



Gastro*p*aresis & **D**ysmotilities **A**ssociation

Gas Bloating Belching

When these symptoms are
Challenging

This pamphlet is one in a series discussing
symptoms and symptom management for
patients living with **Digestive Motility
Diseases.**

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What is Digestive Motility?

The digestive tract is a long, hollow, muscular organ which processes your food. This processing action; churning, kneading, mixing with digestive juices, and synchronized waves of propulsion, is called "Motility."

Altered or abnormal Motility (Dysmotility)

Many diseases of the digestive tract can alter motility and when this occurs, symptoms result.

- Rapid motility may result in diarrhea.
- Spasms or unsynchronized motility may result in painful cramps.
- Increased 'visceral' (gut) sensitivity is not a problem of altered motility, but reflects abnormal sensitivity within the digestive tract's nervous system and be one cause for the sensation of pain.
- Weakened motility or paralyzed motility represents digestive failure.

Digestive Motility Diseases are a group of digestive diseases that share characteristics of weak to paralyzed motility. Any region of the digestive tract can be affected and each region has its own diagnostic label. They are primarily diseases of the enteric nervous system and/or muscles within the digestive tract. **Enteric** is the medical term that refers to the gut. Weakened motility means food and secretions do not move. Instead, they pool and just sit, or are vomited back up. This group of digestive diseases may mimic a bowel obstruction, hence are often called **functional obstructions** or pseudo-obstructions. There is no obstruction to be found, but the obstructive symptoms are the result of faltering motility. These

The four main types of Digestive Motility Diseases are:

Gastroparesis (GP): is the most common. Gastro means stomach and paresis means weakness. It frequently is found in association with dysmotilities of the esophagus and the small intestine.

Chronic Intestinal Pseudo-obstruction (CIP): Is the digestive motility disease that primarily affects the small intestines, but is frequently found in association with Gastroparesis and may progress to complete digestive failure.

Colonic Inertia: the motility disease that primarily affects the large intestine, and may progress to CIP and GP.

Achalasia: is the digestive motility disease that affects the esophagus

Diseases or Disorders?

This group of digestive diseases has also been called: Gastrointestinal (Digestive) Motility **Disorders**. However, individuals who are severely affected show cellular abnormalities on full-thickness biopsies. Therefore, "disease" is a more accurate term.

When Gas, Bloating and Belching are more than a nuisance.

Everyone has suffered from the effects of too much gas, but for patients with motility problems, these symptoms can be enormously challenging and painful. They go beyond just a nuisance problem and may instead interfere with everyday routines.

Symptoms?

Gas is responsible for the symptoms of belching and bloating.

Belching...

Gas will follow the path of least resistance and rise upwards. When excess amounts accumulate in the stomach, usually from swallowed air, then pressure is felt. Contractions of the abdominal muscles help to forcibly expel the gas through the **valve** at the top of the stomach – up the esophagus and out through the mouth.

This valve is called the “Lower Esophageal Sphincter” or “LES.” Individuals with upper digestive motility problems usually suffer with a great deal of ‘acid reflux’ and / or regurgitation (please see our pamphlet on Gastro-esophageal Reflux Disease) created by the pooling of contents not moving along the digestive tract.

To control excess refluxing, a surgical procedure may be performed to convert the two way valve of the LES into a one way valve. This procedure, called a fundoplication and usually effectively controls refluxing, however; it can also prevent belching and vomiting. A resulting “gas bloat” can be a painful problem post fundoplication.

Bloating...

Gas may normally accumulate within the small intestine or colon. It is easily moved along by normal motility, and everyone has experienced embarrassing, odorous social encounters. But, when *motility is sluggish*, as in digestive motility problems, then gas accumulates within the loops of the small intestine, resulting in sensations of bloating and even visible distention. The belly can swell-up causing the skin to stretch and become painful to touch. Pants have to be undone or loosened because of the expanded, tender abdomen.

Gas is normal.

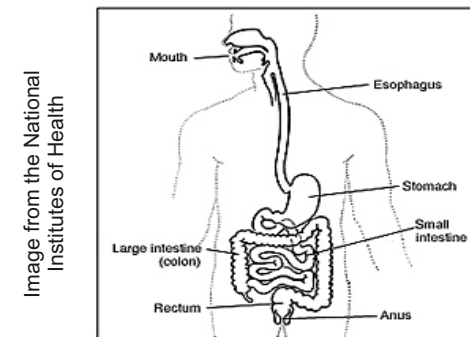
Everyone swallows some air and everyone produces gas as a by-product of the teeming bacteria which happily co-exist in our large intestine (colon). The amount of gas that an individual produces varies – depending upon diet and types of bacteria in the gut – from approximately ½ to 2 liters every day.

Compromised digestive motility compounds the management of ‘normal’ amounts of gas creating painful symptoms.

Slow Motility and Gas.

Slow motility in the upper digestive region will cause problems even with normal amounts of swallowed air during a meal. As well, loops of the small intestine can become filled with air, which does not move along. Instead it may continue to accumulate, distending the abdomen. These air filled loops will even show-up on an abdominal x-ray. This sluggish motility can also cause bacteria to proliferate throughout the small intestine and even into the stomach. These abnormally increased populations of bacteria in the upper digestive region produce high amounts of gas (hydrogen or methane) leading to pronounced abdominal distention, pain and belching, along with problems of digestion. To learn more about Small Bowel Bacterial Overgrowth (SBBO), please see our pamphlet on this topic.

For the lower digestive tract, slowed motility can cause problems of stool accumulation throughout the colon, or in severe situations, stool impaction. This impaction can create an intermittent blockage that allows gas to accumulate causing distention, bloating, pain and other obstructive symptoms.



Gas and Abdominal Pain.

Abnormalities of motility are thought to be associated with **abnormal sensitivity**. This increased sensitivity to normal volumes of gas may result in pain. For some who suffer with “*functional abdominal pain*” (pain that has no known cause), it is believed that abnormal motility and sensitivity may be the source of pain.

Splenic-flexure syndrome is a chronic abdominal pain disorder triggered by trapped gas at the left flexure (bend) of the large colon. This flexure is located where the large colon runs horizontally then bends downwards towards the rectum. This bend occurs near the spleen--hence the name ‘splenic flexure.’ Trapped gas in this location can cause pain to be felt in the chest region. Called ‘referred pain,’ since the pain is felt in a region distant from the source, it can mimic heart disease. Gas trapped in the right flexure can mimic pain of gall bladder disease or appendicitis.

Too much gas. Poor Digestion of Sugars.

Incomplete digestion of sugars: can result from chronic inflammation in the lining of the small intestine.

Even in an acute inflammation, caused from common infections like:

- Bacterial food poisoning,
- Viral infections of the gut (gastroenteritis or ‘stomach flu’),
- Parasitic infections of the gut, example Giardia, or cryptosporidium...

will create a lingering problem of poor sugar digestion.

In the small intestine – the villi – or, “finger like” protrusions provide the necessary surface area for absorbing nutrients and digestion of food sugars (lactose, fructose and sorbitol). Acute inflammation mows down these villi and may take as long as 6 months to heal post gastroenteritis before your body is once again adequately able to digest sugars.

Some individuals can develop Gastroparesis after an intestinal infection. What may compound their Gastroparetic symptoms is the additional problem of poor sugar digestion.

Symptoms of poor sugar (carbohydrate) digestion.

Within an hour or two after eating the offending carbohydrate, symptoms may occur of:

- Belching,
- Bloating,
- Nausea
- Smelly gas (flatulence),
- Abdominal cramps, and
- Loose stools or watery diarrhea.

Tests for poor sugar digestion.

A “Hydrogen Breath Test” is commonly used to test for specific sugars that may be creating these symptoms. This test consists of drinking a carbohydrate. Then samples of expired air are collected over two hours. Individuals with delayed stomach emptying (Gastroparesis) and small bowel dysmotilities may take longer to complete this test.

A blood test is also available.

Sugars that cause problems:

- Lactose:** The sugar found in milk and milk products. Yogurt however is not a problem since the lactose has already been broken down by the bacterial culture used to ferment the yogurt.
- Fructose:** The sugar found in fruits, onions, and artichokes
- Sorbitol:** Used as an artificial sweetener, but also found in prunes, pears, peaches and grapes.
- Starches:** Starches found in whole grains, bran or wheat cereals can cause major bouts of bloating and gas. The starch in white rice is well tolerated and causes the least problems.
- Raffinose:** is a complex carbohydrate found in beans, cabbage, brussels sprouts, broccoli, asparagus and other vegetables as well as some whole grains.

An individual may be sensitive only to one particular sugar like Lactose and digest the other sugars without difficulty. A dietitian can provide guidance with a diet elimination to help sort out these sensitivities.

Other gas producing factors are smoking, and gum chewing. These habits result in swallowing large amounts of air.

Other conditions that can promote increased gas production.

- Crohn's disease**, one of the inflammatory bowel diseases.
- Adhesions**, scar tissue from abdominal surgery.
- Celiac disease**, thought to be a genetic disorder resulting in the inability to digest gluten, a cereal grain protein.
- Helicobacter pylori**, the bacteria associated with stomach ulcers.
- Hiatal Hernia**, a problem where part of the stomach protrudes, or slides-up through the diaphragm and into the chest cavity.
- Diverticula**, (small protruding pockets form from a weakness in the wall of the large intestine).
- Food allergies**, may lead to inflammation of the digestive system.
- Pancreatic insufficiency**.
- Gall bladder insufficiency**.
- Achalasia**, (an esophageal dysmotility).

These listed medical conditions also have other associated symptoms besides gas.

Of special concern for patients with digestive motility diseases: malabsorption syndrome caused by Small Bowel Bacterial Overgrowth (SBBO).

SBBO causes problems with excess gas, bloating and belching and may lead to an insidious malnourishment. It has other symptoms as well, and can be a serious problem for patients with motility diseases. To learn more, please see our pamphlet on this topic.

Treating Gas.

Diet:

Diet elimination can be an effective means to help identify foods that are creating a problem. This is usually the first thing recommended, yet for patients with digestive motility diseases, this may mean cutting out healthy foods and further restricting calories. Caution is advised, since calorie intake is probably already restricted due to the symptoms caused by motility disease.

Professional advice should be sought. It may be difficult to find a nutritionist who is familiar with digestive motility diseases. So be sure to ask questions and use common sense.

Nonprescription remedies

There are a good variety of over-the-counter or non-prescription products that can help reduce the symptoms of gas, bloating and belching. These preparations should be taken before eating.

Simethicone, an ingredient found in a number of different preparations, is a 'foaming agent' that helps to bind-up gas bubbles.

Activated Charcoal, comes in tablets. Trade name: Charcocaps, may be purchased in health food stores, or from alternative medicine practitioners. It provides effective relief from gas in the colon.

Digestive enzymes, luckily there are a wide variety of digestive enzymes that can be taken to help digest selective sugars like lactose or help to break down the gas-producing sugars in beans. Digestive enzymes are now available to help digest proteins, fats, and all sugars. This is very beneficial to people who also have pancreatic insufficiency.

Enteric Coated Peppermint may help ease problems of bloating, but watch out, this can greatly increase stomach acid refluxing.

Restoring 'good bacteria' in the gut is best achieved, for those who can tolerate it, by eating yoghurt (at least one cup / day). Choose organic brands since they contain 4 or 5 active bacterial cultures.

Prescription medications that promote motility.

Drugs which help improve motility – called promotility or prokinetics – will also help to move gas through the digestive tract. These drugs have not been specifically formulated for gas, bloating and belching; but, enhancement of motility usually helps to ease these symptoms along with the other debilitating symptoms from digestive motility diseases. Working closely with your physician and thoughtful medication trials may bring some level of relief.

The common prokinetics drugs are:

Cisapride (Propulsid), Available only on compassionate release program in the United States and Canada,

Tegaserod (Zelnorm™),

Domperidone (Motilium™),

Metoclopramide (Reglan™ / Maxeran™),

Erythromycin.

Physical measures to help control gas.

Some measures to try and help control symptoms:

- Eat more slowly and smaller meals,
- Avoid lying down after eating,
- Wear loose fitting clothing,
- Dentures should be snug fitting.

Dumping Syndrome.

What is “dumping syndrome,” and how does it play a role in abdominal bloating?

Dumping Syndrome occurs when food or liquids empty too rapidly from the stomach. This rapid emptying can trigger an array of symptoms that may be easily confused with other disorders.

Ironically, people with delayed gastric emptying (as found in Gastroparesis), though they have delayed emptying for solid food, may actually have a rapid emptying of liquids from their stomach. This rapid liquid emptying can trigger symptoms of dumping syndrome. One primary symptom which may result is significant **abdominal bloating**.

Dumping syndrome was once a common disabling complication resulting after stomach surgery for the treatment of severe peptic ulcers. Fortunately, effective medical management of peptic ulcers has greatly reduced the need for gastric surgery.

Today, a common surgery used to control severe acid reflux disease called – fundoplication – may result in a complication of vagal nerve impingement, causing: delay of solid foods, with a dumping of liquids; producing a complex motor abnormality within the stomach.

Testing for Dumping Syndrome

Gastric emptying studies are used to look for either rapid emptying or delayed emptying of the stomach.

A “solid phase” gastric emptying test may reveal delayed gastric emptying (Gastroparesis) or rapid emptying (Dumping syndrome) of solid food.

A “liquid phase” gastric emptying test can help detect abnormal emptying of liquids.

It may be possible to have a delay in solid emptying and a rapid liquid emptying, showing a complex disorder of abnormal gastric motility.

Symptoms of Dumping Syndrome.

Rapid emptying of **liquids** from the stomach usually results in abrupt and dramatic symptoms a few minutes to an hour after eating.

Symptoms may include:

- ~Bloating,
- ~Abdominal cramping,
- ~Nausea,
- ~Explosive diarrhea,
- ~Skin flushing, pounding heart,
- ~Shortness of breath, weakness, dizziness,
- ~Headache, and a desire to lie down.

Some of these symptoms may be attributed to a rapid fall in blood sugar as a result of food or liquid entering the small intestine more quickly than it should.

Treating Dumping Syndrome.

A variety of treatments are available--medical, dietary and surgical. Choice of treatments may depend upon the cause and severity of your symptoms.

Most often, symptoms are mild and respond very well to dietary manipulation. If you have been diagnosed with dumping syndrome, then consult with a dietitian to tailor an individual treatment plan.

Dietary management.

Some general dietary tips can help limit symptoms. They include:

- ~Try to limit 'simple' sugars and a diet high in carbohydrates.
- ~Avoid drinking liquids with your meals, and instead...
- ~Consume liquids between meals.
- ~Eat frequent, small meals.
- ~Milk and milk products may not be well tolerated.
- ~It may be helpful to lie down for half an hour after eating.

Medications may be prescribed to help control symptoms of Dumping Syndrome. One class of medications that have been used are called, "anti-cholenergic" medications. This pharmacological family of drugs may not be a good choice for people who have a Digestive Motility Disease like Gastroparesis. Be sure to discuss this with your doctor.

Treating Dumping Syndrome with Oleic Acid.

Under the guidance of your physician, a clever and safe nutritional treatment approach can be tried using Oleic acid. Oleic acid is a natural fatty acid found in animal and vegetable oils.

This treatment approach manipulates the body's own physiological response to fatty acids. It helps to slow the dumping and lessen symptoms.

Dr. Robert Summers, former president of the American Motility Society, is an advocate for this treatment.

For this treatment to work it is important that you do not smoke or take medications like Lomotil, or other anti-cholenergetic medications.

This treatment requires the use of **'pure' Oleic acid**. Oleic acid, in its pure form, may only be obtained from a chemical supply house or purchased "on-line" using the internet.

You will also need Ensure or Boost (nutritional supplements) in which to mix the Oleic acid and make it more palatable.

Next, mix one teaspoon (5 ml) of Oleic acid with an equal amount of Ensure or Boost. Emulsify these two ingredients using a blender or whip (emulsify means to "whip-it-up," insuring the Oleic acid is well mixed). Drink this mixture 15 to 20 minutes before your planned meal.

Oleic acid is used in the food industry to make synthetic butters and cheeses. It is also used as a flavoring additive in ice cream, candy and baked goods.

Oleic acid is found in abundance, along with other fatty acids, in olive oil and cocoa butter.

Quick facts on gas.

- Belching is usually the result of excess swallowed air, however some conditions like Giardia, Small Bowel Bacterial Overgrowth (SBBO), H. Pylori, or delayed gastric emptying (Gastroparesis) can cause abnormally excessive belching.
- Intermittent bloating and distention of the abdomen may be caused by formation of excess intestinal gas. This may be caused by the inability of the body to fully digest some sugars. The most common culprits are: Lactose, Sorbitol, Fructose, and starches found in whole grains. As well, after a meal, intestinal dysmotilities and Gastroparesis can cause gas to get trapped in the stomach and loops of the intestines from sluggish motility.
- Medical tests are available to evaluate for: the poor digestion of some sugars, SBBO, H. Pylori, parasitic infections, and dysmotilities of the digestive system.
- Foods normally recommended to help control gas should be avoided by individuals with Gastroparesis or small bowel dysmotilities. Foods like high fiber, psyllium, bran cereals can actually *increase* symptoms of gas and bloating.
- Individuals needing Enteral (feeding via a tube inserted into the small intestine) or Parenteral (special type of intravenous feeding) nutrition have specialized needs and should consult with their nutritionist to help control symptoms of gas, bloating and belching.
- A variety of digestive enzymes are available and can help to break-down fats and sugars that may cause excess gas.
- Eat smaller, frequent meals, eat slowly, avoid the use of straws, gum chewing and smoking. Let 'fizzy' drinks go flat before consuming the them.
- Use simethicone, activated charcoal and try consuming, if tolerated, at least one cup of yogurt (**organic brands are better because they contain more bacterial cultures**) each day to restore the balance of 'good bacteria.'