD) affecting the large intestine and rectum. The causes are not known but it is generally considered to be an autoimmune disorder. It has symptoms similar to Crohn's disease but tends to be less severe and more localized to the colon. Symptoms include: diarrhea (may contain blood), abdominal pain, and tenesmus.



16. **Viral gastroenteritis**-viruses that cause ‘stomach flu’ often with diarrhea, vomiting and abdominal pain.

## **Constitution and Individual Differences in GI Function**

An important aspect to consider is the huge variability of GI tract function among individuals. Major differences between people include; how often they have bowel movements, how quick their transit time is (the amount of time it takes for food to move from mouth to anus), the amount and quality of feces per bowel movement, and how emotions and stress affect digestion. Other factors may include sensitivities, allergies and triggers from various foods. Normal values vary widely among individuals relating to any of these functions. Other notable idiosyncratic patterns include people’s sensitivity to bacteria and other organisms which can become obvious for travelers, along with sensitivities to new and different food. Also, some people’s appetite and digestion are affected by factors such as stress so it may be easiest for them to eat in a familiar quiet environment.

There are a number of systems that employ a constitutional approach to health in general and digestive health in specific. These include Traditional Chinese Medicine (TCM), and Ayurveda. Both have a component that discusses digestive fire, which is discussed below. Ayurveda uses a model called the *doshas*, that broadly categorizes people into 3 types. These are simplified below, please look at other resources for details.

### **‘Digestive Fire’**

1. In Ayurveda and TCM, ‘digestive fire’ is a term used to describe the ability of the digestive tract to function properly, neither too strong nor too weak in its function.
2. The fire refers to the body’s ability to break-up, absorb and excrete food.
3. The term in its constitutional context is far more complicated, but even this simpler form can be useful.
4. Some of the constitutional aspects of digestive fire lie in anatomical and physiological functions including;
  - Enzymes
  - Signaling molecules-hormones and peptides
  - Gastric acid
  - Nerve complexes
  - Buffering agents-mucous and sodium bicarbonate
  - Peristalsis
  - Tissue tone

## **Ayurvedic Doshas and Digestion**

### **Vata**

1. People with vata-type constitutions often have quick transit times. Adding proteins and fats into snacks and meals can slow down transit time for better food absorption.

2. Sometimes deficiencies (such as a lack of enzymes or mucus buffers) can play a part of digestive problems. A lack of gastric acid and enzymes can create a deficiency of 'digestive fire'. It can be helpful to pinpoint where the deficiencies lie to be better understand the root of the problem.
3. Blood sugar levels can drop quickly so it is helpful to have plenty of snacks on hand.
4. Small and frequent meals may be best. Too much food at once utilizes a lot of energy demands and can cause sleepiness.
5. Nutritious and demulcent herbs are helpful such as Slippery elm and Nettles.
6. Eating cooked foods rather than raw foods, as they are easier to break down and absorb, especially if there is a lack of 'digestive fire'.
7. People with vata constitutions can have sensitive digestive systems. It is helpful to watch what their diet to see if any foods or herbs are causing any indigestion or pain.
8. Look for conditions brought on by excess stress and anxiety such as irritable bowel syndrome.
9. Goals-nutritional intake, regularity and stability. Look for food sensitivities and possible deficiencies.

## **Pitta**

1. People with a pitta-type constitution are prone to inflammation from irritation due to an excess of 'digestive fire'.
2. These excesses can be secretions such as gastric acid causing digestive problems such as GERD.
3. There is a tendency to keep working through any pain or discomfort without seeking help, which can lead to greater digestive problems later on.
4. Pitta-types do better than others eating raw foods.
5. Beware of foods that can increase inflammation such as excessively spicy foods.
6. Digestive problems can be brought on or worsened by excess stress and anxiety such as with inflammatory bowel diseases.
7. Herbs-antiinflammatory gut herbs such Chamomile and Meadowsweet are helpful
8. Goals-avoid foods that can aggravate inflammatory digestive conditions.

## **Kapha**

1. Kapha-type imbalances often show up as sluggish and stagnant digestion.
2. Peristalsis can be sluggish, meaning slow transport of chyme through the digestive tract. This can lead to constipation.
3. There is a tendency to gain weight easily and kapha folks will need to continually monitor food portions (relative to size).
4. Dampness may also be a problem, such as creating an excess of watery secretions for the acids or enzymes to work properly.
5. Having the biggest meal more towards the middle of the day, and lighter morning and evening meals can be helpful.
6. Avoid oily, fried and salty foods.
7. Regular exercise is helpful to counteract sluggishness and weight gain.

8. Goals-spicy, bitter herbs and foods that stimulate digestion. Watch food portions, and it is important to exercise.

### Digestive Problems Symptoms

- |                   |                   |                    |
|-------------------|-------------------|--------------------|
| 1. Abdominal pain | 9. Diarrhea       | 17. Stomachaches   |
| 2. Anorexia       | 10. Flatulence    | 18. Stool changes  |
| 3. Belching       | 11. Halitosis     | 19. Tenesmus       |
| 4. Bloating       | 12. Heartburn     | 20. Vomiting       |
| 5. Blood in stool | 13. Hemorrhoids   | 21. Weight changes |
| 6. Body odors     | 14. Indigestion   |                    |
| 7. Borborygmus    | 15. Malabsorption |                    |
| 8. Constipation   | 16. Nausea        |                    |

### Digestive Health Considerations

- |                   |                 |                |
|-------------------|-----------------|----------------|
| • Allergies       | • Diet          | • Stress       |
| • Bacteria        | • Eating times  | • Traveling    |
| • Bathroom habits | • Exercise      | • Triggers     |
| • Body awareness  | • Mental health | • Viruses      |
| • Cleanliness     | • Parasites     | • Water intake |

### Conditions that could be related to Digestion

- |        |             |                   |
|--------|-------------|-------------------|
| • Acne | • Headaches | • Sleep disorders |
| • Gout | • Rashes    | • Sluggishness    |

### Digestive Disorders

- |                         |                         |                                |
|-------------------------|-------------------------|--------------------------------|
| 1. Allergies-non-food   | 12. Food poisoning      | 22. Inflammatory bowel disease |
| 2. Blood sugar problems | 13. Gall stones         | 23. Irritable bowel syndrome   |
| 3. Cancer               | 14. Gastric reflux      | 24. Leaky gut syndrome         |
| 4. Celiac disease       | 15. Gastroenteritis     | 25. Malabsorption              |
| 5. Colic                | 16. GERD                | 26. Metabolic syndrome         |
| 6. Constipation         | 17. Giardia             | 27. Obesity                    |
| 7. Diabetes             | 18. Hemorrhoids         | 28. Spasms                     |
| 8. Diarrhea             | 19. Infection-bacterial | 29. Ulcers                     |
| 9. Diverticulitis       | 20. Infection-viral     | 30. Worms                      |
| 10. Dysentery           | 21. Infection-protozoal |                                |
| 11. Food allergies      |                         |                                |

### Treatment

**Formulas**-each formula can be tailored for the individual or for whatever herbs you have on hand.

1. **Antispasmodic tincture**-Crampbark, Black haw, Jamaican dogwood, Valerian, Silk tassel
2. **Bitter tonic tincture**-Wormwood, Calamus, Gentian, Dandelion

3. **Digestive aid Tincture**-Marshmallow root, Fennel, Meadowsweet, Catnip, Chamomile
4. **Neutralizing cordial**-Turkey rhubarb, Cinnamon, Goldenseal, Peppermint, Potassium carbonate, Simple syrup
5. **Peppermint spirits**-Peppermint tincture, Peppermint tea, Peppermint essential oil. *Preparation:* 4 parts peppermint tincture (made with dried peppermint lf, 1:4 50% ethanol), 1 part peppermint tea (a strong cold infused dried peppermint leaf tea). Final menstruum is about 20% ethanol. Add peppermint essential oil in a 1:20 proportion (i.e., if your final tincture/tea is 20 oz, you would add 1 oz peppermint essential oil). Dosage, 1-3 drops as needed.

## Medicinal Plants

1. Aloe-Aloe spp.
2. Angelica-Angelica spp.
3. Anise-Pimpinella anisum
4. Black haw-Viburnum prunifolium
5. Black pepper-Piper nigrum
6. Black walnut-Juglans nigra
7. Blackberry root-Rubus spp.
8. Bogbean-Menyanthes trifoliata
9. Butternut-Juglans cinerea
10. Cabbage-Brassica oleracea
11. Calamus-Acorus calamus
12. Calendula-Calendula officinale
13. Cardamom-Elettaria cardamomum
14. Cascara sagrada-Rhamnus purshiana
15. Catnip-Nepeta cataria
16. Cayenne-Capsicum annum
17. Chamomile-Matricaria recutita
18. Chaparro amargosa-Castela emoryi
19. Cinnamon-Cinnamomum spp.
20. Comfrey-Symphytum spp.
21. Crampbark-Viburnum opulus
22. Echinacea-Echinacea spp.
23. Fennel-Foeniculum vulgare
24. Garlic-Allium sativum
25. Gentian-Gentiana spp.
26. Ginger-Zingiber officinale
27. Goldenseal-Hydrastis canadensis
28. Hops-Humulus lupulus
29. Iris-Iris spp.
30. Lavender-Lavandula spp.
31. Licorice-Glycyrrhiza uralensis/G. glabra
32. Lobelia-Lobelia inflata
33. Mallow-Malva spp.
34. Marijuana-Cannabis sativa
35. Marshmallow-Althaea officinalis
36. Meadowsweet-Filipendula ulmaria
37. Mugwort-Artemisia vulgaris
38. Oak-Quercus spp.
39. Oregon graperoot-Berberis spp.
40. Peppermint-Mentha x. piperita
41. Plantain-Plantago spp.
42. Prickly ash-Zanthoxylum spp.
43. Rose-Rosa spp.
44. Senna-Senna spp.
45. Silk tassel-Garrya spp.
46. Skullcap-Scutellaria lateriflora
47. Slippery elm-Ulmus rubra
48. Spearmint-Mentha spicata
49. Turkey rhubarb-Rheum palmatum
50. Turmeric-Curcuma longa
51. Wild yam-Dioscorea villosa
52. Willow-Salix spp.
53. Witch hazel-Hamamelis virginiana
54. Wormwood-Artemisia absinthium
55. Valerian-Valeriana officinalis
56. Yarrow-Achillea millefolium
57. Yellow dock-Rumex crispus
58. Yerba mansa-Anemopsis californica

## Other Medicines and Foods

- |                       |               |          |               |
|-----------------------|---------------|----------|---------------|
| 1. Activated charcoal | 2. Castor oil | 4. Honey | 6. Oatmeal    |
|                       | 3. Clay       | 5. Miso  | 7. Probiotics |

## Categories of Therapeutics

- |                       |                   |                            |
|-----------------------|-------------------|----------------------------|
| 1. Adsorbents         | 6. Antispasmodics | 11. Digestive Nervines     |
| 2. Antiinflammatories | 7. Astringents    | 12. Digestive Restoratives |
| 3. Antimicrobials     | 8. Bitters        | 13. Digestive Stimulants   |
| 4. Antinauseants      | 9. Corrigent      | 14. Laxatives              |
| 5. Antiparasitics     | 10. Demulcent     | 15. Pain remedies          |

**Adsorbents**-similar to absorb, substances that can draw and attach other substances.

- Activated charcoal
- Clay

**Antiinflammatories**-herbs that reduce inflammation (which often reduces pain).

- Chamomile
- Meadowsweet
- Yarrow
- Ginger
- Wild yam
- Licorice
- Willow

**Antimicrobials**-inhibit or kill viruses and bacteria

- Calendula
- Echinacea
- Licorice
- Chaparral
- Garlic
- Oregon grape root
- Chaparro amargosa
- Goldenseal
- Yarrow

**Antinauseants**-reduce the sensation of nausea.

- Aloe
- Fennel
- Peppermint
- Catnip
- Ginger
- Slippery elm
- Chamomile
- Meadowsweet

**Antiparasitics**-kill larger parasitic organisms such as protozoa and worms.

- Black walnut
- Garlic
- Yarrow
- Chaparro amargosa
- Oregon grape root
- Wormwood
- Cloves
- Pumpkin seeds

**Antispasmodics**-relaxes smooth muscle spasms.

- Black haw
- Marijuana
- Skullcap
- Catnip
- Neutralizing cordial
- Valerian
- Cramp bark
- Silk tassel
- Wild yam

**Astringents**-tightens tissues.

- Blackberry root
- Oak
- Witch hazel
- Cinnamon
- Rose
- Yerba mansa

**Bitters**-stimulate gastrointestinal secretions

- Bogbean
- Calamus
- Chaparro amargosa
- Gentian
- Goldenseal
- Hops
- Mugwort
- Oregon graperoot
- Wormwood

**Corrigents**-flavoring agents for medicines (may have medicinal actions of their own).

- Anise
- Cardamom
- Cinnamon
- Fennel
- Ginger
- Licorice
- Peppermint
- Slippery elm
- Spearmint

**Demulcents**-soothing mucilaginous plants

- Aloe
- Comfrey
- Licorice
- Mallow
- Marshmallow
- Plantain
- Slippery elm

**Digestive Nervines**-nerve-soothing gut remedies.

- Catnip
- Chamomile
- Lavender
- Marijuana
- Meadowsweet
- Peppermint spirits
- Rose
- Skullcap

**Digestive Stimulants**-stimulates secretions and improves 'digestive fire'.

- Angelica
- Black pepper
- Calamus
- Cayenne
- Cinnamon
- Gentian
- Ginger
- Iris
- Lobelia
- Prickly ash
- Turmeric

**Digestive Restoratives**-help restore digestive health after illness

- Cabbage
- Catnip
- Comfrey
- Fennel
- Ginger
- Mallow
- Marshmallow
- Miso
- Oatmeal
- Peppermint
- Probiotics
- Sauerkraut
- Slippery elm
- Yellow dock

**Laxatives**-helps with constipation, stimulates peristalsis.

- Aloe
- Butternut
- Cascara sagrada
- Senna
- Turkey rhubarb
- Yellow dock

**Pain Remedies**-help with a variety of gut and gut-associated pains

- Aloe
- Antiinflammatories
- Antispasmodics
- Catnip
- Chamomile
- Fennel
- Ginger
- Licorice
- Lobelia
- Meadowsweet
- Peppermint
- Skullcap
- Valerian
- Wild yam