

PLANT DIVERSITY

and digestive healing

by Katolen Yardley, MNIMH, RH (AHG)

THE POWER OF CONNECTION

One small step at a time, human beings are beginning to acknowledge that everything on planet earth is connected. Mother earth provides us sustenance and food; what we do to the earth in terms of ecology destruction and pollution, we essentially do to ourselves. This is a useful analogy in understanding the ecosystems within our own body. The optimal function of our digestive tract is essential to whole body health and robust flora and symbiotic bacteria (which live in and on us) play an indispensable role in the health of the whole being. Each small piece plays a critical part in the health of a larger ecosystem.

With over 37 trillion cells in our body, we know that there are more things living in and on us than is actually us¹ – one study cites over a quadrillion viruses colonising our body surfaces.² "Collectively, the microbial associates that reside in and on the human body constitute our microbiota, and the genes they encode is known as our microbiome.³ "The microbes which reside as part of us include bacteria, viruses, pathogens and toxins, therefore, harmony is fundamental. An imbalance in one place or organ system can create an imbalance everywhere.

Vast diversity is seen in nature and every creation on mother earth is unique. Additionally, a large portion of our microbiota is unique to us. How do we nourish the ecosystem which is us and lives on us? Microbiome research is showing that diversity is a strength - allowing for greater adaptability in an ever changing environment. The more diversified our diet (think about hunter and gatherer societies where foraging for a variety of foods was once a common occurrence), the more our internal microbiome is able to protect from an assortment of unhealthy opportunistic pathogens and assist with whole body health. Breastfeeding a newborn and vaginal birth (versus caesarean) play critical roles

in transferring healthy bacteria from mother to child, populating neonatal microbial colonies essential to immune development.⁴ Diversification is one way to enhance our internal ecosystem; with variation of foods comes diversity in bacteria for increased natural immunity and innate protection; choosing organic whole foods and using a variety of herbal medicines can go a long way in support of this process.

INNER WORLD HEALTH IS WHOLE BODY HEALTH

Our body requires a healthy ecosystem full of diverse beneficial bacteria known as our microbiota. This symbiotic community is linked to essential body functions such as: vitamin and enzyme production, hormone regulation, energy production, gut to brain communication and even neurotransmitter production (serotonin and dopamine).⁵ Neuroscience research investigates how gut microbiota communicates with the brain via the vagus nerve, now referred to as the microbiota-gut-brain axis, influencing one's thoughts, behavior and anxiety (Foster). Healthy gut bacteria offers protection from obesity, inflammatory bowel disorders and type 2 diabetes.^{6,7,8,9,10,11} Changes in bacterial communities are associated with allergies, celiac, autism and crohn's.³ One common denominator between these disorders is a lack of diverse types of gut bacteria which contribute to immediate and significant changes in function. Variation of bacteria appears to offer some resilience and adaptability in the face of numerous homeostatic changes and external stressors.

CHOOSE DIVERSITY / EMBRACE

According to the Food and Agricultural Organization of the United Nations,¹² variety within plant species is rapidly diminishing, (to bring home this point - how many species of potato have you seen, tasted or grown? did you know that "there are over 4,000 varieties of



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native potatoes in the world... and over 180 wild potato species?"¹³ Farmers may choose crop species based on the highest yield or profit instead of growing a broad selection and unique heirloom varieties. According to research by Heiman, "Of the 250,000 to 300,000 known edible plant species, humans use only 150 to 200....75 percent of the world's food is generated from only 12 plants and five animal species."¹⁶

How many different vegetables did you consume today? Does your selection of fruit and vegetables vary from day to day? Lack of biodiversity in food selection can limit the opportunities for good bacteria proliferation and can increase susceptibility to opportunistic infections.

While the standard sugar-rich western diet may negatively influence the microbiota, shifting to a low fat / high fiber diet may influence human gut microbiota in less than 24 hours.¹⁴ Reach for an array of colorful fresh vegetables and edible plants filled with inulin (insoluble fiber), fermented foods and those traditional bitter tasting herbs to support digestion and proliferate healthy gut bacteria. Plants are high in fiber, offering protection from colon ailments. Prebiotics found in fermented foods like sauerkraut, kimchi, tempeh, kombucha and edible wild plants offer diversity in our diet. Inulin-rich foods, including Jerusalem artichoke, leeks, Garlic and onions, Chicory, Burdock and Dandelion root, can assist in the proliferation of healthy bacteria.¹⁵

BITTER IS BETTER

Visualize for a moment that the digestive tract is essentially still outside the body; merely a hollow tube running from mouth to anus where the sterilization of foods and breakdown of nutrients occur before they are absorbed into our internal environment. The mildly bitter flavor of many herbs and tart tasting vegetables goes a long way in enhancing digestion: stimulating the release of gastric juice to process contents entering the stomach, priming the digestive system to secrete

enzymes, break down, absorb and assimilate nutrients into the bloodstream and enhancing peristalsis to eliminate waste material efficiently. Dandelion, Burdock and Chicory root as well as the leafy salad greens endive and radicchio are gentle bitters. *Note: strong bitters are best avoided for those with an overactive digestive system, IBD or ulcers.*

Many people recognise Burdock root (*Arctium lappa*) as herbal medicine, however it is also a valuable food in other cultures (find it under the name of Gobo in a local Asian market). Burdock root contains inulin (rich in fructo-oligosaccharides (FOS), prebiotic food for gut bacteria. Burdock is a mild bitter herb known to support digestion while assisting the elimination of uric acid from the kidneys. It can be thought of medicinally as a seasonal cleanser supporting the organs of elimination and regulating the bowels to prevent constipation. Expand the variety of food consumed at home. Add chopped Burdock root into a stir fry or stew. Sauté with eggplant and spinach with curry spices.

THE GUT AND IMMUNITY

The digestive system is known as the first line of immune system defense - there are more cells functioning as "the eyes and ears" of the immune system in the gut than anywhere else in the entire body. Approximately 70% of the entire immune system is found within the digestive tract.¹⁶ This immune activity involves the appendix, Peyer's patches, gut and mucoid associated lymphoid tissue, Paneth cells in crypts of the colon and intestinal epithelium and macrophage activity in the mucosa surrounding the villi of our small intestines.¹⁷ This complex system functions to prevent potential pathogens from entering the body and keeps allergens at bay. When pathogens attempt to cross the mucous membranes – localized inflammatory reactions can result.

The health of the whole body begins with optimal digestive function. This is perhaps one of the most overstated phrases yet research is confirming the

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far reaching impact of this profound statement. A disruption in normal gut function or flora, leaky gut syndrome and digestive dysbiosis (an imbalance between the healthy and opportunistic harmful gut microbes) are linked with systemic health issues including osteoporosis, obesity, chronic inflammation, type I and II diabetes, cardiovascular diseases and non-alcoholic fatty liver disease.¹⁸ Strong correlations also exist between irritable bowel disease, celiac disease and a range of mental health issues such as anxiety, depression, hyperactivity and the autistic spectrum.^{19,20} If you are a person suffering from any of these health issues then it is time to enhance digestion, support the gut microbiome and heal a leaky gut.

LEAKY GUT / HEAL THE GUT

The highly selective, relatively impermeable mucous membranes lining the entire digestive tract can become inflamed and leaky when continually taxed by incoming irritants. Increased intestinal permeability (or leaky gut) leads to localized inflammation, increasing risk of food sensitivity and full blown allergies. This digestive deregulation is involved in systemic health conditions. Some factors contributing to leaky gut include: long term extended stress, regular use of NSAIDs and other allopathic medicine (hormone medication, protein pump inhibitors, antibiotics), poor diet, pesticides and GMO foods, artificial colorings and preservatives; even the continual ingestion of known food allergens can all negatively impact our digestion. An important consideration is whether the amount of incoming irritation is balanced with the amount of needed nutrients and daily support for gut healing.

"Is the incoming irritation balanced with the amount of needed nutrients and daily support for gut healing?"

SOOTHE THE GUT

Plants can play a valuable role in the needed healing of our mucous membranes. A group of herbs consisting of special complex carbohydrates called mucilage

or demulcents are mineral rich healers which reduce localised inflammation, spasm and irritation. Mucilage rich herbs might be coined nature's antacids – coating the mucous membrane from excessive stomach acid, protecting and promoting healing from ulcers, and reducing the intestinal cramping so commonly experienced in irritable bowel syndrome, crohn's, colitis and celiac.

The entire plant of Marshmallow (*Althea officinalis*) is demulcent. The leaves, flower & root are rich in nutritive, mucilaginous polysaccharides. When mixed with water, they soothe and work to coat irritated mucous membranes from inflammatory conditions such as gastritis.²¹ This buffer protects sensitive membranes from excess stomach acid and spicy





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foods. Mucilage rich herbs are essential for mucous membrane repair and can be considered for anyone with cramping, spastic diarrhea and malabsorption. Although the root of Marshmallow is more commonly used for digestive aid, an animal study investigated the impact of Marshmallow flower extract for alcohol induced gastric ulcers. The study showed significant anti-inflammatory effects against both acute and chronic inflammation with protective effects for gastric ulcer.²²

ANTISPASMODIC DIGESTIVE POWDER

Mix 1 heaping teaspoon of Marshmallow root powder with 1/4 teaspoon Cinnamon powder. Stir in a little water, just enough to form a paste like oatmeal (or cookie dough), and then eat off the spoon 3 times daily before meals.

Another soothing gut healer and a plant whose leaves contain mucilage is the common Plantain (*Plantago major* or *lanceolata*) – this is not the same plant as those delicious fried plantains resembling a banana; instead, practice identifying the broad round leaves or thin long leaves of Plantain varieties found growing around the edges of parks or in grassy spots. In addition to its mucilage properties, Plantain contains tannins, which can staunch internal gastric bleeding, acubin, which offers liver protective properties, and allantoin, which may promote healing of inflamed tissues.²³ One ayurvedic reference cites the use of 1/2 ounce of decocted Plantain tea found beneficial for gastric and duodenal ulcers and gastritis.²⁴

SOOTHING DIGESTIVE RELIEF TEA

- Plantain leaf 1 part
- Marshmallow root 1 part
- Pineapple weed flower 1 part

Use 1 heaping teaspoon per 1 cup boiling water. Cover and steep for 15 minutes. When you are ready to enjoy

your tea, sit down in a relaxed environment, lift the cover from the tea and inhale the volatile oils from the freshly steeped blend. The aroma of the tea is medicine as well – these volatile oils affect the olfactory system and have an impact on our memories and emotional response via the limbic system. Enjoy 3 cups of tea daily as an adult dose for help with heartburn and digestive healing.

DIGESTION AND WELLBEING

Aromatic herbs, many of which are carminatives, are those fragrant herbs commonly added to foods to enhance the aroma and flavors of our cooking. We can identify herbs rich in volatile oils due to their characteristic scent. These aromatic plants assist in alleviating indigestion, offer immediate antispasmodic relief for gas and bloating and the uncomfortable sensations of overeating.

When inhaled, the volatile oils (the characteristic scent of each plant) relay messages to the limbic system via the olfactory nerves. The limbic area of the brain has been coined "the feeling and reacting brain,"²⁵ an area of the brain affecting memories and emotions which regulates endocrine function. Many of these aromatic herbs can impact our emotions when inhaled and are used for relaxation, alleviating anxiety and soothing those common tummy aches associated with worries. An aromatic tea of Lemon Balm (*Melissa officinalis*) can help with colic, dyspepsia, indigestion and cramping and is traditionally used to counteract melancholy and uplift one's mood.²⁶

Pineapple weed (*Matricaria discoidea*) is a delicate plant that resembles Chamomile and is often used interchangeably, but unlike Chamomile, Pineapple weed is without petals or flower heads. It is described as "a useful digestive herb, the slightly bitter nature stimulates gastric juices while the carminative and antispasmodic volatile oils are soothing for digestive upset and minor cramping, minimizing bloating and gas."²³

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Herbal support for digestion would not be complete without addressing gas and bloating. Fennel comes to the rescue, for adults and infant alike. Fennel Seed (*Foeniculum officinalis*) is a common ingredient in gripe water for infant colic and offers soothing antispasmodic effects on smooth muscles, bringing relief from all varieties of gastric distress: cramping, IBD, gas and bloating.²⁷ If you appreciate the taste of Fennel then consider adding sautéed Fennel bulb to your cuisine. I prefer it thinly sliced and sautéed with onions. Delicious!

INDIGESTION TEA

- Pineapple weed leaf 1 part
- Fennel seed 1/2 part
- Lemon Balm 1 part

Use 1 teaspoon per cup of boiling water. Steep 15 minutes – strain and drink 3 times daily.

Perhaps my favorite digestive tonic is Meadowsweet (*Filipendula ulmaria*) an herb which can assist in normalizing gastric function, increasing stomach acid in conditions of low activity and reducing excess stomach acid in hyperacidity. Consider this herb for ulcers, indigestion and any condition where there is reflux and excess stomach acidity. The aerial plant parts contain tannins and mucilage which help protect the gastric lining, acting as a buffer in inflammatory conditions such as gastric ulceration. The tannins are astringent for those inconvenient moments of diarrhea while Meadowsweet also imparts antimicrobial activity against staph, strep and E. Coli.²⁷ Consider Meadowsweet as a valuable antacid while also reducing pain and inflammation without causing the side effects commonly associated with aspirin. Common side effects of prescription and over the counter NSAIDS (aspirin, tylenol) include gastric ulceration, erosion and internal bleeding. Unlike NSAIDS, Meadowsweet works as an analgesic while protecting the gut lining from irritation, developing ulcerations and internal

bleeding, making this herb a far better choice for pain management without the side effects. According to Bone and Mills, "In 1839 salicylic acid was first isolated from the flower buds."²⁷ The analgesic or pain relieving action of the natural salicylic acid found in Meadowsweet offers relief for the discomfort of arthritis, muscle & joint pains. In vivo and animal studies also confirm what tradition has known – Meadowsweet offers protection from NSAIDS-caused gastric disorders when used together²⁸ and can prevent acetylsalicylic acid-induced lesions in animal studies.²⁹

DIGESTIVE TONIC TEA

- Meadowsweet herb 1 part
- Plantain leaf 1 part
- Burdock root 1 part
- Fennel 1/2 part

Use 1 teaspoon per cup of boiling water. Steep 15 minutes – strain and drink 3 times daily.



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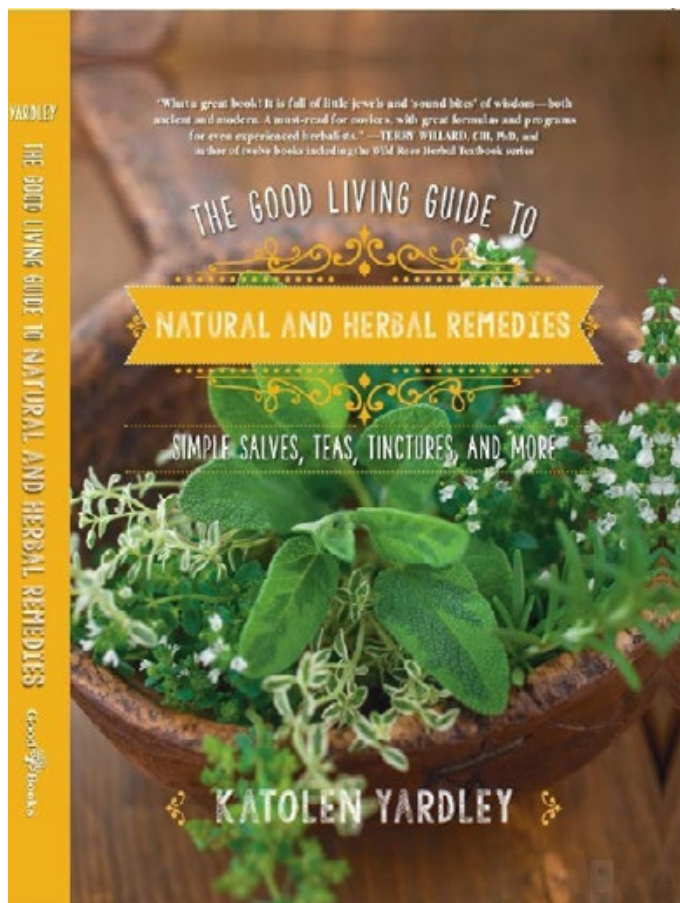
In conclusion, variety and diversity will go far to support our bodies' ability to develop resiliency and adapt to the influx of constant change. Supporting a mutually beneficial relationship between us and the large colonies of microbial populations living on us can enhance immunity, modulating risk of chronic disease and assisting whole body health. Nature can provide us an assortment of remedies for re-establishing healthy gut flora, healing intestinal permeability and assisting with a variety of imbalances in gut health. Focus on a contrasting assortment of plant foods in your diet and reach for those herbs which are both medicinal and edible foods for digestive support.

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