GastroMend-HP™

designs for health®

*Nutrient & botanical extract formula for healthy gastric mucosa**

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GastroMend-HP™ is a blend of botanical extracts and nutrients with specific antimicrobial activity and gastric mucosal supportive properties.* This novel combination of substances provides a valuable tool in the management of ulcers and gastritis by supporting the eradication of *H. pylori* as well as facilitating healthy gastric mucosal tissue.* It is delivered in quick-release capsules formulated for dissolution and action in the stomach and duodenum.

Supplement Facts

Serving Size 4 capsules

Amount Per Serving		% Daily Value
Vitamin C (as Ascorbic Acid)	500 mg	556%
Zinc (from Zinc L-Carnosine 75 mg)	17 mg	155%
Mastic Gum (*Pistacia lentiscus*)(sap tears)	1 g	*
Methylmethionine Sulfonium Chloride (Vitamin U)	200 mg	*
Deglycyrrhizinated Licorice Extract (GutGard®) (*Glycyrrhiza glabra*)(root) [standardized to contain 10% total flavonoids]	150 mg	*

*Daily Value not established·

Other Ingredients: Dicalcium phosphate, cellulose (capsule), vegetable stearate, tricalcium phosphate, silicon dioxide.

Available in 60 & 120 count capsules

Features of GastroMend-HP™

Mastic gum *(Pistacia lentiscus)* is a resinous substance from a tree native to Greece and has been used for over 2500 years in the Mediterranean where it is chewed like gum for the purpose of ameliorating stomach pain.[1] Modern scientific research has validated the antimicrobial properties of mastic gum, with human and in vitro studies showing it to be effective against multiple strains of *H. pylori* as well as against *E. coli* and *S. aureus*.[2-5] Mastic gum may also have anti-fungal and anti-inflammatory properties. *In vitro* studies demonstrate that mastic gum dose-dependently inhibits production of the superoxide radical and hydrogen peroxide in rodent cells treated with the inflammatory compound TNF-α.[6] Mastic gum did not scavenge the free radicals, rather, it reduced their production, leading researchers to hypothesize that this action is likely responsible for some of the anti-inflammatory activity of mastic gum. Mastic gum has been identified as a PPAR agonist, so it may favorably affect processes that result in inflammation or oxidative stress at the level of gene expression as well.[7] A randomized, double-blind trial investigating the effects of mastic gum on functional dyspepsia found that compared to placebo, mastic gum resulted in significant improvement in stomach pain in general, stomach pain when anxious, heartburn, and dull ache in the upper abdomen.[8] Human and animal studies demonstrate mastic gum's efficacy in improving duodenal ulcers and protecting against gastric ulcers.[9,10]

Methylmethionine Sulfonium (MMS) is a derivative of methionine found in raw cabbage and is often referred to as "vitamin U", although not technically a vitamin, owing to its being a food-derived factor identified as beneficial for helping with peptic ulcers. The use of MMS-rich raw cabbage juice has been studied extensively for its beneficial role in aiding healing of damaged and eroded intestinal mucosa. Human research dating back over 70 years supports the use of raw cabbage juice for dramatically improving gastric and duodenal ulcers, including among subjects who made no other changes to their diet or medication regimens.[11-14] The antacid drug famotidine typically suppresses the synthesis and accumulation of mucin. Research in rodents shows that oral administration of MMS protects against this suppression.[15] Anticonvulsant treatment with valproic acid (VPA) has been demonstrated to lead to gastritis and other gastric disturbances in some patients. Animal models show that MMS protects against VPA-induced damage to the liver, kidneys and eyes, likely owing to anti-inflammatory and antioxidant properties. It is possible this compound may exert similar effects in gastric tissue.[16-18]

Deglycyrrhizinated Licorice (DGL) is a well-established anti-ulcer and mucosal supportive botanical. DGL is a mucilaginous herb that supports healthy intestinal function by coating and soothing the intestinal lining and promoting the healing of ulcers and inflamed tissue. Being ultra-low in *glycyrrhizin*, DGL exerts its beneficial gastric effects without the potential side-effects of high-dose full-spectrum licorice consumption (e.g., hypertension, hypokalemia or fluid retention). GastroMend-HP™ provides DGL as GutGard®, a patented form of highly concentrated, flavonoid-rich licorice extract. The strong potency of GutGard® makes it effective at one tenth the dose of conventional DGL extracts for decreasing the ulcer index and increasing the pH of gastric fluid (shown in rodent models).[19] Regarding anti-inflammatory effects, an in vitro study in murine macrophages and human neutrophils showed that GutGard® inhibits synthesis of the inflammatory prostaglandin PGE2 and activity of enzymes involved in inflammation (COX and LOX).[20]

A randomized, double-blind, placebo-controlled study evaluating the efficacy of GutGard® in adults with functional dyspepsia showed that compared to placebo, taking 150 mg of GutGard® (the amount provided in one 4-capsule serving of GastroMend-HP™) resulted in significant reduction in total symptom scores in as little as 15 days, with reduction increasing further at 30 days.[21] GutGard® promoted marked improvement or total resolution in 60% of subjects compared to over 50% experiencing no change while taking placebo. Improvements were noted in heartburn, nausea, belching, vomiting, regurgitation, loss of appetite, and upper abdominal fullness and pain. Contributing mechanisms may be that GutGard® improves gastric motility, significantly increases gastric emptying and improves GI transit time, as was shown in a rodent model of functional dyspepsia.[22]

GutGard® showed similarly impressive effects against *H. pylori* in a double-blind RCT in adults positive for *H. pylori* (verified via stool and breath testing).[23] On day 60, stool testing showed more than half the subjects receiving GutGard® to be *H. pylori* negative, compared to just 4% in the placebo group. Breath testing showed nearly half (48%) of GutGard® subjects to be *H. pylori* negative compared to 2% receiving placebo. Regarding mechanisms, licorice flavonoids have powerful antimicrobial activity against *H. pylori*, including against strains resistant to clarithromycin and amoxicillin.[24,25] GutGard® was demonstrated in vitro to inhibit *H. pylori* protein synthesis, DNA gyrase and dihydrofolate reductase.[26] In vitro research also shows that DGL extract inhibits the adhesion of *H. pylori* to human stomach tissue—an effect believed to be related to the polysaccharides isolated from DGL (similar to the well-known role of cranberry compounds preventing adhesion of UTI-causing bacteria in the bladder).[27] Isolated DGL polysaccharides did not show direct cytotoxic effects against *H. pylori*, so select compounds in DGL appear to be effective for preventing initial *H. pylori* colonization, while other compounds with antimicrobial, antiviral and anti-inflammatory properties may be responsible for the observed antiproliferative effects.[26,28]

Zinc Carnosine is included in GastroMend-HP™ based on research showing zinc to have beneficial effects for supporting gastric tissue, such as combating *H. pylori*, supporting the mucosal layer and protecting against ulceration.[29] This extends to protecting the intestinal lining against damage induced by anti-inflammatory medications often associated with intestinal mucosal damage. Compared to placebo, zinc carnosine was shown to neutralize the effect of the NSAID indomethacin on increasing gut permeability in healthy human subjects. (The placebo arm experienced a three-fold increase in gut permeability while the zinc-treated group showed no significant change.[25]) In a trial of patients with small bowel injury induced by extended use of low-dose aspirin, compared to untreated controls, subjects taking zinc carnosine for four weeks showed significant reductions in the number of reddened lesions and erosions/ulcers, confirmed by capsule endoscopy before and after.[31] Zinc carnosine—zinc complexed with the amino acid L-carnosine in a 1:1 chelate—is the preferred form of zinc for this formula because it remains in stomach juice without rapid dissociation and adheres to ulcerous lesions more effectively, after which the L-carnosine and zinc are separated and have beneficial effects on the affected tissue.[32,33]

Vitamin C is included for its anti-*H. pylori* activity as well as its role in tissue regeneration. Vitamin C may be effective both restoratively and prophylactically, although more evidence supports the latter. Low levels of vitamin C in serum and gastric juices have been consistently found in subjects with gastritis and peptic ulcers associated with *H. pylori*.[34] Research indicates a high concentration of vitamin C in gastric juice may inactivate *H. pylori* urease, an enzyme the organism uses to protect itself against the acidic environment of the stomach, allowing it to colonize.[35] As vitamin C is needed for wound healing, it has been shown that patients with bleeding peptic ulcers have lower vitamin C levels than patients with non-bleeding ulcers. Vitamin C deficiency is associated with all forms of gastritis, including autoimmune (pernicious anemia), experimentally induced, and due to *H. pylori*. Researchers note that *H. pylori*-induced gastric inflammation "can decimate total body ascorbic acid stores by continually quenching high levels of ascorbic acid at inflammatory sites and destroying it in a hypochlorhydric environment."[36] Since vitamin C deficiency may be as much a result as a contributor to these issues, it is prudent to include vitamin C in a formula designed for patients with gastric inflammatory conditions. Regarding gastric health in general, it is hypothesized that vitamin C may have a role in protecting against gastric cancer induced by N-nitroso compounds, known to be carcinogenic. Vitamin C may help inhibit formation of N-nitroso compounds in gastric juice.[37]

Recommended Use:

- As a dietary supplement, take four capsules per day between meals, or as directed by your health care practitioner (divided dosing recommended).

For a list of references cited in this document, please visit:

https://www.designsforhealth.com/techsheet-references/gastromend-hp-references.pdf

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities. Individual monitoring, including liver function tests, may be appropriate.

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.