

## HERBAL MEDICINE FOR GASTRO-INTESTINAL CONCERNS

### OUTLINE OF LEARNING

#### Upper Digestion

- Achlorhydria
- Dyspepsia
- Hyperchlorhydria
- Gastro-esophageal Reflux Disease (GERD)
- Gastric and Duodenal Ulcers

#### Small Intestine / Absorption

- Celiac Disease and Non-Celiac Gluten Sensitivity (NCGS)
- Small Intestine Bacterial Overgrowth (SIBO)

#### The Liver and Gall Bladder

- Liver Damage

#### Bowel Health – Elimination

##### Diarrhea

- Hot / Damp Diarrhea
- Cold / Damp or deficient Diarrhea

##### Constipation and Long Transit Time

- Cold / Dry Constipation
- Deficient / Laxative dependant Constipation
- Hot / Dry Constipation

#### Leaky Gut Syndrome

##### Irritable Bowel Syndrome

- IBS – M (mixed)
- IBS – D (diarrhea)
- IBS – C (constipation)
- CAP- Chronic Abdominal Pain IBS precursor

##### Inflammatory Bowel Disease (IBD)

- Ulcerative Colitis
- Crohn's Disease

#### Gastrointestinal and Hepatic Depression

#### Resources & References

## UPPER DIGESTION

### ACHLORHYDRIA

One of the most common digestive conditions, achlorhydria is often the underlying cause of other more advanced conditions of the GI tract such as gastric ulcers, SIBO, general malabsorption, iron deficiency anemia and dyspepsia.

Achlorhydria, sometimes referred to as hypochlorhydria is defined as a state where the production of hydrochloric acid in gastric secretions of the stomach is absent or low.

#### Associated Symptoms

- Acid stomach, heartburn
- Heavy white moss on tongue
- Sense of fullness after eating
- Scalloped edges, swollen edges on tongue
- Frequent flatulence, especially after eating
- Bad breath
- Abdominal eructations
- Nausea when taking supplements
- Weak, peeling or cracked fingernails
- Increased BUN, MCV, serum globulin
- Decreased serum phosphorous, iron, alkaline phosphatase, chloride, normal or decreased total protein / albumin
- Increased incidence of IBS, GERD or SIBO

### DYSPEPSIA

Often symptoms appear as pain or discomfort in the upper abdomen, often accompanied by bloating, belching and nausea.

#### Associated Symptoms

- Pain or burning in the stomach, bloating, excessive belching, or nausea after meals
- An early feeling of fullness (satiety) when eating
- Pain in the stomach that may sometimes occur unrelated to meals or may be relieved with meals

## HERBAL MEDICINE STRATEGIES FOR ACHLORHYDRIA AND DYSPEPSIA

### Bitters

Bitter herbs stimulate the entire process of digestion, absorption, and elimination. Non-alkaloidal bitters increase gastric HCl production, bile secretion and excretion, and small intestine and pancreatic juices.

Most bitter herbs have a cool energy and taken in the short term enhance digestion yet over a period of time they will damp down “stomach fire” and decrease digestive function. An effective, longer term bitters formula has cooling bitters, but adds either warming bitters or warming spices (Ginger, Cinnamon, Caraway, Cloves or

Cardamom) resulting in a formula that can be used daily over the long-term to enhance digestion, absorption and elimination.

### Warming Bitters

**Angelica root / Angelica archangelica:** Arguably the most effective warming bitter. It enhances digestion, relieves gas, nausea, and borborygmus. Like most bitters, Angelica enhances absorption. It is also an aperient, helping to promote normal bowel function and it acts as a prokinetic, enhancing gastric emptying.

**Bai Zhu/Atractylodes root / Atractylodes macrocephala:** Utilized to tonify the Stomach/Spleen qi and relieve diarrhea, abdominal bloating, vomiting and lack of appetite. It is a prokinetic and enhances esophageal and small intestine motility and can be used as part of a protocol treating GERD or SIBO.

**Fenugreek seed / Trigonella foenum-graecum:** is a warming bitter that also binds with endotoxins in the gut, increasing their excretion. Regular use lowers triglyceride and LDL/VLDL cholesterol levels and regulates blood sugar levels.

**Orange peel /Citrus spp:** Warming bitter effective for abdominal bloating, indigestion, belching, nausea and lack of appetite.

**Turmeric rhizome / Curcuma longa:** A mildly warming bitter, as well as a carminative, anti-inflammatory, antitumor, hepatoprotective, and gastroprotective agent. Turmeric, used as a spice, as a powder in capsules, or as a tincture helps heal the gastric mucosa. High doses of the 90% Curcumin standardized product will irritate the GI tract. Turmeric is a choleric and cholagogue promoting fat digestion and elimination of wastes by phase II liver pathways.

### HERBAL MEDICINES TO STIMULATE GASTRIC HCL

**Ginger root / Zingiber officinalis:** A warming, stimulating digestive herb that also promotes gastric emptying, circulation, expectoration and diaphoresis. Ginger is well-known as an antiemetic for nausea, vomiting, and morning sickness. It enhances digestive function, and also relieves gas, diarrhea, and food poisoning.

**Juniper berry / Juniperus communis:** A very strong and potentially irritating herb. Large doses can cause irritation of the urinary and GI tract. However in small doses, the berries strongly stimulate gastric secretions enhancing sluggish digestion and relieving dyspepsia.

**Orange peel / Citrus spp.:** The premier herb for increasing gastric HCL production. Promotes “digestive fire”, acts as a GI prokinetic, and relieves gas, nausea, vomiting, and borborygmus.

**Prickly Ash bark / Zanthoxylum clava-herculis:** A powerful herb that enhances digestion and circulation. As little as 5-10% of Prickly Ash in a formula increases absorption of the entire formula.

### CARMINATIVES TO RELIEVE DYSPEPSIA

Carminatives are aromatic herbs that enhance digestion and most importantly relieve nausea, gas, belching, and borborygmus. Some common carminatives from our Materia Medica that would be helpful here are:

Cloves, Peppermint, Rosemary, Bergamot, Sage, Damiana, Calamus, Fennel seed, Cardamom, Catnip, Thyme, and Lavender.

## HYPERCHLORHYDRIA

Hyperchlorhydria or heartburn is mostly associated with a younger age group typically under 40 years old, often triggered by over-eating spicy or acidic foods, stress, and certain medications and diseases. What begins as an acute based concern become a chronic condition.

Too much stomach acid (hyperchlorhydria), less common than achlorhydria also presents with stomach pain and a burning sensation. However there is little or to no gas, belching, or diarrhea.

Other symptoms are also common such as red, receding gums, aphthous stomatitis and a red, sometimes pointed tongue.

### Associated Symptoms:

- Acid stomach, heartburn
- No moss on tongue
- Red tongue body
- Tongue pointed
- Gums red and receding
- Little gas or belching
- Aphthous stomatitis
- Fatty diarrhea (steatorrhea)

## HERBAL MEDICINE STRATEGIES FOR HYPERCHLORHYDRIA

**Catnip / *Nepeta cataria*:** Combines well with Chamomile, Valerian, or Hops, or address stress-induced GI symptoms / nervous stomach or bowel. It is an effective carminative for gas, nausea, diarrhea, and stress-induced heartburn.

**Chamomile / *Matricaria recutita*:** Stress-induced GI symptoms, including hyperchlorhydria, nausea, GERD, and gastritis. Superb nervine and anti-inflammatory to the entire GI tract.

**Lemon Balm / *Melissa officinalis*:** Specific nervine for acid stomach, especially in children. It can be combined with Meadowsweet, Chamomile, Licorice, and Marshmallow for relieving hyperchlorhydria.

**Licorice root / *Glycyrrhiza glabra*, *G. uralensis*:** Anti-inflammatory, a demulcent, and antibacterial/antiviral. Addresses gastric or duodenal ulcers, but it is also useful for gastritis, hyperchlorhydria, ileitis, IBS and IBD. Small amounts of Licorice can be used along with the other herbs listed here to enhance the overall effect and to heal gastric or esophageal erosions.

**Marshmallow root / *Althea officinalis*:** Demulcent for GI tract irritation. It contains polysaccharides that soothe and help heal ulcerated tissue in the stomach and bowel.

**Meadowsweet / *Filipendula ulmaria*:** Rich in salicylates. Filipendula relieves gastric irritation, pain, and helps reduce the over-secretion of gastric acid. It is most often combined with a mucilaginous herb to help heal and coat the stomach lining. Meadowsweet strongly inhibits *H. pylori*.

## GASTRO-ESOPHAGEAL REFLUX DISEASE (GERD)

GERD, often called acid reflux, is a condition that can be triggered or caused by:

- Obesity
- Overeating or rapid eating
- Delayed gastric emptying
- TCM condition of rebellious qi

All the above can trigger problems with normal esophageal motility. It is also suggested that hypoacidity, rather than hyperacidity is a cause of GERD.

GERD can also be exacerbated by medications such as prednisone as well as sleep apnea, smoking, alcohol consumption, gluten sensitivity, SIBO, a high carbohydrate diet and possibly gallstones. Additionally, the mucous membrane damage caused by GERD condition is due to an inflammatory response not only to stomach acid but to pepsin as well.

The symptoms of GERD include heartburn, regurgitation of stomach acid, difficulty swallowing, nausea and chest pain. In chronic cases, damage to the esophagus can lead to Barrett's Esophagus, laryngitis, chronic cough, damage to the teeth and asthma. People with GERD also have a much higher incidence of IBS as well.

Certain lifestyle and nutritional changes may be beneficial to supporting easing GERD including losing weight, sleeping on the left side with the upper body elevated, eating smaller meals and avoiding eating before bed. Additionally it is recommended to avoid fatty foods, high acid foods (carbonated beverages, citrus, tomato sauce, coffee). A low carbohydrate diet may also prove helpful.

### Herbal Medicine Strategies for GERD

- Demulcents and GI anti-inflammatories heal gastric erosion and inflammation
- GI analgesics/anti-inflammatories such as Wild Yam
- Prokinetic herbs such as Atractylodes, Angelica, Ginger
- Bitters can be used to encourage the digestive energy descend. Bitters are indicated with symptoms of rebellious qi (GERD, hiatal hernia, hiccoughs), bitters are used to correct this problem.

## GASTRIC AND DUODENAL ULCERS

Helicobacter pylori is a noted primary cause of gastritis, gastric ulcers (90%) and duodenal ulcers (80%), gastric cancers and possibly some inflammatory bowel conditions as well. Ironically, the elimination of this historically normal bacteria may be implicated in the significant increase in allergies and autoimmune diseases in first world countries. As well, there are cases of people with ulcers that do not have H. pylori and people with H. pylori who do not have ulcers.

Other aspects known to contribute: stress, excessive alcohol consumption, aspirin, NSAIDs (ibuprofen, naproxen) and some other pharmaceutical medications. Smoking and/or chewing tobacco can also contribute to ulcer formation and inhibits the healing of ulcers.

Treatment protocols and holistic goals for ulcers should include herbs to inhibit, reduce the severity or prevent *H. pylori* infections, herbs to heal the gastric mucosa and herbs to normalize digestion and relieve underlying issues such as achlorhydria, hyperchlorhydria, or nervous stomach.

### **Herbal Medicine & Nutritional Strategies to Inhibit *H. pylori* and Inhibit Bacterial Severity**

**Goldenseal root / *Hydrastis canadensis*:** Specific indications are for mucous membrane tissue that is atonic, boggy, with a tendency toward infection and bleeding. It kills *H. pylori* and is a superb remedy for treating gastritis and gastric or duodenal ulcers. It tonifies the tissue, helps stop bleeding, and improves localized circulation.

**Sage / *Salvia officinalis*:** Has a long history of use for many GI-related complaints. It helps reduce excessive secretions and inhibits hyperchlorhydria. It also helps relieve gas, abdominal bloating and is gastroprotective.

**Turmeric rhizome / *Curcuma longa*:** Long been used to treat gastritis, gastric ulcers and other GI inflammatory diseases. Curcumin has also been shown to have anti-QS activity, which inhibits bacterial swarming, biofilm production and virulence factors.

**Probiotics:** The use of probiotics is essential when working with ulcer like conditions. Many probiotic bacteria have also been found to produce proteins known as bacteriocins. These compounds are strongly antibacterial and have been found to inhibit *H. pylori*.

**Broccoli sprouts:** A rich source of the isothiocyanate sulforaphane known to have potent antibacterial activity against *H. pylori*, as well as gastroprotective effects. Eating the sprouts daily inhibits *H. pylori* numbers and colonization, reduced gastric inflammation and gastric mucosal atrophy. Most other cruciferous vegetables are lacking in sulforaphane but do contain other isothiocyanates that may be beneficial. One common member of this family is cabbage, and drinking the raw juice has a long history of use for treating gastric ulcers.

### **HERBAL STRATEGIES TO HEAL THE GASTRIC AND INTESTINAL MUCOSA**

**Applicable conditions:** Gastric and Duodenal Ulcers, GERD, Leaky Gut Syndrome, Diverticulitis, Celiac Disease, and IBD

**Aloe gel / *Aloe vera*:** The fresh leaf gel is very effective for healing erosion of the stomach or the intestines. It inhibits *H. pylori* and stimulates mucosal healing due to its allantoin and mucilage content.

**Calendula / *Calendula officinalis*:** Acts as a vulnerary and anti-inflammatory topically and internally. The flowers have mild antibacterial and antiviral activity and are rich in antioxidant carotenoids.

**Chamomile / *Matricaria recutita*:** Carminative and GI anti-inflammatory, the high bisabolene chemotypes are useful for healing gastric ulcerations and relieving pain and abdominal discomfort.

**Goldenseal / *Hydrastis canadensis*:** Details can be found in herbs for *H. pylori* section.

**Gotu Kola / Centella asiatica:** Specific indications for healing red, inflamed tissue. Internally employed to address gastric ulcers, IBD, Barrett's Esophagus, leaky gut syndrome, and gastritis.

**Licorice root / Glycyrrhiza glabra, G. uralensis:** Heals inflamed gastric and intestinal mucosa, reduces excessive gut permeability, and inhibits H. pylori adhesion. Licorice is anti-inflammatory and an immune amphoteric, useful for autoimmune conditions including Crohn's disease and ulcerative colitis.

**Mucilaginous herbs:** Demulcent herbs soothe irritated mucosal tissue and promote mucin production and healing of the intestinal epithelial barrier. Marshmallow being a superior choice.

**Plantain leaf/root / Plantago major:** Contains allantoin, chlorophyll, and flavonoids, heals inflamed and irritated tissue of the GI tract. The root can be used with the leaf if there is gastric bleeding.

**Turmeric / Curcuma longa:** Addresses gastric ulcers, GI pain and dyspepsia and GI inflammation promoting gut wall repair. Excessive intake of the isolated extract Curcumin is known to aggravate GI tissue.

**Yarrow / Achillea millefolium:** Antibacterial, antiviral, anti-inflammatory, vulnerary, and styptic effects. Yarrow is indicated for GI tract ulceration with bleeding or a heavy mucus discharge.

## SMALL INTESTINE / ABSORPTION

**A review of the mechanics:** Most absorption of nutrients takes place in the small intestine. Digestion starts when food is chewed / masticated and mixed with saliva, travels to the stomach to be broken down by stomach acid, followed by bile, pancreatic, and small intestine juices to finish the process of separating the pure from the impure, facilitating absorption.

To enhance digestion facilitates absorption hence many issues of poor absorption are remedied by simply including a person specific bitters formula to a protocol.

Common conditions of the small includes duodenal ulcers, Celiac disease and SIBO (small intestine bacterial overgrowth).

## CELIAC DISEASE AND NON-CELIAC GLUTEN SENSITIVITY (NCGS)

**Celiac Disease** is also known as Celiac sprue, regional enteritis or Crohn's Ileitis and is an autoimmune reaction to the protein gluten (glutenin and gliadin) found in wheat, rye, triticale and barley. This protein is also found to a lesser degree in spelt, kamut and possibly oats. Oats contain avenin, a protein that may cause problems because it has a similar amino-acid structure as gluten.

The specific protein responsible for the effects on the immune system is  $\alpha$ -gliadin 33-mer. When this substance is ingested it triggers an immune response that damages the villi in the small intestine. This can lead to impaired absorption of nutrients, chronic anemia, dyspepsia, diarrhea, weight loss, osteoporosis, pancreatic insufficiency, gallbladder problems and stunted growth in children.

Celiac can also cause neurological conditions (migraines, seizures, neuropathy, myopathy, dementia), dermatitis herpetiformis (itchy skin with bumps and blisters), miscarriage, and increased risk of developing other autoimmune diseases.

Treating Celiac disease in practice is dynamic with the focus on eliminating gluten from the diet requiring constant review of ingredients and diet to avoid gluten contaminants. Each time gluten is consumed it will cause damage, making the focus of treatment on healing the small intestine mucosal lining.

**Non-celiac gluten sensitivity (NCGS)** is a condition where ingesting gluten does not cause an autoimmune (Celiac disease) or allergic response (wheat allergy), but triggers gut inflammation, “leaky gut” and a myriad of symptoms including:

- Depression
- Chronic GI problems
- Skin conditions
- Migraines
- Fatigue
- Anxiety
- Weight gain

**Treating NCGS in practice is not as simple as eliminating Gluten** from the diet, noting that reduction of FODMAPs (Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols) is also important for some clients. Foods containing FODMAPs are believed to cause GI symptoms by triggering immune mediated/mast cell activation (food hypersensitivity), by ingestion of bioactive compounds such as gluteomorphins or caseomorphins or by triggering intestinal hypersensitivity.

Regardless of the trigger, the focus of treatment remains on healing gastro-intestinal mucosa, soothing inflammation and finding a diet protocol that is sustainable.

### **SMALL INTESTINE BACTERIAL OVERGROWTH (SIBO)**

**Description of condition:** Impaired small intestine motility, inadequate gastric HCl, pancreatic juices or bile or secretory immunoglobulins (sigA) allow pathogenic bacteria to overgrow in the small bowel.

In a healthy, balanced person the concentrations of bacteria in the small intestine is very low and actually a different species than the overgrowth associated with SIBO. The high concentration of abnormal bacteria inhibits peristalsis in the small intestine and bacterial toxins cause inflammation and damage to the epithelial barrier. SIBO is associated with intense and chronic abdominal bloating, flatulence, nausea, diarrhea, malabsorption and possibly GERD.

Long-term effects of SIBO can include malabsorption syndrome, weight loss, vitamin A, E, D and B12 deficiencies, macrocytic anemia (overly large yet reduced count of red blood cells), liver disease and chronic skin conditions such as erythema nodosum (tender, red bumps on the shins).

**Risk factors for developing SIBO include:**

- Use of proton pump inhibitors
- GI surgery
- Defective ileocecal valve function
- Gastroparesis
- Achlorhydria
- Carbohydrate-rich diet
- Small Intestine diverticula
- Celiac disease
- Liver disease
- Chronic pancreatitis or pancreatic insufficiency
- Immunosuppression or immunosuppressive medications
- Connective tissue disorders such as scleroderma
- Alcoholism
- IBS
- Lactose intolerance

**Diagnosis of SIBO**

Clinical confirmation of SIBO is typically achieved through a lactulose breath test (LBT) or a glucose hydrogen breath test (GHBT). Either test takes 1-3 hours and should be done in the morning after a 12 hour fast and a special diet the day before. The LBT has a low sensitivity and often gives a false-positive result. The GHBT is considered to be a more accurate test for SIBO although both tests can deliver inaccurate results.

**Herbal Medicine and Treatment Strategies for SIBO**

Allopathic medicine treatment of SIBO usually focuses on antibiotics (usually rifaximin, 1200 mg day, for 10-14 days) to decrease the bacterial overgrowth.

Naturopathic medicine treatment focuses on the use of antibiotics along-side antibacterial herbal extract nutraceutical products.

Another approach is to combine the concepts of including a low carbohydrate diet along with herbal medicines to address the following:

- Decrease bacterial overgrowth: Usnea, Goldenseal, Andrographis, Rhubarb, Thyme, Huang Qin/Baikal Skullcap
- Bitters to improve absorption: Artichoke leaf, Gentian
- Gastric HCl stimulants: Orange peel, Juniper berry, Ginger, Prickly Ash
- GI anti-inflammatories to re-establish a healthy intestinal epithelial barrier and stimulate secretion of secretory immunoglobulins: fresh Aloe gel, Licorice, Marshmallow
- Prokinetics to promote small intestine peristalsis: Bai Zhu/Atractylodes, Angelica

Probiotics and Prebiotics also have been shown to improve SIBO symptoms.

## THE LIVER AND GALL BLADDER

### The Importance of Bile

Produced by the liver, bile acts as a natural laxative. Promoting the detoxification of metabolic wastes. Bile is used for digesting fats, stored in the gallbladder, where it is concentrated 7-10 times. This thick viscous fluid helps emulsify fat-soluble nutrients including vitamins A, D, E, and K, as well as Omega 3 and 6 fatty acids, and carotenoids.

This process makes these essential compounds bioavailable so they can be used as antioxidants, anti-inflammatories, to promote bone health, immune function, tissue repair, and normal metabolism.

### Biliary Dyskinesia / Hepatic Torpor

Biliary Dyskinesia is term used in Europe to describe functional disturbances of the hepato-biliary system. The Eclectics referred to a similar condition called hepatic torpor. Either term refer to a lack of bile produced by the liver, or an inadequate secretion of bile from the gallbladder.

### Hepatic torpor/ Biliary Dyskinesia causes:

- Constipation
- Biliusness
- Gallstones
- Clay colored stools
- Elevated blood lipids
- Increased recirculation of metabolic wastes and hormones
- Headaches

- Skin conditions
- Lymphatic stagnation
- Impaired portal circulation leading to hemorrhoids and varicose veins

**Herbal Medicine Strategies for Hepatic Torpor therapy includes utilizing two categories of herbs to stimulate hepatic and gallbladder function.**

**Choleretics** increase bile secretion from the liver and **cholagogues** enhance bile excretion from the gallbladder. Many herbs that influence the gallbladder and liver do both. This category of herb is used when there is insufficient liver function with stagnation and biliousness. In TCM, this treatment is known as dredging the liver. Cholagogues and choleretics are contraindicated for inflammatory liver or gallbladder disease, blockage of the bile ducts or with large gallstones.

#### CHOLERETICS/CHOLAGOGUES AND BITTER TONICS

**Artichoke leaf / *Cynara scolymus*:** Bitter tonic, mild hepatoprotective agent, and antiemetic. It enhances bile secretion and excretion and can be utilized on a daily basis to enhance digestion, absorption, and liver/gallbladder function.

**Blessed Thistle herb / *Cnicus benedictus*:** Cholagogue/choleretic, a bitter tonic, used to promote digestion and absorption for people with dyspepsia, biliousness, rebellious qi (hiccoughs, hiatal hernia, GERD) and hepatic torpor. Excessive doses can cause nausea and it is contraindicated in people with ulcers.

**Dandelion root / *Taraxacum officinalis*:** Excellent bitter, aperient and liver tonic, appropriate for lack of bile secretion, abdominal fullness, constipation, biliousness, “liver headaches”, chronic pancreatitis, mildly elevated liver enzymes, and to enhance hepatic elimination. Dandelion root has been shown to have mild hepatoprotective activity. Avoid using the root in people on a low FODMAP diet.

**Turmeric rhizome / *Curcuma longa*:** Mildly warming bitter with antitumor and hepatoprotective activity. Turmeric is a cholagogue and choleretic, promoting fat digestion and elimination of wastes by phase II liver pathways. It increases hepatic glutathione levels and enhances hepatocyte regeneration.

## LIVER DAMAGE

The liver is responsible for metabolizing, detoxifying, and eliminating most chemicals and drugs as well as hormones and cholesterol that is ingested, manufactured, or absorbed. This process involves two stages, Phase I and Phase II detoxification. Phase I reactions utilize cyclic P-450 (CYP-450) enzymes to make compounds more water-soluble and excretable.

Typically Phase I renders compounds less toxic however in some cases compounds (pyrrolizidine alkaloids, acetaminophen) during the phase I process substantially increases the hepatotoxicity of the substance. Effective Phase II detoxification (sulfation, glucuronidation, acylation, or conjugation with glutathione) is necessary to quickly allow excretion of these compounds.

Phase I reactions can be affected by many factors including age, ethnicity, gender, drug or alcohol use, smoking, hypoxia, liver disease, certain foods and herbs, and whether a person is a fast or slow metabolizer. Phase II reactions are less susceptible to external factors but can be negatively affected by a lack of hepatic glutathione, inhibition of beta-glucuronidase, and fasting.

Many herbs have shown the ability to prevent liver damage and to help increase hepatic glutathione levels and regenerate hepatocytes.

### Hepatoprotective herbs and supplements include:

- Milk Thistle / *Silybum marianum*
- Andrographis / *Andrographis paniculate*
- Schisandra / *Schisandra chinensis*
- Licorice / *Glycyrrhiza glabra*, *G. uralensis*
- Turmeric / *Curcuma longa*
- Reishi / *Ganoderma lucidum*, *G. lingzhi*
- Huang Qin / *Scutellaria baicalensis*
- Guduchi / *Tinospora cordifolia*
- Amla / *Phyllanthus emblica*
- N-acetylcysteine (NAC)
- Alpha-Lipoic Acid (ALA)
- Lycium fruit / *Lycium barbarum*
- Spirulina / *Anthrospira* spp.

**Hepatosupportive herbs (Bitters and Cholagogues) are beneficial when combined with hepatoprotective herbs.**

## BOWEL HEALTH – ELIMINATION

The large intestine absorbs fluid and vitamins and minerals from the digested food and eliminates undigested food and waste products from the body.

Diarrhea or loose stools is a common bowel concern of the large intestine often associated with:

- Hypermotility of the bowel
- Food poisoning
- Amoebic or protozoal parasites
- Intestinal viruses
- Pathogenic bacteria
- Intestinal dysbiosis
- Bowel inflammation
- Medications
- Food sensitivities

**Diarrhea can be generally divided into 2 broad categories:**

**Hot/damp diarrhea:** Typically acute, with a sudden onset and a burning liquid stool, sharp pain, fever, blood or mucus in the stool, dehydration, and a red tongue. Most hospital-acquired diarrhea fits into this category, especially that caused by *Clostridium difficile*, as well as Norovirus and *Campylobacter jejuni*.

**Cold/damp or deficient diarrhea:** Typically a chronic condition characterized by loose stools, undigested food particles in the stool, little or no pain, excessive gas, borborygmus, a white coated tongue, and abdominal distension. In TCM this fits the pattern known as a “damp spleen”.

### Herbal Medicine Strategies for Hot / Damp Diarrhea

**Andrographis herb / *Andrographis paniculata*:** Relieves blood heat (viral or bacterial infections). Effective for addressing bacterial or viral diarrhea and amoebic dysentery and bacterial enteritis.

**Astringents:** Useful for arresting acute diarrhea, as well as blood in the stool. Never be used as a monotherapy and long-term use is not recommended. Simple astringents include Blackberry root.

**Astringent demulcents:** Unusual category of herbs that inhibit excess secretions while reducing inflammation of mucous membrane tissue. Useful for hot/damp diarrhea, IBS, and Crohn’s disease. Examples are White Pond Lily / *Nymphaea odorata* and Linden Flower / *Tilia platyphyllos / cordata*

**Chamomile flowers / *Matricaria recutita*:** Long history of use for GI disturbances and are also be of benefit for acute diarrhea. Specific indications for *Matricaria* are diarrhea with a greenish, slimy discharge, flatulence and irritation of the anus.

**Goldenseal root / *Hydrastis canadensis*:** Very effective for clearing damp heat from the bowel. Other berberine containing (Oregon Grape Root )are also of benefit. Berberine is an active antibacterial, antiviral, antifungal agent and anti-inflammatory to the mucous membrane tissues. It reduces excess intestinal secretions and smooth muscle contractibility, as well as bleeding and inflammation.

**Huang Qin/Baikal Skullcap root / *Scutellaria baicalensis*:** Very effective for treating damp heat conditions including IBD, dysentery, and diarrhea, hepatitis.

**Sage leaf / *Salvia officinalis*:** Antibacterial, antiviral and antifungal activity, powerful antioxidant and anti-inflammatory agent that reduce excessive secretions and clear damp heat in the gastrointestinal tracts.

### Herbal Strategies for Cold/Damp Diarrhea

**Atractylodes/Bai Zhu root / *Atractylodes macrocephala*:** Warming and drying and used in TCM for deficient or damp spleen conditions with chronic diarrhea.

**Cinnamon bark / *Cinnamomum verum*:** Very effective for enhancing digestion, stopping diarrhea, and alleviating gas, nausea, or borborygmus. Cinnamon is astringent, antibacterial, anti-inflammatory, and enhances circulation. It can be used as a simple or in a formula.

**Fu Ling / *Wolfiporia cocos*:** It absorbs excess fluids and solidifies the stool.

**Ginger root / *Zingiber officinalis*:** Anti-inflammatory, a carminative, and an anti-emetic. It can be used with other warming herbs such as Cardamom, Calamus, Turmeric to benefit damp spleen conditions.

**Orange Peel / *Citrus spp.*:** Warming to the bowel, improves digestion, and relieves gas, nausea, and borborygmus. It is used with *Atractylodes* and *Poria* for damp spleen diarrhea.

### Constipation and Long Transit Time

Transit time is defined as the time between consuming food and defecating. Normal transit time is usually between 12-24 hours. Extended transit time and constipation are linked to elevated blood lipids, increased gut permeability and possibly increased risk of intestinal cancer. Probiotics and fermented foods (kimchi, yogurt, kefir, kombucha, etc.) have also been shown to improve bowel function and can be used for all types of constipation including childhood constipation.

### Cold / Dry Constipation

Associated with a mildly atonic bowel, a pale tongue with a dry, white lingual coating, and a dry mouth or dry cough. Adequate soluble fiber and fluids in their diet are essential.

### Herbal Strategies for Cold / Dry Constipation:

**Dang Gui root / Angelica sinensis:** Moistens and warms the intestines, used in TCM with yin tonics such as for dry constipation.

**Fenugreek seed / Trigonella foenum-graecum:** Warming demulcent that binds endotoxins in the GI tract. Regular use lowers cholesterol and triglyceride levels and it acts as a bulk laxative.

**Licorice root / Glycyrrhiza glabra, G. uralensis:** Anti-inflammatory, demulcent, and an aperient, soothes irritated mucous membrane tissue in the stomach and intestines and moistens the bowel, benefiting cold/dry constipation.

**Yin tonics:** Ophiopogon/Mai Men Dong, Solomon's Seal, Processed Rehmannia, help cold/dry constipation by moistening the bowel.

### Deficient / Laxative dependant Constipation

Defined as atonic bowel with a lack of peristaltic activity usually caused by chronic laxative abuse. A difficult condition to address and in most cases improvement, not complete resolution, is considered a success.

### Herbal Strategies for Deficient / Laxative dependant Constipation

**Bulk laxatives** that are rich in soluble fiber: Fenugreek seed powder, Psyllium seed, Chia seed, Flax seed, taken with adequate water will gradually improve bowel function and transit times.

**Triphala formula:** It is the single most effective treatment for an atonic bowel. It tonifies the bowel, as well as having a mild laxative effect. The formula also has pronounced anti-inflammatory activity.

**Warming spices** such as Cardamom, Ginger, Turmeric, can help stimulate intestinal circulation and peristalsis.

**Yellow Dock root / Rumex crispus:** Anti-inflammatory, choleric/cholagogue, astringent and mild laxative effects can be effective as part of a protocol for laxative-dependent constipation.

### Hot / Dry Constipation

Typically usually caused by fevers or chronic lack of fluids, resulting in dry, painful stools, a dry, red tongue (with a brown or yellow coating), and thirst.

### Herbal Strategies for Hot / Dry Constipation

**Mucilaginous herbs/bulk laxatives:** Marshmallow can be made into a reasonably demulcent alcohol and water extract. A tea of Marshmallow is also useful. Other demulcent herbs including Chia seed, Flax seed, Aloe gel, are all effective for treating dry (yin deficient) constipation.

**Stimulant laxatives:** Often Senna, Buckthorn bark, Cascara Sagrada, and Turkey Rhubarb root are frequently used to treat constipation. These herbs can cause bowel dependence, deplete potassium, and reduce blood levels of other medications. Butternut bark is the mildest of the stimulant laxatives and is the only one that, when used properly, does not cause bowel dependency. All other laxatives in this category are appropriate for short-term use only for occasional situational constipation.

**Yin tonics:** Cooling yin tonics such as Ophiopogon and Solomon's Seal can be used as well.

## LEAKY GUT SYNDROME

Leaky gut syndrome describes a condition with loss of intestinal mucosa integrity and tight junctions in the epithelial cells that separate the intestinal lumen from the underlying lamina propria.

### Can be contributed to:

- Chronic constipation or long bowel transit time
- Pancreatitis
- Liver disease
- IBS (Irritable Bowel Syndrome)
- IBD (Inflammatory Bowel Disease)
- Excessive antibiotic use
- Alcoholism
- Celiac disease
- Non-Celiac gluten intolerance
- Old age
- Nutrient deficiencies
- Bacterial or viral infections of the GI tract

Normal intestinal epithelial barrier function allows for absorption of nutrients but prevents antigens and pathogens from entering the tissue and causing damage. A lack of this function has been linked to increases in autoimmune disease (MS, Hashimoto's Thyroiditis), food allergies and sensitivities, NASH, migraines and systemic inflammation.

**Many herbs** have been shown to help heal the intestinal epithelium and restore tight junctions, including Licorice, Cat's Claw, Turmeric, Chamomile, Aloe gel, Gotu Kola, Marshmallow, Yarrow, Plantain leaf, and Goldenseal.

Supplements that can help heal the intestinal barrier include probiotics, L-glutamine, Quercetin, Bromelain, L-Arginine, digestive enzymes and butyrate.

## IRRITABLE BOWEL SYNDROME

**There are three main categories of irritable bowel syndrome (IBS):**

**IBS-M** : Mixed, has alternating diarrhea and constipation as well as gas, nausea, abdominal distension and pain

**IBS-D**: Diarrhea as the prominent symptom along with pain, gas and nausea

**IBS-C**: Constipation predominant with pain, bloating, and nausea.

One other IBS-like syndrome is **chronic abdominal pain (CAP)**, where the person experiences visceral pain (intestinal hypersensitivity), but has normal bowel movements. When this occurs in children it can be a precursor to full blown IBS.

People who suffer from IBS also have increased levels of depression and anxiety.

**IBS is associated with and/or caused by:**

- Food allergies or intolerance
- Loss of normal intestinal barrier function (Leaky Gut syndrome)
- Achlorhydria,
- Residual post-infection inflammation
- Magnesium deficiency
- Chronic stress
- Genetics
- Abnormal bowel flora (intestinal dysbiosis)

Determining the underlying issues is vital for success in treating IBS. In addition, people with IBS have a much higher incidence of SIBO, hypochlorhydria or GERD suggesting a common underlying cause.

IBS is typically a combination of the above causative factors causing a dysregulation of the gut-brain axis, with excessive (causes diarrhea) or too little (causes constipation) intestinal serotonin, elevated levels of inflammatory cytokines, and overproduction of signaling molecules that typically maintain a healthy GI function and ecology.

Using elimination diets to uncover sensitivities to common foods are an important place to start within a treatment protocol. Common problem foods that trigger IBS include wheat or other gluten containing foods as well as beef, pork, dairy, eggs, fructose, sugar alcohols (sorbitol, mannitol, xylitol, erythritol, lactitol, etc.) and soy.

## Herbal Strategies for Irritable Bowel Syndrome

- Artichoke leaf / *Cynara scolymus*
- Chamomile flowers / *Matricaria recutita*
- Cat's Claw / *Uncaria tomentosa*: anti-inflammatory, an immune amphoteric, an astringent, and bowel tonic. It is very useful for treating leaky gut syndrome, IBS, IBD, and regional enteritis.
- GI Anti-Inflammatories as listed throughout paper
- Soluble Fibre
- Valerian / *Valerian officinalis*: Primary Sedative nervine to the bowel
- Wild Yam / *Dioscorea villosa*: Primary Antispasmodic to the bowel.

## Supplement Strategies For Irritable Bowel Syndrome:

**Betaine HCl:** A supplemental form of gastric acid. Its optimal to stimulate the natural gastric HCl with herbal medicine support, often in the case of IBS this is not adequate. A lack of stomach acid may contribute to IBS, GERD and SIBO.

**Probiotics:** Several strains of intestinal bacteria improve some IBS symptoms, especially IBS-D

**L-Glutamine:** BS is associated with chronic low-level inflammation and a loss of the normal intestinal epithelial barriers. The amino acid L-Glutamine can help reduce GI inflammation, soothe the gastric mucosa and help restore tight junctions.

## INFLAMMATORY BOWEL DISEASE (IBD)

**IBD** is a more severe class of intestinal disorder that includes **Crohn's disease (CD)** and **ulcerative colitis (UC)**.

In cases of IBD there is often associated chronic diarrhea with a mucus or bloody discharge, moderate to severe abdominal pain, bowel urgency, and frequency.

**Ulcerative colitis** affects only the mucosal membrane of the colon, whereas **Crohn's disease** can occur throughout the intestinal tract (small and large intestine, rectum).

The cause of these conditions is not understood however basic contributing factors have been discovered. There can be a genetic predisposition for IBD, but environmental (especially antibiotic use) and/or endogenous factors are usually responsible for triggering the chronic inflammation.

People with IBD have decreased GI tract microbiota diversity and a defective intestinal endothelial barrier (decreased mucin production and increased zonulin, which increases intestinal permeability). Those with UC exhibit a loss of tolerance of their normal gut flora, while those with CD seem to be unable to clear bacteria

from the GI mucosa. There is often an overgrowth of gram-negative bacteria, especially Bacteroides and Coliforms.

Crohn's disease and ulcerative colitis have an underlying autoimmune cause with chronic activation of inflammatory pathways (pro-inflammatory cytokines) and people with IBD also have higher than normal levels of asthma, MS, psoriasis, chronic fatigue and arthritis.

IBD-like symptoms can also be caused by Celiac disease, Clostridium difficile infections (pseudomembranous colitis) or chronic diverticulitis.

### Diagnosis

The most effective method to accurately diagnose UC or CD is a colonoscopy, although stool analysis (especially fecal calprotectin) can help differentiate between IBS (normal calprotectin levels) and IBD (elevated levels).

### Treatment

Irritable bowel disease is very difficult to treat only via nutrition and herbal medicine strategies. Allopathic medical therapies including mesalazine or prednisone and surgery may be necessary.

A newly discovered approach to treating Crohn's disease is the use of porcine whipworm eggs. The introduction of these non-pathological parasites (in humans) alters the gut-mediated immune response. Crohn's disease is associated with excessive Th1 response, which promotes production of pro-inflammatory compounds such as IL-12, interferon-gamma and TNF $\alpha$ . People given this therapy have had significant improvement in Crohn's symptoms and many have gone into complete remission.

### HERBAL STRATEGIES FOR INFLAMMATORY BOWEL DISEASE

- Aloe gel / Aloe vera
- Andrographis herb / Andrographis paniculata
- Astringent demulcents
- Bilberry/Blueberry fruit / Vaccinium spp.
- Cat's Claw / Uncaria tomentosa: anti-inflammatory, an immune amphoteric, an astringent, and bowel tonic. It is very useful for treating leaky gut syndrome, IBS, IBD, and regional enteritis.
- Goldenseal root / Hydrastis canadensis
- Huang Qin/Baikal Skullcap root / Scutellaria baicalensis
- Licorice root (Glycyrrhiza glabra, G. uralensis)
- Mucilaginous herbs

- Plantain leaf/root / *Plantago major*
- Sarsaparilla rhizome / *Smilax officinalis* binds endotoxins in the gut, improving excretion of metabolic wastes. It is indicated for red, inflamed tissue (skin, mucous membrane, or muscle).
- Turmeric rhizome / *Curcuma longa*
- Yarrow herb/flowers / *Achillea millefolium*

### SUPPLEMENT STRATEGIES FOR IBD

**Butyrate:** Short chain fatty acid that is naturally produced in the gut by fermentation of non-soluble fiber such as psyllium seed. Butyrate has been used in enemas as well as an oral supplement. Oral calcium magnesium butyrate or sodium butyrate acts as an intestinal anti-inflammatory. It helps heal intestinal epithelial cells, inhibits pro-inflammatory - cytokines, it reduces UC and Crohn's disease activity as well as enhancing intestinal barrier function

**L-glutamine:** Helps to reduce GI tract inflammation and promotes healing of the gut mucosa. It can help re-establish a healthy intestinal epithelial barrier by promoting mucin production and reducing gut permeability.

**Probiotics:** Concurrent use of probiotics (*Lactobacillus* and/or *Bifidobacterium*) and prebiotics in the form of Psyllium seed, is more effective than either therapy alone for improving symptoms and inducing remissions in people with Crohn's disease. The term for this combination therapy is synbiotics.

## GASTROINTESTINAL AND HEPATIC DEPRESSION

The enteric nervous system is the source of a significant amount of the body's serotonin and naturally occurring benzodiazepine-like compounds. The intestinal microbiome, via the gut-brain axis, also plays a major role in regulating CNS and HPA axis function via the production of neurotransmitters that can cross the blood-brain barrier.

GI conditions such as chronic constipation or diarrhea, GI dysbiosis, biliary dyskinesia, IBS, IBD or leaky gut syndrome can interfere with normal production of these essential chemicals and the diversity and health of the intestinal flora.

These biochemical or bacterial imbalances can lead to GI-based depression or anxiety.

### **The associated symptoms of GI-based depression include:**

- Moodiness
- Lethargy
- Despondency
- Significant and persistent dyspepsia or other digestive or bowel complaints

### **Hepatic depression is associated with the above symptoms as well as:**

- Anger
- irritability
- Mixed anxiety/depressive disorder
- Biliusness
- Insomnia
- Liver headaches
- Nausea

Herbs are especially effective for healing the gut mucosa and relieving symptoms of GI-based dysthymia. (also known as GI based persistent depressive disorder/PDD).

Herbal Medicine strategies will also employ herbs known to also enhance liver function and promote both phase I and II liver detoxification.

## Herbal Strategies for HEPATIC and Gastrointestinal Depression

**Evening Primrose leaf, root bark, flower / *Oenothera biennis*:** Indicated for depression associated with chronic dyspepsia or vomiting, and frequent desire to urinate. The person is apathetic, gloomy, and despondent. This is one of the most effective herbs for GI-related depression.

**Rosemary / *Salvia rosmarinus*:** Beneficial for people who have a dull, lethargic depression, thinking is too much of a bother, or they have constant mental fog. It is also effective for bilious (hepatic) depression.

**St. John's wort / *Hypericum perforatum*:** Useful for mild to moderate dysthymic or situational depression. The person has a dyspeptic outlook, a sour stomach, and a sour attitude (GI-based depression).

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