Digestive Disorders

It is estimated that more than 100 million people in America are affected by some form of digestive disease. That's almost half of the U.S. population!

For some people, digestive disorders are a source of irritation and discomfort that may cause them to drastically limit their lifestyles and miss work frequently. For others, these disorders may be extremely crippling, and even fatal.

The gastrointestinal tract is a long muscular tube that functions as the food processor for the human body. The digestive system includes the following organs: the mouth and salivary glands, the stomach, the small and large intestines, the colon, the liver and pancreas, and the gall bladder.

Irritations or inflammation of the various sections of the gastrointestinal tract are identified as gastritis (stomach), colitis (colon), ileitis (ileum or small intestines), hepatitis (liver), and cholecystitis (gall bladder).

The gastrointestinal tract is not a passive system; rather it has the capability to sense and react to the materials that are passed through it. For a healthy digestive system, every person requires different food selections that match their gastrointestinal tract capacity.

The aging process and certain disease conditions cause a reduction in the body's enzyme production. One effect of this deficiency is a bloated feeling soon after eating a large meal. Based on animal studies, the long-term effects of chronic enzyme deficiency are enlarged livers and pancreases, because these organs must work overtime to process food. When animals are given enzymes with their food, no such pathological enlargement occurs.

Enzymes, a Vital Component of the Digestive Process

Enzymes are essential to the body's absorption and full use of food. The capacity of the living organism to make enzymes diminishes with age, and some scientists believe that humans could live longer and be healthier by guarding against the loss of our precious enzymes.

Enzymes are responsible for every activity of life. Even thinking requires enzyme activity. There are two primary classes of enzymes responsible for maintaining life functions: digestive and metabolic. The primary digestive enzymes are proteases (to digest protein), amylases (to digest carbohydrate), and lipases (to digest fat). These enzymes function as a biological catalyst to help break down food. Raw foods also provide enzymes that naturally break down food for proper absorption. Metabolic enzymes are responsible for the structuring, repair, and remodeling of every cell, and the body is under a great daily burden to supply sufficient enzymes for optimal health. Metabolic enzymes operate in every cell, every organ, and every tissue, and they need constant replenishment.

Digestion of food takes a high priority and has a high demand for enzymes. 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 activates pepsinogen to pepsin, which breaks down protein, and gastric lipase begins the hydrolysis of fats. Without proper enzyme production, the body has a difficult time digesting food, often resulting in a variety of chronic disorders.

Poor eating habits, including inadequate chewing and eating on the run, can result in inadequate enzyme production and hence malabsorption of food. And this is exacerbated with aging, since that is a time of decreased hydrochloric acid production as well as a general decline in digestive enzyme secretion.

Saliva is rich in amylase, while gastric juice contains protease. The pancreas secretes digestive juices containing high concentrations of amylase and protease as well as a smaller concentration of lipase. It also secretes a small concentration of maltase, which reduces to dextrose. Animals eating raw food often have no enzymes at all in saliva, unlike humans. However, dogs fed on a high carbohydrate, heat-treated diet have been found to develop enzymes in their saliva within a week in response to enzyme-depleting foods.

Eating food in its natural, unprocessed state is vital to the maintenance of good health, and a lack of it in the modern diet is directly responsible for much degenerative disease. Cooking of food, particularly if heat is prolonged and
more than 118 degrees Fahrenheit, destroys enzymes in that food, leaving what is commonly consumed in the modern person's "enzyme-less" diet. This is one reason that by middle age, we become metabolically depleted of enzymes. If foods are consumed uncooked, fewer of the body's digestive enzymes are required to perform the digestive function. The body thereby adapts to the plentiful, external supply by secreting fewer of its own enzymes, preserving these enzymes to assist in vital cellular metabolic functions.

Replacing Good Bacteria
In addition to disease and age-related depletion of digestive enzymes, the use of antibiotics to fight disease causes the reduction or elimination of beneficial bacteria that normally reside in the gastrointestinal (GI) tract. These friendly intestinal bacteria also aid the digestive process, reducing the need for enzymes and keeping harmful bacteria that can generate toxins and carcinogens, from proliferating.

After antibiotic therapy, it may be useful to directly supplement with bifido bacteria to prevent the growth of the harmful bacteria. The fact that breast-fed infants are healthier than those fed by formula may be attributable to the fact that they have more than double the bifido bacterial levels than those given formula. Other evidence shows bifido bacteria can reduce serum cholesterol by digesting it before it is reabsorbed into the bloodstream. Lower blood pressure has been associated with higher levels of fecal bifido bacteria. Finally, bifido bacteria produce vitamins B1, B2, B3, B6 and folic acid.

**Digestive Enzymes**

**Super Digestive Enzymes 072**

100 capsules

Super Digestive Enzymes contain a complete and balanced digestive enzyme formula.

2 capsules contain
Pancreatin (8X)
equal to 3,000 mg pancreatin USP) ........... 400 mg
Amylase (digests carbohydrate) ....... 40,000 USP units/gm
Protease (digests protein) ........... 40,000 USP units/gm
Lipase (digests fat) ........... 7,200 USP units/gm
Protease II (from papain 6000 USP/mg) ....... 260 mg
Protease III (from fungi 1000 FCC/gm) ....... 260 mg
Amylase (from fungi 25,000 FCC/gm) ....... 280 mg
Lactase (from fungi 5000 FCC/gm) ....... 80 mg
Cellulase (from fungi 4000 FCC/gm) ....... 80 mg
Lipase (from fungi 5000 FCC/gm) ....... 40 mg
Whole fruit papaya powder ........... 200 mg
Other ingredients: gelatin and water.

**Dosage and use**

Two capsules at the beginning of each meal are suggested.

**Digest RC 458**

30 tablets

Digest RC is a multiple herbal extract formulation which was introduced in Europe over 45 years ago and today sells more than 100 million doses annually. The primary mechanism of action promotes the release of bile from the liver to digest fat and protein. The various ingredients within Digest RC are delivered to the parts of the digestive system where they will be most effective by means of a "layered" delivery system (i.e., multiple timed-release). In this manner, Digest RC optimizes the operation of its ingredients to aid all digestive problems which other products usually only attack one at a time. Digest RC is particularly beneficial for those who have not responded to food elimination therapy, and those with the digestive problems typical to aging.

The ingredients in Digest RC have been able to:

- Speed up the digestion of fats and meat proteins
- Prevent the stagnation of food in the intestines
- Treat and prevent digestive disorders including cramps, acid reflux, bloating, nausea, constipation, gas and diarrhea
- Reduce the digestion-related side effects of some prescription medications
- Increase systemic immunity
- Create an inhospitable environment for harmful bacteria and parasites

**1 tablet contains**

- Black radish extract ........... 75 mg
- Linden bark extract .......... 75 mg
- Artichoke extract ........... 47 mg

**Standing Behind our Products**

All of our products are the finest pharmaceutical grade nutrients you can buy. The Life Extension Foundation requires that strict quality control and assay procedures be followed in order to provide you with the highest quality of pure ingredients available. We take seriously our obligation to help our members prevent and treat today's diseases.

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Calicum Phosphate ........ 45 mg
Cholic Acid ................ 40 mg
Peppermint ................. 15 mg
Other ingredients: beet sugar, talcum, vegetable starch, magnesium stearate, arabic gum, gelatin and silicon dioxide.

Dosage and use
■ 1-2 capsules daily are suggested.
■ This product is most effectively utilized when taken with meals.

Caution
The black radish and artichoke extracts used in this product have bile stimulation effects. Therefore, while Digest RC is completely safe to be taken with any medication, it is not known how it might affect those who have had their gall bladder removed, therefore such people are advised to avoid it.

Bromelain Tablets 468
500 mg • 60 tablets
1 tablet contains
500 mg of bromelain providing 1000 GDU or 1,667 MCU. This product is from Jarrow Formulas.
Other ingredients: Dicalcium phosphate, stearic acid, methyl cellulose, magnesium stearate, and modified cellulose gum.

Dosage and use
■ One tablet at the beginning of each meal is suggested.

Papain Powder 137
100 grams
Papain is a proteolytic digestive enzyme derived from the papaya fruit, and is used as an aid in digesting protein. It may also help to stimulate protein synthesis and repair.

Dosage and use
■ 1/8 - 1/4 teaspoon at the beginning of each meal is suggested.

N-Zimes 523
200 mg • 270 capsules
N-Zimes are a combination of digestive enzymes useful in digesting starch, protein and fats. Protease, amylase, and lipase are naturally produced in the body but may be deficient in aged or diseased persons.

Dosage and use
■ Two capsules at the beginning of each meal is suggested.

Pancreatin (4X enzymes) 073
500 mg • 50 capsules
Twinlab Pancreatin (quadruple strength) is a source of pancreatin digestive enzymes. Each capsule will digest approximately 50 grams of protein, 50 grams of starch and 67 grams of fat.
1 capsule contains
Pancreatin 4 X.......................... 500 mg
(equal to 2000 mg pancreatin USP)
supplying:
Amylase activity...... 50,000 USP Units
Protease activity...... 50,000 USP Units
(trypsin and chymotrypsin)
Lipase activity......... 8,500 USP Units
Other ingredients: Gelatin, cellulose, purified water, magnesium stearate.

Dosage and use
■ One capsule after each meal is suggested.

Wobenzym N 465
200 capsules
This product from Mucos Pharma GmbH & Co. contains potent amounts of enzymes and is enterically coated so that the enzymes are not deactivated by the acid conditions of the stomach. The purpose of Wobenzym N is to provide metabolic enzymes.

1 capsule contains
Pancreatin (8 X)........... 100 mg
(equal to 800 mg pancreatin USP)
Trypsin (720 FIP)........ 24 mg
Chymotrypsin (300 FIP).... 1 mg
Bromelain (225 FIP)..... 45 mg
Papain (164 FIP).......... 60 mg
Rutosid-3 H2O............. 50 mg
Other ingredients: silica, lactase, magnesium stearate, starch, microcrystalline cellulose, polyethylene glycol 6000, talc, dibutyl phthalate, methacrylic acid, copolymer type A.

Dosage and use
■ Take three capsules, two to three times daily 45 minutes before meals or as directed by your healthcare professional.

Gi Bacteria
Toxic bacteria induce fermentation in the colon that results in the formation of the liver toxin, ammonia, and known carcinogens such as nitrosoamines, secondary bile acids, altered estrogens, and numerous other cancer-causing metabolites. Since 40-55% of fecal volume is comprised of bacterial mass, the amount of toxic and carcinogenic metabolites formed by colonic fermentation cannot be ignored. The toxic bacteria E. coli and Clostridia are known to participate in the fermentation (production) of carcinogenic fecal metabolites.

Bifido bacteria prevents the growth of harmful bacteria through the production of lactic and acetic acid, which inhibit the growth of pathogenic bacteria E. coli, Clostridia, Salmonella (food poisoning), Shigella (dysentery), Staphylococcus (staph infection), and a host of other bacteria that are potentially lethal to an immune-compromised individual.

By overwhelming these putrefying bacteria with the friendly bacterial flora, bifido bacteria, a

A deficiency in enzymes to aid digestion can lead to other more serious health problems with almost a growing snowball-like efficiency. It starts with the overworking and subsequent enlargement of organs, such as the pancreas, that begins working double time to meet the deficiency. With the pancreas working so hard to maintain digestive enzymatic action, it also uses up metabolic enzymes meant for supporting cellular activity. The result is overall health issues such as valvular disease because of the lack of metabolic enzymatic support.

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significant reduction in the production of toxic metabolites occurs. Aging and disease cause a reduction in bifido bacteria, increasing the amount of toxic and carcinogenic metabolites fermented in the colon. This reduction in bifido bacteria has been postulated to contribute to the diseases of aging, in particular, immune dysfunction leading to cancer and serious infection, and the autoimmune diseases, arthritis, fibromyalgia, diabetes, etc. Stress has also been shown to decrease beneficial bifido bacteria, leading to many of the stress-related illnesses of modern life.

**Life Flora**

300 mg • 120 capsules

When beneficial intestinal bacteria are destroyed by antibiotics or disease, digestive problems, poor absorption of food nutrients, fungal infections, and generation of toxins by harmful intestinal bacteria may occur. The bacteria contained in Life Flora can recolonize the GI tract with beneficial bacterial, helping to end digestive problems and drive out the harmful, toxic bacteria.

1 capsule contains

- **Amount per serving**
  - Life Flora Mix: 300 mg (approximately 3,000,000,000 viable cells at the time of encapsulation)
  - Containing: **Bifidobacterium lactis**, **Lactobacillus acidophilus**, **Bifidobacterium longum**, **Lactobacillus paracasei subsp. paracasei**, **Streptococcus thermophilus**.
  - *Daily Value not established.
  - Other ingredients: gelatin (capsule), maltodextrin and magnesium stearate.

**Dosage and use**

- One capsule with meals three times daily for 4 or 5 days, then once daily, or as recommended by your healthcare professional.
- Refrigerate after opening, and for storage in warm weather.

**Note:** If you are pregnant or breastfeeding, consult your healthcare professional before using this product.

**Member**

- one bottle: $20.50 ($15.38)
- four bottles: $75.00 ($14.06 each)

**NutraFlora (FOS) Powder**

500 grams

Animal studies show detrimental bacterial flora lead to liver cancer and early death. Human studies document an increase in beneficial bifido bacteria and a decrease in toxic bacterial levels when FOS (fructo-oligosaccharides) is ingested. NutraFlora is the highest quality FOS available. The Japanese use FOS in more than 450 food products including soft drinks, cookies, cereals and candies. The market in Japan for FOS exceeds $5 billion yearly. FOS is not digested by the human digestive process, but instead is used as food by bifidobacteria, promoting their hyperproliferation.

In one study, the ingestion of 3 to 6 grams of FOS daily reduced toxic compounds in human feces by 40-44% in three weeks. Other human studies show that ingestion of FOS improves overall bowel function, including a decrease in constipation, by stimulating healthy intestinal peristalsis. The reduction in toxic liver metabolites observed after ingesting FOS caused significant improvement in liver function in humans suffering from either cirrhosis or hepatitis. In another study, taking 6 to 12 grams of FOS reduced total serum cholesterol by 20-50 mg/dL after only three weeks. This dramatic drop in serum cholesterol is attributed to the bifido bacteria-assimilating cholesterol secreted into the small intestine before it is reabsorbed into the bloodstream. In addition, ingestion of 11.5 grams of FOS daily significantly reduced blood pressure in hypertensive patients after five weeks. The higher the final measured level of fecal bifidobacteria, the more significant the reduction in blood pressure.

1 rounded teaspoon contains 4 grams (95%) of FOS.

**Dosage and use**

- ½ to 1 teaspoon daily is suggested for maintenance of friendly intestinal bacteria
- One to four teaspoons daily are suggested for the treatment of chronic digestive states that could be caused by a deficiency of friendly bacteria or an overgrowth of harmful GI organisms.
- NutraFlora has a mildly sweet flavor and if desired, may be mixed easily with a beverage or food.

**Member**

- one bottle: $46.00 ($34.50)
- four bottles: $160.00 ($30.00 each)

**FYI**

**What the Experts Say...**

How long we live and in what state of health is determined by our enzyme potential, according to Dr. Edward Howell, author of *Enzyme Nutrition*. Referring to a study by Dr. Meyer and his associates at Michael Reese Hospital in Chicago, Dr. Howell said the enzyme level of the saliva in young adults is 30 times that in people aged over 69 years. Similarly, a German study by Eckardt of 1120 urine specimens found almost twice as much of the starch-digesting enzyme, amyase, in young people as in old.

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