



# Motility Activator

- Stimulates Gastric Motility and Emptying
- Promotes Cleansing of the Gut
- Supports Microbial Balance in the GI Tract

## GASTROINTESTINAL SUPPORT

Motility Activator is a combination of ginger (*Zingiber officinale*) and artichoke leaf extract (*Cynara cardunculus L.*) delivered at a clinically proven dose to restore gastric motility. This distinctive blend of bioactives promotes contractions in the migrating motor complex, helping to restore proper motility, which ensures the steady flow of food particles and bacteria through the small intestine. In addition, it provides support for improved digestion and relief from gas, bloating and associated GI discomfort.

### Overview

Motility in the GI tract describes the movement of food and other substances through the stomach, small intestine, large intestine and eventually out of the body. In between meals, the migrating motor complex (MMC) is a cycle of peristaltic movement that acts as an inter-digestive housekeeper of the GI tract. The MMC facilitates transport of indigestible substances and bacteria from the stomach and small intestine into the colon, inhibiting the backward migration of colonic bacteria and an overgrowth of bacteria in the small intestine. It has been shown that motility impairment typically results in small intestinal bacterial overgrowth (SIBO).<sup>1</sup> MMC activity varies widely across individuals, and can become impaired for several reasons, including stress,<sup>2</sup> medications,<sup>3</sup> sluggish thyroid function<sup>4</sup> and even autoimmunity associated with cytotoxic distending toxins.<sup>5</sup>

When it comes to the most sensitive patients with SIBO or multiple symptoms of GI discomfort, it is important to choose a proven solution that stimulates motility yet is gentle and effective. Clinical studies on the standardized combination of ginger and artichoke extracts in Motility Activator have

demonstrated a unique ability to stimulate gastric motility and relieve temporary GI discomfort.

### Artichoke Leaf Extract (*Cynara cardunculus L.*)

Artichoke leaf (*Cynara cardunculus L.*) has been used for centuries to stimulate bile secretion and enhance overall liver function which help to restore gut motility and improve digestion.<sup>6,7</sup> Cynaropicrin, the bitter compound found in artichoke leaf extract, along with other polyphenols, such as caffeoylquinic acids and flavonoids, have antioxidant and hepatoprotective potential and contribute to the alleviation of an impressive range of GI symptoms.<sup>8,9</sup> In fact, in a randomized, double-blind, placebo-controlled trial, the combined supplementation with artichoke (100 mg) and ginger extract (20 mg), twice per day before lunch and dinner for 14 days, was shown to improve occasional acid indigestion.<sup>10</sup> Artichoke has been said to complement the therapeutic effects of ginger as the former acts on the small intestine while the latter, on the stomach.

### Ginger Root Extract (*Zingiber officinale Roscoe*)

The therapeutic applications of ginger root (*Zingiber officinale Roscoe*) are vast and well-documented by both human and animal data.<sup>11</sup> The therapeutic effects of ginger root reach far beyond its well-recognized role in alleviating nausea and vomiting and include its role as a carminative, spasmolytic, and as a digestive stimulatory agent. For example, compared with placebo, supplementation with a combination of ginger root extract (20 mg) and artichoke leaf extract (100 mg) resulted in a -24% difference in the after-meal gastric area, indicating improved gastric emptying.<sup>12</sup> Additional human studies corroborate this finding showing ginger supplementation stimulates antral contractions in the stomach and consequently



accelerates gastric emptying compared to placebo.<sup>13,14</sup> Preclinical studies suggest the active components in ginger; namely, [6]-gingerol, [8]-gingerol, [10]-gingerol and [6]-shogaol, may affect gastrointestinal motility through interaction with serotonergic receptors.<sup>15,16,17</sup> Additional human data (using the same 120 mg extract described above) suggest additional gastrointestinal benefits for the combination including improved nausea, epigastric fullness and bloating after four weeks of daily supplementation before lunch and dinner.<sup>10</sup> Ginger has also shown to help maintain microbial balance. Supplementation with 3 g/day of ginger for four weeks has been shown to remove unwanted organisms in gastric area and improve occasional acid indigestion with symptoms of gastric fullness, early satiety, nausea, belching, and gastric discomfort.<sup>18</sup>

## Directions

1 capsule per day on an empty stomach, or as recommended by your health care professional.

## Does Not Contain

Gluten, corn, yeast, artificial colors, and flavors.

## Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts <sup>v1</sup>		
Serving Size 1 Capsule		
Servings Per Container 60		
	Amount Per Serving	%Daily Value
Calcium	30 mg	2%
Motility Blend (Prodigest®)	320 mg	
Artichoke Leaf Extract ( <i>Cynara cardunculus</i> L.)	100 mg	*
Ginger Root Extract ( <i>Zingiber officinale</i> Roscoe)	20 mg	*
* Daily Value not established.		

## References

1. Pimentel M, Soffer EE, Chow EJ, Kong Y, Lin HC (December 2002). "Lower frequency of MMC is found in IBS subjects with abnormal lactulose breath test, suggesting bacterial overgrowth". *Digestive Diseases and Sciences*. 47 (12): 2639–43
2. Kumar D, Wingate DL (November 1985). "The irritable bowel syndrome: a paroxysmal motor disorder". *Lancet*. 2 (8462): 973–7.
3. Kueppers PM, Miller TA, Chen CY, Smith GS, Rodriguez LF, Moody FG (March 1993). "Effect of total parenteral nutrition plus morphine on bacterial translocation in rats". *Annals of Surgery*. 217 (3): 286–92.
4. Yaylali O, Kirac S, Yilmaz M, et al. Does hypothyroidism affect gastrointestinal motility?. *Gastroenterol Res Pract*. 2009;2009:529802. doi:10.1155/2009/529802
5. Pimentel M, Morales W, Pokkunuri V, Brikos C, Kim SM, Kim SE, et al. (May 2015). "Autoimmunity Links Vinculin to the Pathophysiology of Chronic Functional Bowel Changes Following *Campylobacter jejuni* Infection in a Rat Model". *Digestive Diseases and Sciences*. 60 (5): 1195–205.
6. Salem M, Affes H, Ksouda K, et al. Pharmacological Studies of Artichoke Leaf Extract and Their Health Benefits. *Plant Foods for Human Nutrition*. 2015;70(4):441-453.
7. Holtmann G, Adam B, Haag S, Collet W, Grünewald E, Windeck T. Efficacy of artichoke leaf extract in the treatment of patients with functional dyspepsia: a six-week placebo-controlled, double-blind, multicentre trial. *Alimentary pharmacology & therapeutics*. 2003;18(11-12):1099-1105.
8. Zayed A, Serag A, Farag MA. *Cynara cardunculus* L.: Outgoing and potential trends of phytochemical, industrial, nutritive and medicinal merits. *Journal of Functional Foods*. 2020;69:103937.
9. Elsebai MF, Mocan A, Atanasov AG. Cynaropicrin: A Comprehensive Research Review and Therapeutic Potential As an Anti-Hepatitis C Virus Agent. *Front Pharmacol*. 2016;7:472-472.
10. Giacosa A, Guido D, Grassi M, et al. The Effect of Ginger (*Zingiber officinalis*) and Artichoke (*Cynara cardunculus*) Extract Supplementation on Functional Dyspepsia: A Randomised, Double-Blind, and Placebo-Controlled Clinical Trial. *Evidence-based complementary and alternative medicine : eCAM*. 2015;2015:915087.

11. Nikkhah Bodagh M, Maleki I, Hekmatdoost A. Ginger in gastrointestinal disorders: A systematic review of clinical trials. *Food Sci Nutr*. 2018;7(1):96-108.
12. Lazzini S, Polinelli W, Riva A, Morazzoni P, Bombardelli E. The effect of ginger (*Zingiber officinalis*) and artichoke (*Cynara cardunculus*) extract supplementation on gastric motility: a pilot randomized study in healthy volunteers. *European review for medical and pharmacological sciences*. 2016;20(1):146-149.
13. Wu KL, Rayner CK, Chuah SK, et al. Effects of ginger on gastric emptying and motility in healthy humans. *Eur J Gastroenterol Hepatol*. 2008;20(5):436-440.
14. Hu M-L, Rayner C, Wu K-L, et al. Effect of ginger on gastric motility and symptoms of functional dyspepsia. *World journal of gastroenterology : WJG*. 2011;17:105-110.
15. Terry N, Margolis KG. Serotonergic Mechanisms Regulating the GI Tract: Experimental Evidence and Therapeutic Relevance. *Handb Exp Pharmacol*. 2017;239:319-342.
16. Pertz HH, Lehmann J, Roth-Ehrang R, Elz S. Effects of ginger constituents on the gastrointestinal tract: role of cholinergic M3 and serotonergic 5-HT3 and 5-HT4 receptors. *Planta medica*. 2011;77(10):973-978.
17. Abdel-Aziz H, Nahrstedt A, Petereit F, Windeck T, Ploch M, Verspohl EJ. 5-HT3 receptor blocking activity of arylalkanes isolated from the rhizome of *Zingiber officinale*. *Planta medica*. 2005;71(7):609-616.
18. Ebrahimzadeh Attari V, Somi MH, Asghari Jafarabadi M, Ostadrahimi A, Moaddab SY, Lotfi N. The Gastro-protective Effect of Ginger (*Zingiber officinale* Roscoe) in *Helicobacter pylori* Positive Functional Dyspepsia. *Adv Pharm Bull*. 2019 Jun;9(2):321-324. doi: 10.15171/apb.2019.038. Epub 2019 Jun 1. PMID: 31380260; PMCID: PMC6664109.