

The Importance Of Hydrochloric Acid In Digestion

"It's a vicious cycle and can only be overcome if we take the time to explain that hydrochloric acid is an essential component of digestion."

A patient can never experience "true wellness" unless they have a healthy digestive system. Think about that for a second. That means if patients bloat or belch after a meal, experience constipation, diarrhea, stomach or intestinal pain their digestive system is not working right.

Poor digestion means poor vitamin and mineral absorption. It also means proteins and fatty acids can't be properly utilized for repair and cellular regeneration. Turning to over-the-counter acid blockers or prescription drugs may reduce the pain but they are not treating the cause. Most acid reflux, ulcers and other digestive problems are due to h-pylori or insufficient hydrochloric acid rather than an excess of hydrochloric acid.

"Lack of hydrochloric acid results in protein putrefaction and carbohydrate fermentation which result in the formation of acids and sulfur compounds that burn the stomach." Hydrochloric acid does not have a tendency to



burn the stomach. Not enough acids result in the production of other acids that "do" burn the stomach. The use of scripted or over-the-counter pharmaceuticals further reduce the production of hydrochloric acid." It's a vicious cycle and can only be overcome if we take the time to explain that hydrochloric acid is an essential component of digestion.

Hydrochloric acid has multiple health benefits and the physiology of the stomach is designed for high concentrations of this essential acid.

Here is a partial list of conditions that can be linked to hydrochloric acid deficiency in the literature. Addison's disease or hypocortical function, asthma, Celiacs, Crohn's, dermatitis, diabetes, eczema, small intestinal bacterial overgrowth or SIBO, Graves' disease or hyperthyroid, hypothyroid, autoimmune disorders like lupus, rheumatoid arthritis or myasthenia gravis, pernicious or B12 anemia, osteoporosis or osteoarthritis.

I've never seen it in the literature, but if low hydrochloric acid contributes to these con-

ditions, chemically lowering hydrochloric acid with script meds should contribute to these conditions as well. The following are lab tests which suggest a need for hydrochloric acid: serum globulin over 2.8 or below 2.4., serum phosphorous below 3.0, BUN above 15, serum gastrin below 45, an increased urinary indican, an increase of meat or vegetable fibers in a stool test and a decrease in mineral levels especially calcium, magnesium, zinc and iron.

Having mentioned these tests, Dr. Harry Eidenier and his balancing body chemistry group have correlated blood tests, stool tests and other comprehensive tests on over 10,000 patients between 1978 and the present. Included often was the use of the Heidelberg radio telegraphy machine to measure stomach acid.

Interestingly, they found that symptoms are often the best rationale for a clinical trial regardless of the lab tests. Here are the symptoms that suggest a need for hydrochloric acid: gas, burping or bloating especially when eating protein, bad breath or body odor, asthma, food or environmental allergies, intestinal parasites, loss of the taste for meat and pancreatic or biliary dysfunction. If two or more of these symptoms are present a clinical trial of hydrochloric acid should be considered.

The therapy for hypochlorhydria is as follows: take 2 tablets of Hydro-Zyme or HCl-Plus with each meal, in the middle of the meal, for 2 days. Taking hydrochloric acid in the middle of the meal is very important. We want to mimic and support normal physiologic function. After 2 days add one more tablet of the product, again in the middle of the meal.

So, on Monday, take 2 tablets for breakfast, lunch and dinner in the middle of the meal; Tuesday, take 2 with each meal; and on Wednesday, take 3 tablets with each meal.

Thursday, take 3 tablets with each meal. On Friday, take 4 tablets with each meal. Once the patient experiences a warmth in their stomach they should cut back one tablet or capsule. Maintain that dose until a warmth occurs again and continue to cut back on the dose until a maintenance dose is reached.

It is rare, but if hydrochloric acid therapy burns the patient's stomach because the stomach is too sensitive, the therapy should be discontinued and a stomach healing program should be instituted. After 30 days, return to the protocol at one tablet in the middle of each meal and then increase one tablet every other day as discussed.

Below, you can review an earlier Tuesday Minute related to this issue.

Dr. Jonathon Wright, author of the book "Why Stomach Acid is Good for You", says the stomach makes anywhere from 60-70 grains of hydrochloric acid per meal. A grain is 60 mg. HCl-Plus contains about 2 grains. Hydro-Zyme contains 2.5 grains per tablet and Betaine Plus HP contains 11.66 grains. Start with HCL-Plus or Hydro-Zyme and switch to Betaine Plus HP after the first bottle. One Betaine Plus HP is the equivalent of about 4 Hydro-Zyme tablets.

Because this is such an essential issue, Dr. Greg Peterson and I host a webinar to discuss this subject in greater depth. Details about the webinar can be found on this page.

Having a thorough understanding of digestion gives us the confidence to confront any myths patients believe about the pain relieving effects of over-the-counter acid blockers and prescription medications. And as with any subject, the more nuances we understand, the better.

Thanks for reading this week's edition. I'll see you next Tuesday.

GI-Resolve: Gut Healing Formula

" Since food sensitivities can compromise healing, GI-Resolve contains no sweeteners, flavors, colors, or other additives to sabotage gut repair. "

What percentage of your clients has gut issues? OK, you're right. ALL of them. And because everyone is different and everyone has unique tastes, we need gut healing options. And if one of those options is a liquid, tastes like mild ice tea and features ingredients backed by the most current scientific literature, we have a winner. GI-Resolve is a great tasting powder formula from Biotics Research. While other formulas contain sweeteners, flavors, colors, gums or other additives that can sabotage gut repair, GI-Resolve is the cleanest GI repair formula on the market.

Let's review the demographics of GI health: over 95 million Americans experience digestive problems, over 60 million suffer from heart burn, an estimated 20 million have stomach ulcers, over 50 million Americans suffer from irritable bowel syndrome (IBS), and we know, intestinal permeability is associated with autoim-



mune disease, chronic fatigue syndrome, fibromyalgia, arthritis, allergies, asthma, acne, and obesity.

And let's not forget the gut-brain axis. How many times have you treated gut health and your patient tells you "my anxiety is gone" or "I've got my old zip back, that cloud over my head is gone."

Two scoops in 8 ounces of water, GI-Resolve mixes well and has a mild ice tea flavor. Each serving contains 4 grams of Glutamine, 1000 mg of a shellfish-free form of N-acetyl glucosamine (NAG), 500 mg of

MSM, 400 mg of Deglycyrrhized Licorice (DGL), 300 mg of Okra, 50 mg of Aloe Vera in a 200:1 standardized extract and 50 mg of Zinc Carnosine.

You can see a link on the value of glutamine to the right.

Most of us are familiar with the properties of NAG, MSM, DGL, okra and aloe vera as mucilaginous agents. The mucus in our gut not only protects us from our own digestive enzymes and the byproducts of dysbiotic bacteria, but serves as home for the beneficial probiotics

Hydro-Zyme™ & HCl-Plus™

Nutritional Support for Digestion

The stomach produces a variety of substances that promote digestion and assimilation. Gastric juice contains hydrochloric acid and pepsinogens, precursors of the family of proteolytic enzymes called pepsins. Parietal cells produce both stomach acid and intrinsic factor, a protein required to bind vitamin B₁₂, prior to its absorption by the small intestine. The secretion of H⁺ by parietal cells requires an ATPase (H⁺, K⁺) to pump H⁺ out of the cell. Chloride ion is exported separately, so that the resulting product is HCl. The pump is activated by histamine stimulation of a cell surface receptor involving cyclic AMP. Drugs such as Omeprazole act by inhibiting this enzyme.

Hydrochloric acid is a strong mineral acid which functions to maintain gastric pH between 1.5 to 2.5. Acidity serves three important roles; low pH kills microorganisms in food, it activates pepsinogen, and it unfolds (denatures) proteins, making them more accessible to proteolytic degradation. The gastric lining is protected from the strong acidic environment by a thick layer of mucus.

The incidence of low stomach acid (hypochlorhydria) increases with age. Atrophic gastritis occurs in 20% to 30% of healthy, elderly, individuals, and is the most common cause of reduced gastric acid production⁽¹⁾. An estimated 30-50% of people over the age of 60 are believed to produce inadequate stomach acid,⁽²⁾ although, only 16% hyposecretors in healthy elderly people has been reported⁽³⁾. In extreme cases, the stomach does not produce acid (achlorhydria) and gastric pH approaches neutrality. Other causes of low gastric acid production include malnutrition and excessive use of antacids and H₂ receptor antagonists.

Inadequate stomach acid is linked to maldigestion. This can promote inadequate mineral uptake, due to malabsorption of iron, calcium, zinc and others,⁽²⁾ and increased risk of intestinal infections due to *Candida albicans* and parasites^(1,4). In diabetics, the prevalence of achlorhydria, together with related anemia due to vitamin B₁₂ malabsorption, has been estimated to range from 12 to 41%⁽⁵⁾. Achlorhydria and hypochlorhydria have been linked to peptic ulcer disease and to *Helicobacter pylori* overgrowth⁽⁶⁾. Hypochlorhydria can also cause an increased bacterial colonization of the small intestine. (In addition to gastric acid, other factors that limit bacterial colonization include normal bile flow and peristalsis.) It has also been suggested that gastric acid acts as an antitumor defense, and that achlorhydria predisposes patients to gastric cancer⁽⁷⁾.

Nutrients that Support the Formation of Gastric Acid

Betaine HCl and Glutamic Acid HCl. Betaine is trimethylglycine, a normal metabolite and a methyl donor. In the protonated form, betaine HCl gives up a proton and chloride ion in aqueous solutions, that is, hydrochloric acid.

Therefore, betaine hydrochloride represents a dietary source of hydrochloric acid⁽²⁾. (When protonated with HCl, glutamic acid yields hydrochloric acid in aqueous solutions.) Like betaine HCl, glutamic acid HCl represents a supplemental form of gastric acid.

Ammonium Chloride. Gastric cells require chloride as the raw material for hydrochloric acid production. Excreted chloride ion is reabsorbed by the intestine after a meal, causing a temporary, postprandial rise in serum chloride levels. Chloride represents a major anion electrolyte required to maintain optimal pH, and to maintain osmotic balance in the body.

Vitamin B₆. The absorption of pyridoxal phosphate is positively influenced by gastric acid secretion⁽⁸⁾. Vitamin B₆ deficiency is linked to deficiencies of trace minerals.

Pancreatin is a commercial preparation of porcine pancreas, highly enriched in pancreatic enzymes, including trypsin, chymotrypsin, carboxypeptidase, as well as amylase (starch digestion) and lipase (fat digestion). Porcine pancreatin contains these enzymes in a ratio similar to human pancreas, and the digestive enzymes of human and porcine pancreas possess similar properties. Pancreatic enzymes can be denatured by exposure to gastric acid, therefore, the pancreatin in **Hydro-Zyme™** is coated to preserve activity during transit through the gastrointestinal tract⁽⁹⁾.

A note on pancreatin activity measurement; measurement of proteolytic activity of pancreatin has been defined by the U.S. Pharmacopoeia, based upon the digestion of a standard protein, casein. Pancreatin 4X possesses 4 times the activity of pancreatin 1X (25 USP units of proteolytic activity per milligram). Therefore, 10 mg of pancreatin 4X per tablet of **Hydro-Zyme™** provides 1,000 USP units.

Proteolytic Enzymes in Digestion

A wide assortment of proteolytic enzymes (proteases) is required to degrade proteins to amino acids and peptides. They are manufactured in cells as inactive precursors called zymogens, which must be activated after they have been released into the intestinal lumen. Ingested proteins first encounter proteolytic enzymes of the stomach. Pepsin refers to a closely related group of proteases produced by the gastric mucosa. The zymogen and pepsinogen, is activated both by HCl and by autocatalytic action. This enzyme exhibits maximal activity at low pH (high gastric acid). Upon leaving the stomach, chyme, (food particles mixed with gastric juice) is



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neutralized in the intestine by bicarbonate secreted by the pancreas. (The presence of acidic chyme in the duodenum triggers pancreatic secretion.) Thus, hypochlorhydria may be associated with secondary pancreatic insufficiency. After neutralization, chyme is subjected to a battery of powerful pancreatic enzymes. The exocrine pancreas produces potent proteolytic enzyme peptidases, such as trypsin and alpha chymotrypsin, as their zymogens form, trypsinogen and chymotrypsinogen, respectively. Trypsin possesses a very high degree of peptide bond specificity in cleaving bonds adjacent to arginine and lysine. Chymotrypsin has a different substrate specificity; it cleaves peptide bonds adjacent to large, non-polar amino acids, such as aromatic amino acids and methionine. Other pancreatic proteases include elastase, which break down connective tissue. Activation of pancreatic zymogens begins in the intestine to prevent their premature activation, which could damage the pancreas. Trypsin activates most of the zymogens released into the intestine. Trypsin itself is first activated from trypsinogen by the enteric enzyme, enteropeptidase.

Pancreatic exopeptidases are represented by carboxypeptidases, which cleave amino acids from the carboxyl terminus of peptides. Carboxy-peptidases are derived from the zymogens, procarboxypeptidase A and B. Additional peptidases which serve to degrade peptides, are produced by the intestinal mucosa. For example, aminopeptidases cleave off amino acids from the N terminus of peptides.

Pancreatic secretions contain a variety of other digestive enzymes, in addition to proteases. Amylase cleaves the 2 (1-4) glycoside linkages of amylose to yield maltose molecules. These di- and tri-saccharides are hydrolyzed to glucose at the intestinal brush border. Lipase hydrolyzes triglycerides to free fatty acids and monoglycerides, in the presence of a helper polypeptide called colipase, and bile salts, which serve to emulsify digested fats.

Betaine HCl and glutamic acid HCl supplements should not be chewed. They should be taken with meals. Such supplements may be inappropriate when there are ulcerative gastrointestinal conditions and when aspirin or other analgesics are being used.

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To place your order for **Hydro-Zyme™** and **HCl-Plus™** or for additional information please contact us below.

Hydro-Zyme™ is available in 90-count (#1262) and 250-count (#1263) bottles.

Supplement Facts

Serving Size: 1 Tablet

	Amount Per Serving	% Daily Value
Vitamin B6 (as pyridoxine hydrochloride)	2 mg	100%
Betaine Hydrochloride	150 mg	*
Glutamic acid (as L-Glutamic acid hydrochloride)	50 mg	*
Ammonium Chloride	35 mg	*
Pancreatin 4X (porcine)	10 mg	*
Pepsin (1:10,000)	10 mg	*

* Daily Value not established

Other ingredients: Vegetable culture †, cellulose, stearic acid (vegetable source), modified cellulose gum, silica and food glaze.

† Specially grown, biologically active vegetable culture (from organic *Pisum sativum*, *Lens esculenta* and/or *Cicer arietinum*) containing naturally associated phytochemicals including polyphenolic compounds with SOD and catalase, dehydrated at low temperature to preserve associated enzyme factors.

This product is gluten and dairy free.

RECOMMENDATION: One (1) tablet with each meal as a dietary supplement or as otherwise directed by a healthcare professional.

KEEP OUT OF REACH OF CHILDREN

Store in a cool, dry area.
Sealed with an imprinted safety seal for your protection.

Product # 1262 Rev. 07/15

HCl-Plus™ is available in 90-count (#1230) bottles.

Supplement Facts

Serving Size: 1 Tablet

	Amount Per Serving	% Daily Value
Vitamin B6 (as pyridoxine hydrochloride)	2 mg	100%
Betaine (as betaine hydrochloride)	115 mg	*
Glutamic Acid (as L-Glutamic acid hydrochloride)	50 mg	*
Ammonium Chloride	35 mg	*
Pepsin (1:10,000)	10 mg	*

* Daily Value not established

Other ingredients: Vegetable culture †, cellulose, stearic acid (vegetable source), modified cellulose gum, and silica.

† Specially grown, biologically active vegetable culture containing naturally associated and/or organically bound phytochemicals including polyphenolic compounds with SOD and catalase, dehydrated at low temperature to preserve associated enzyme factors.

This product is gluten and dairy free.

RECOMMENDATION: One (1) tablet with each meal as a dietary supplement or as otherwise directed by a healthcare professional.

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Product # 1230 Rev. 09/14



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in our gut. But I think the all-star player in this blend is the zinc carnosine. With over 17 years as a prescription item in Japan, zinc carnosine has a long history of safety, efficacy and scientific merit.

Biotics chose the patented form of zinc carnosine, Pepzin GI, because it has been the subject of dozens of scientific papers. One study was really interesting. Heavy exercise can induce gut permeability. In a study where gut permeability was induced through exercise, zinc carnosine lessened exercise induced gut permeability by increasing epithelial resistance and tight junction structure.

Zinc carnosine also activates the Nrf2 signaling pathway. Nrf2 is a protein that is the very center of our cellular protective pathway and serves as a "master regulator" of the body's antioxidant response. Think of Nrf2 as a "thermostat" within our cells that senses the level of oxidative stress and other stressors and turns on internal protective mechanisms. Nrf2 regulates genes involved in the production of a wide range of antioxidant enzymes (including SOD, glutathione, and catalase), and detoxification or "stress-response" genes.

As you know the turnover for the intestinal GI cells is days to weeks, so most clinicians will use products like GI-Resolve for 30 days. I heard an interesting lecture by Dr. Brett Wisniewski and he made a very astute comment. He always extends gut healing programs 30 days after the pain and discomfort subside. Because the gastrointestinal milieu is so important, it takes time to repair and restore optimal function.

Personally I like the idea of taking the supplements a little longer for a different reason. Establishing good habits takes time. So an extra 30 days assures they get in the

groove. I want to make sure patients follow through with the suggestions that are relieving their symptoms.

Use 2 scoops in 8 ounces of cold water as a therapeutic dose once or twice a day for 30 days or until symptoms abate then reduce to once a day for repair.

But here's another tip Dr. Brett Wisniewski shared that I found interesting. For acute GERD or heartburn, mix 2 scoops in 2-3 ounces of water and sip slowly over a 30 minute period.

The combination of the okra, aloe vera, DGL, and zinc carnosine really put out the inflammatory fires associated with reflux. Of course, we want to be sensitive to other issues contributing to GI disturbances like: food sensitivities, hidden infections, SIBO and hypochlorhydria.

So now we have the option to use a gut healing formula that tastes like dilute ice tea, and is devoid of flavors, allergens, colors, sweeteners, or gums. GI-Resolve rejuvenates the health of intestinal mucosa, supports a healthy inflammatory response, builds immune support, and doesn't contain shellfish or other common allergens.

I suggest you make a batch of GI-Resolve and let all your patients taste it. You'll be surprised how many people will choose it over other powders on the market. And remember even if they don't have a gut issue, based on the statistics I just mentioned, they know someone who does. Taking a few moments to let your existing patients know what services you offer is the most inexpensive, purest form of marketing.

Thanks for reading this week's Tuesday Minute edition. I'll see you next Tuesday.

GI-Resolve®

Nutritional Support for Gastrointestinal Health

- Promotes optimal function of the GI lining
- Rejuvenates health of intestinal mucosa
- Supports healthy inflammatory response
- Builds immune support
- No added flavors, colors, sweeteners or gums
- Does not contain shellfish

The GI tract consist of a single contiguous layer of cells that separates the inside of the body from the external environment. The integrity of this living mucosal membrane, and the general health of the gut, is critical to overall health and well-being. Not only is its vitality necessary for the proper absorption of nutrients, the epithelial lining helps create a necessary barrier so environmental agents such as harmful toxins, allergens and microbes cannot cross the lumen of the bowel, causing inflammation. Dysfunction of the mucosal barrier may be associated with increased gut permeability and a number of gastrointestinal complications. Patients with compromised gut integrity may be prone to malabsorption of nutrients, a higher incidence of food sensitivities and other digestive issues.

GI-Resolve® combines effective clinical levels of well-researched nutrients and botanicals specifically formulated to support

optimal gastrointestinal health and function *without any added flavors, colors, sweeteners, gums or common allergens*. Carefully sourced for premium quality, the ingredients in this clean and great-tasting powder include L-Glutamine, Zinc Carnosine, N-Acetyl Glucosamine, MSM, *Aloe vera* Leaf, Okra and DGL.

L-Glutamine

GI-Resolve® contains 4 grams of the amino acid, glutamine, an important energy source for the gastrointestinal tract and precursor for growth to the intestinal lining cells. It helps maintain the integrity of the intestinal tract and enhances the protective mucosal lining. Glutamine is particularly important during times of stress, regulating intestinal barrier function in times of stress and other catabolic conditions. Furthermore, glutamine has been shown



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to stimulate the growth of the small intestinal mucosa and also enhances ion transport by the gut. A functional amino acid with multiple physiological roles, glutamine helps protect the gut from atrophy and impairment.⁽¹⁾

Elderly patients are susceptible to damaged intestinal gut lining and, therefore, malnutrition due to malabsorption. In one study, subjects with signs of intestinal atrophy were given glutamine supplementation. When the intestinal villus height and crypt depth were measured, the difference between villus and crypt was significantly improved in those subjects receiving glutamine supplementation versus the control. Therefore, glutamine may increase intestinal mass thereby improving overall function.⁽²⁾ In another study where oxidative damage to fish intestines was induced by lipid peroxidation, glutamine repaired the activity in the fish enterocytes and restored healthy glutathione production.⁽³⁾

In addition to its roles in promoting the growth of intestinal mucosa and repairing oxidative damage, oral supplementation with glutamine has also been found to positively alter the composition of the gut microbiota. A 2015 study showed the ratio *Firmucutes* to *Bacteroidetes* (a good biomarker for obesity) decreased in the group receiving glutamine.⁽⁴⁾

Zinc Carnosine

GI-Resolve® features PepZinGI® zinc carnosine, a nutrient known for its mucosal-protective properties and its ability to support the body's restorative effect on gastrointestinal dysfunction, such as ulcers.⁽⁵⁾ This trademarked ingredient has

a strong record of safety, efficacy and scientific merit. Capturing the synergy of L-carnosine and zinc, PepZinGI® is associated with antioxidant properties, membrane stabilization and tissue repair, and ushers in a new era of evidence-based dietary supplements for clinical gastroenterology. In addition to its mucosal-protective properties and restorative effects, zinc carnosine has been shown to activate the Nrf2 signaling pathway, supporting a healthy inflammatory response.⁽⁶⁾ Heavy exercise may induce gut permeability, which then increases exposure to luminal toxins. One study showed that supplementation with zinc carnosine lessened the exercise-induced gut permeability, increased epithelial resistance and enhanced tight junction formation and stabilization.⁽⁷⁾

N-Acetyl Glucosamine (NAG)

Glycosaminoglycans are normally attached to mucin and help form the protective barrier that separates bacteria from the intestinal epithelium. In certain digestive challenges, there is a widespread breakdown of glycosaminoglycans. N-actylglucosamine (NAG) is a naturally-occurring monosaccharide derivative of glucose and precursor for epithelial glycosaminoglycan synthesis. In one study, NAG was found to help improve signs of discomfort in patients with inflammatory bowel disease (IBD).⁽⁸⁾ Additionally, NAG may support the growth of beneficial gut bacteria such as *Bifidobacterium bifidum*.

MSM

Methylsulfonylmethane is an oxidized form of dimethyl sulfoxide, an organic sulfur compound

known for its support of healthy inflammation pathways and the healing of the gastric mucosa. *In vitro* studies indicate that MSM inhibits transcriptional activity of nuclear factor kappa-light-chain enhancer of activated B cells (NF-kappaB).^(9,10) MSM's inhibitory effect on NF-kappaB results in the downregulation of mRNA for interleukin (IL)-1, IL-6, and tumor necrosis factor- α (TNF- α) *in vitro*.^(11,12) Case studies of patients with joint impairment showed improvement in comfort and flexibility following supplementation with MSM.⁽¹³⁾ Also, MSM increased levels of glutathione and reduced colonic inflammatory markers such as malondialdehyde (MDA), myeloperoxidase (MPO) and cytokine IL-1 β in animals impaired with induced ulcerative colitis.⁽¹⁴⁾ Oxidative stress in the gut may exacerbate conditions such as inflammatory bowel disease. MSM has been shown to provide strong antioxidant benefits.⁽¹⁵⁾

Aloe vera Leaf

GI-Resolve® includes *Aloe vera* leaf extract to support a healthy intestinal lining. It was shown to reduce oxidative stress and support a healthy inflammatory response in rats with gastropathy.⁽¹⁶⁾ Also, by inhibiting colonic myeloperoxidase (MPO) activity, which is a marker for inflammation, *Aloe vera* was shown to have both strong antioxidant properties and spasmolytic effects.⁽¹⁷⁾

Okra

A mucilaginous herb, okra demonstrates potent antioxidant properties,⁽¹⁸⁾ and was found to exhibit strong gastroprotective effects.⁽¹⁹⁾

Deglycyrrhinated Licorice (DGL)

With antioxidant potency, along with the ability to coat and soothe the intestinal lining, licorice has a long traditional use in gastrointestinal health. Its antioxidant activity results in cytoprotective mechanisms that supports the healing of tissues damaged by inflammation, providing comfort to patients.⁽²⁰⁾ A randomized double-blind, placebo-controlled clinical trial revealed a significant improvement in symptom scores compared to the placebo group in the support of esophageal and gastric health.⁽²¹⁾ The licorice in **GI-Resolve®** has been processed to remove glycyrrhizin, which has been associated with sodium and water retention.

Recommendation:

Two (2) teaspoons mixed with eight (8) ounces of cool water, or beverage of choice as a dietary supplement or as otherwise directed by a healthcare professional.

GI-Resolve® is available in a 6.7 ounce bottle (#6417)

Supplement Facts		
Serving Size: 6.3 g (approx. 2 teaspoons)		
Servings Per Container: 30		
	Amount Per Serving	% Daily Value
Zinc (from 50mg of PepZinGI® zinc carnosine)†	11 mg	73%
L-Glutamine	4 g	*
N-Acetyl D-Glucosamine	1 g	*
MSM (methylsulfonylmethane)	500 mg	*
Licorice (Glycyrrhiza glabra) (root) (extract) (deglycyrrhized)	400 mg	*
Okra (Abelmoschus esculentus) (fruit)	300 mg	*
Aloe Vera (Aloe barbadensis) (aerial part) (200:1 extract)	50 mg	*
* Daily Value not established		

† PepZinGI® is a registered trademark of Hamari Chemicals USA, Inc.

This product is gluten dairy and shellfish free.

RECOMMENDATION: Two (2) teaspoons each day as a dietary supplement or as otherwise directed by a healthcare professional.

KEEP OUT OF REACH OF CHILDREN

Store in a cool, dry area. Sealed with an imprinted safety seal for your protection.

Product # 6417 Rev. 07/18

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