

# DIGESTIVE DISORDERS – A *Wellness Rx* LLC. Report

## FACTS

- Estimated that some form of digestive disorder affects over 100 million Americans or 1/3rd of U.S.
- Worldwide, digestive disorders vary widely depending on diet, history and culture. For example, less problems in Asian cultures; more problems in Eastern European nations.
- Modern diets has resulted in 44% of Americans being afflicted with heartburn, 5% of population with peptic ulcer disease (caused by bacteria) and 20-40% plagued by non-ulcer dyspepsia (upset stomach or indigestion).
- Digestive system includes mouth and salivary glands, stomach, small and large intestines, colon, liver and pancreas, and the gallbladder. Accurate diagnosis of problem area(s) critical for success.
- Everything we eat has an impact on the body. Food eaten and passed through the gastrointestinal tract (GIT) contains nutrients and toxins. Toxins can be food additives, pesticides or specific foods that we are allergic to. Our body protects itself by rejecting certain foods through objectionable taste, vomiting and diarrhea.
- Food allergy is often the primary cause of GIT problems and often associated with chronic diseases (i.e. migraines, asthma, depression, sinusitis and fibromyalgia).
- Process of digestion is accomplished using secretions (body's digestive enzymes) from accessory glands especially the liver and pancreas. The remainder of enzymes comes from uncooked foods, such as fresh fruits and vegetables, raw sprouted grains, seeds and nuts, unpasteurized dairy products, and enzyme supplements.
- Aging causes many people to experience problems with digestion. It is estimated that after age 40 there is a decrease in the body's ability to produce enzymes by 20-30% and a decrease in hydrochloric acid (HCL) production.
- Gastrointestinal tract contracts in a controlled rhythm to move food through the different sections (peristalsis). Strength and timing variations in the contraction can cause cramping (very strong contractions), diarrhea (very frequent contractions) and constipation (slow & irregular contractions).
- Chewing, swallowing and peristalsis comprise mechanical digestion, in which food is broken down into tiny particles, mixed with digestive juices and moved through the digestive tract. Digestive enzymes break down large food molecules into small molecules for absorption into the blood or lymph in the process of chemical digestion.
- Bloating can result from excessive gas in the digestive system, disorder of the peristalsis contractions or lack of sufficient quantities of digestive enzymes and bile acids to rapidly break down food. Intestinal gas results from food fermentation from swallowing air while eating and excessive alcohol use. The bloating from intestinal gas is different from that which occurs in the colon.

## DIGESTIVE ENZYMES

The main sites of digestion are the salivary glands, the stomach and the small intestine. There are two primary classes of enzymes responsible for maintaining life functions: digestive & metabolic.

Digestive enzymes are classified as:

1. Proteases & peptidases that split proteins into small peptides and amino acids
2. Lipases that split fat into three fatty acids and a glycerol molecule
3. Carbohydrases or amylases that split carbohydrates such as starch and sugars into simple sugars like glucose
4. Nucleases that split nucleic acids into nucleotides

Metabolic enzymes are responsible for the structuring, repairing and re-modeling of every cell in the body. They need constant replenishment for optimal health.

When we eat, enzymatic activity begins in the mouth, where salivary amylase, lingual lipase and ptyalin initiate starch and fat digestion. In the stomach, hydrochloric acid (HCL) activates pepsinogen, which breaks down protein, and gastric lipase begins the hydrolysis of fats. The pancreas secretes digestive juices containing high concentrations of amylase and protease. Without proper enzyme production, the body has a difficult time digesting food, often resulting in a variety of chronic disorders.

When organs are overworked to secrete enzymes they will enlarge in order to perform the increased workload. When the pancreas enlarges, there results a deficiency in the production of life-sustaining metabolic enzymes, as available enzyme-producing capacity is used digesting food instead of supporting cellular enzymatic functions.

Importance of effective liver function (#1 role in body detoxification) for GI function cannot be overemphasized. Symptoms of liver problems are often non-specific (general malaise, fatigue, headache, increased allergies, epigastric pain, bloating, nausea or constipation). Discomfort following meals and intolerance of fat are also indicators of disturbances in the biliary system. Physicians in Western Europe often use herbal liver remedies, such as artichoke extract, with good results when treating patients with non-specific ailments.

Bile is an important digestive substance produced by the liver and stored in the gallbladder. Liver manufactures about 1 quart a day of bile to meet digestive needs. It is secreted into the small intestine, where it emulsifies fats and fat-soluble vitamins and improves their absorption. Any interference with healthy bile flow can create a myriad of immediate digestive disorders, such as bloating.

Bile serves as a carrier for toxic substances entering the body, delivering them into the intestine for further elimination from the body. Bile is the major route for excretion of cholesterol and helps with the promotion of intestinal peristalsis (helps prevent constipation). When bile flow is inhibited (i.e. gallstones, gallbladder disease, alcohol ingestion, viral hepatitis and certain chemicals and drugs), toxins and cholesterol stay in the liver longer with damaging results.

Excessive alcohol consumption is the most common cause of impaired liver function in the United States. It stimulates fat infiltration into the liver cells, causing the so-called "fatty liver". Fatty liver condition can lead to more advanced liver disease, such as inflammation, fibrosis and cirrhosis.

Bloating after drinking alcohol is caused mainly due to the ingredients contained in alcohol (rapid loss of electrolytes from the body (diuretic effect) can result in sulfur-bearing gases in the gut wall) and the food consumed before or while drinking alcohol (or drinking on an empty stomach). Bloating is mainly in the stomach, but it can cause the face, especially the cheeks to swell. Drinking alcohol can also impair the digestive system's ability to digest complex foods properly, which in turn, leads to gas in the abdomen.

Food consumed uncooked require fewer digestive enzymes to perform the digestive function. Cooking food, particularly for long periods of time and at more than 118 F, destroys enzymes in food. Frying foods is the worse cooking method (boiling has lower temperatures). Frying damages protein as well as destroying enzymes. ***Enzymes are wasted by lifestyle factors, such as strenuous athletic activity or a fever.***

Oral supplementation of digestive enzymes taken just before or at mealtime can best assist digestion (enzymes will deactivate when exposed to stomach acid).

## DEFINITIONS

The most common digestive disorder is **dyspepsia** (indigestion or upset stomach). Patients with indigestion often feel fullness, bloating/burping and discomfort, perhaps accompanied by a burning sensation, after a particularly large, greasy meal.

**Gastritis** describes a group of conditions with one thing in common: inflammation and irritation of the lining of the stomach. #1 cause: excessive alcohol consumption or prolonged use of non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin or ibuprofen. Gastritis can also develop after major surgery, traumatic injury, burns or severe infections. Most common symptoms are abdominal upset or pain, abdominal bloating, indigestion or a burning in the upper abdomen.

**Bloating** can result from excessive gas in the digestive system, failure of the digestive tract to sustain youthful peristaltic contractions, or a lack of sufficient quantities of digestive enzymes and bile acids to rapidly break down food. Intestinal gas results from food fermentation and from swallowing air (50% of gas) while eating, drinking, chewing gum, sucking on candies or food, eating or drinking very quickly, wearing dentures that are too loose, smoking, drinking from a straw, drinking carbonated beverages or swallowing often, which may happen when you're nervous. Excessive gas may also be a side effect of certain medications (i.e. acarbose or the sugars sorbitol or lactulose) or fiber supplements. The bloating from intestinal gas is different from that which occurs in the colon.

**Constipation** is the decreased frequency, or slowing of peristalsis, resulting in harder stools. When the GIT is slowed down (often caused by prescription drugs), feces can accumulate in the colon with attending pain and toxic reactions. A spastic colon results when the colon contracts out of rhythm in painful spasms blocking movement of the stool. Some patients experience painful days of constipation followed by forceful diarrhea and water stool, often accompanied with abdominal cramps.

**Diarrhea** is the increased frequency of bowel movements that is also loose or watery. If diarrhea increases, the possibility of celiac disease is considered. If blood appears in the stools, ulcerative colitis is likely. Protracted bouts with diarrhea can result in dehydration and nutritional deficiencies due to the poor absorption of essential nutrients (i.e. electrolytes and minerals).

**Abdominal pain** appears in different patterns and with varying intensities. Cramping occurs because of muscle spasms in the abdominal organs. Severe cramping pain, often called colic, usually occurs from problems with strong allergic response to food. Abdominal cramping near the navel is typically from the small intestine, and near the sides, top, and bottom of the lower abdomen, the pain is associated with the colon.

**Acid Reflux, Heartburn** or gastro esophageal reflux disease (**GERD**) all relate to the upward splashing of stomach acid and digestive juices into the esophagus (the long tube that brings food from the throat to the stomach). The esophagus can't handle those corrosive juices, and the result is burning pain in the chest, adjacent to the esophagus. If left untreated, chronic esophageal exposure to stomach acid can cause esophagitis and esophageal cancer. Common symptoms of GERD include frequent heartburn that won't go away, a sour or bitter taste in the mouth, difficulty swallowing and burning in the chest.

**Hiatal Hernia** refers to an upward bulge of the stomach through the hiatus (a hole in the diaphragm, which allows the esophagus to connect with the stomach) and into the chest cavity. Sometimes, but not always, a hiatal hernia is responsible for acid reflux or GERD. If the GERD cannot be treated, surgical correction of the hiatal hernia may be required.

**Peptic, Stomach or Gastric Ulcers** refer to a sore or ulcerative wound(s) to the inside lining of the stomach (gastric mucosa). The medical community recently discovered that the H. pylori bacteria causes most stomach ulcers (treated with antibiotics). Individuals at higher risk for stomach ulcers include those taking high doses of aspirin or anti-inflammatory NSAIDS (ibuprofen-like drugs).

**Celiac Disease** is an immune disease in which the immune system attacks the digestive tract when the tract is exposed to gluten, a protein found in wheat, barley and rye. Two prominent symptoms of the disease are diarrhea and weight loss. Patients often have trouble absorbing calcium and iron which can lead to deficiencies. Screening tests that detect antibodies in the patient's blood and positive response to a gluten-free diet makes diagnosis of the disease easier. Treatment is a gluten-free diet.

### TRADITIONAL TREATMENT TODAY

Careful attention to ones diet and daily water intake should be the initial step for treatment. Should a certified nutritionist be consulted?

Next is a search for any **food allergies** causing problems? Removing a specific food from your diet for 5 days is a simple way to evaluate if symptoms improve.

For patients suffering with a stomach disorder, the following irritants have been shown to cause problems (trigger heartburn) and should be avoided or re-entered into the diet only after evidence that the food doesn't cause problems, such as: acidic foods containing caffeine including coffee and tea, all types of alcohol, chocolate, peppermint, citrus fruits, fatty (especially deep fried) foods, onions, red tomato sauce, raw tomatoes, spices/ black pepper or raw peppers. Additionally, patients shouldn't lie down after eating, **eat too late at night** and can consider putting 6-inch blocks under the posts at the head of their bed to keep stomach juices in the stomach while sleeping (lying on your right side while sleeping causes symptoms to last longer than lying on the left side). Weight reduction and **eating smaller** meals throughout the day (moves through the stomach quicker) almost always lessens symptoms.

Some helpful **food hints** for reducing stomach disorders include:

- High-fiber foods such as beans, whole grains and low-calorie fruits and vegetables are excellent additions to daily diet
- Look for low-acid versions of acidic foods such as orange juice
- Consider using broths in place of tomato sauces
- Darker cooking oils, like sesame, are better than light oils
- Always no-fat or low-fat dairy products. Dairy foods high in fat stay in the stomach longer causing more digestive juices to flow
- Avoid all soda and frozen and regular fried foods
- Avoid hot spices: black and crushed red pepper and chili powder
- Fresh garlic and onions (could use dried versions)
- Flavor with herbs such as cinnamon, basil, dill, parsley, thyme and tarragon
- Try using mayonnaise and mustard in place of tomato-based products
- Regular vinegar highly acidic

- Applesauce; great fruit to use
- Always lean cuts of meat. Cut-away all visible fat
- Remove the skins of chicken and turkey (all fat)
- Prepare meals with little fat. No deep-frying. Frying with non-stick sprays is better than butter or oil
- No chocolate or peppermint

## OVER-THE-COUNTER (OTC) AND PRESCRIPTION OPTIONS

For fast results, a low-cost calcium carbonate product (i.e. Tums, Rolaids) often brings relief to most patients suffering indigestion or **mild** heartburn. However, products are short acting and can lead to a rebound effect where symptoms return stronger and a patient is tempted to keep taking more tablets for relief. This syndrome can be dangerous and can lead to an unhealthy high concentration of calcium in the body. The old stand-by Alka Seltzer (anhydrous citric acid) effervescent tablets is also still on the market.

Mylanta, Maalox and Gaviscon (aluminum hydroxide and magnesium carbonate/hydroxide products) and Pepto-Bismol (bismuth subsalicylate) offer liquid or tablet relief for indigestion and occasional and non-severe heartburn symptoms. Like Tums and Rolaids, they can quickly provide heartburn relief and act as a buffer. Unlike the other medications, these provide a protective barrier to help block acid irritation. Pepto-Bismol is also effective to relieve nausea, gas and diarrhea. The active ingredient in Pepto-Bismol will cause the stools to turn a harmless tarry-black.

For fast results for bloating and gas discomfort, products containing **simethicone** are safe and often effective for all ages. The product Beano (natural enzyme alpha-galactosidase) has proven effective for preventing gas from a variety of healthy gas-producing foods such as broccoli. For lactose intolerant patients (problems with dairy-based foods), products that contain the natural lactase enzyme (i.e. Lactaid) have proven effective, since the enzyme breaks down milk sugar (lactose) to make dairy products easier to digest. The majority of Middle Eastern and Asian populations lack this enzyme (lactase) and this enzyme decreases with age. As such, lactose intolerance is often a common abdominal complaint in the Middle Eastern, Asian, and older populations, manifesting with bloating, abdominal pain and osmotic diarrhea.

## Oral Digestive Enzyme Supplements

Retail pharmacies, network marketing companies and Internet Websites offer countless enzyme-based products designed to help digestive disorders. While the listing of product ingredients and amounts per serving is extensive and often contain proprietary blends, the most common enzymes designed to help digest foods are:

- Pancreatin
- Protease and Peptidase (split proteins into small peptides & amino acids)
- Acid Stable Protease
- Bromelain/Papain
- Sucrase (Invertase)
- Amylase (carbohydrate enzyme)
- Alpha-galactosidase
- Alfalfa
- Catalase
- Cellulase
- Ginger Root

- Glucoamylase
- Hemicellulase
- Lactase
- Lipase (fat-digesting)
- Phytase
- Xylanase
- Whole fruit papaya powder

There are also natural and international remedies often used for gastric disorders including heartburn: chamomile (tablets and tea), aloe vera juice, ginger chips and powder (esp. for morning sickness), slippery elm, chewing gum (activates saliva which is rich in amylase), artichoke extract holds great promise, cholic acid (liver enzyme ox bile), activated charcoal especially for gas and absorbing toxins, polyunsaturated phosphatidylcholine (reduces incidence of gastric ulcers) and the #1 natural herbal remedy in Eastern Europe Digest RC (black radish juice, charcoal, and cholic acid).

Oral supplementation of digestive enzymes should be taken **just before or at mealtime (not on an empty stomach)** to be most effective since most supplemental enzymes are labile and will deactivate when exposed to stomach acid.

Digestive enzymes are different from the highly marketed **probiotic supplements** (lactobacillus acidophilus; bifidobacterium animalis). Probiotics are bacteria that help maintain the natural balance of organisms (microflora) in the intestines. The normal human digestive tract contains about 400 types of probiotic bacteria (largest group is lactic acid bacteria of which lactobacillus acidophilus (found in yogurt with live cultures is best known) that reduce the growth of harmful bacteria and promotes a healthy digestive system. Yeast is also a probiotic substance. To date, **little evidence** has been demonstrated to support the claim that current probiotic products on the market successfully treat problems of the stomach and intestine.

Many people do use probiotics successfully **to prevent diarrhea, gas, cramping and secondary yeast and urinary tract infections caused by antibiotics**. Antibiotics kill "good or beneficial" bacteria along with the bacteria that cause illness. A decrease in beneficial bacteria may lead to digestive problems. Probiotics may help replace the lost beneficial bacteria.

Probiotic supplements may also help with other causes of diarrhea, help prevent infections in the digestive tract and help control immune response (inflammation) for patients suffering from irritable bowel syndrome (IBS).

### Histamine Blockers

Over 40 years ago the first prescription medication for heartburn was Tagamet (**cimetidine**). The medication was introduced to the market as a histamine blocker, which acted within the body to tell the acid-producing cells of the stomach to produce less acid. The drug begins to work within 20 to 30 minutes and is most effective for mild to moderate digestive disorders (i.e. eating or drinking certain foods or beverages) that are more frequent in nature.

Pepcid (**famotidine**) and Zantac (**ranitidine**) were introduced years later and all histamine blockers are now available over-the-counter (OTC). The products come in immediate-release tablets and Pepcid is combined with the fast-acting antacids calcium carbonate and magnesium (Pepcid Complete).

The literature for histamine blockers recommend usage of the medications for **short-term** treatment of the symptoms of gastric disorders (**4-8 weeks**) or a period to allow for a change in diet and related behavior modifications.

## Proton Pump Inhibitors (PPIs)

For patients with chronic and recurring gastric disorders especially GERD (2 or more episodes weekly), the expensive time or delayed-released proton pump inhibitors Prilosec (**omeprazole**), Prevacid (**lansoprazole**), Nexium (**esomeprazole**), Protonix (**pantoprazole**) and Aciphex (**rabeprazole**). Zegerid OTC is a rapid release form of omeprazole that contains sodium bicarbonate. Depending on dosage, PPIs come in both prescription and OTC formulations. There is little difference in results among PPIs. They differ, however, in how they are broken down by the **liver** and their drug interactions. The effects of PPIs may last longer and they, therefore, may be taken less frequently.

In general, PPIs are safe to use with few problems with other prescription drugs if used for **short term (4-8 weeks)** treatment of gastric disorders. In fact, all insert literature on PPIs have the following caution: "for adults, use for short-term treatment of active duodenal ulcers for up to 4 weeks; up to 8 weeks of therapy if problems continue. For GERD, use for up to 4 weeks to treat symptoms. For damage to the inside lining of the esophagus, use for up to 8 weeks. For healing stomach ulcers, use for up to 8 weeks. For children & adolescents 2 to 17 years of age, use up to 4 weeks for GERD & up to 8 weeks to heal acid-related damage to the lining of the esophagus."

PPIs often have the most drastic effect on decreasing the amount of stomach acid because they go into the acid-producing cells of the stomach and almost completely turn off the acid production. Relief, however, tends to take longer (**2-3 days & sometimes even weeks**). For most effectiveness, delayed-released PPIs should be taken **one (1) hour before a meal** especially the meal causing the most problems. The most serious side effect of taking PPIs is a potential allergic reaction (rash, face swelling, throat tightness or difficulty breathing). Other potential side effects include headache, nausea, diarrhea, gas, fever, abdominal pain and respiratory system events.

The major problem with PPIs is usage by patients beyond the recommended 4-8 weeks of treatment. It's not uncommon for patients to be taking PPIs daily as normal maintenance therapy **for many months if not years**. This results in a complete or almost complete shut-down of acid production in the stomach which is not normal.

Long-term use of PPIs (3 months + for some patients; over 1 year of use for most others) can lead to **serious low magnesium levels in the body or increased risk of fractures of the hip, wrist or spine**.

Doctors may also prescribe other drugs like Reglan (metoclopramide) along with PPIs. Metoclopramide increases mobility in the GI tract (helps with poor stomach emptying) and is used to treat nausea and vomiting.

## It Could Be More than Heartburn

One of the more important tips for dealing with digestive disorders, especially heartburn, is making sure a patient's symptoms aren't signs of anything more serious. Sometimes heart and lung issues can seem like acid reflux, so a patient must pay close attention to the pain that they are feeling. Making notes of where the pain is throughout the day and evening along with intensity is very helpful for making a diagnosis. In particular, if a patient feels pain radiating into the neck or down the arm, severe palpitations, or lightheadedness, or if one is passing out (low blood pressure), seek medical attention immediately.

In addition, patients need to be aware of potential dehydration and need for immediate hydration (water intake) and electrolyte/mineral supplementation.