



How To Improve Your Digestion

by Patrick Holford

You are not what you eat. You are what you can digest and absorb. The fundamental design of the human body is a tube - a doughnut with a hole in the middle. We, like other animals, spend our physical lives processing organic matter for waste. How good we are at this determines our energy level, longevity and state of body and mind. Over a lifetime no less than 100 tons of food passes along the digestive tract and 300,000 litres of digestive juices are produced by the body to break it down. Our 'inside skin', a thirty foot long tract with a surface area the size of a small football pitch, is constantly being renewed. Most of the billions of cells that make up this barrier between us and the inside world are renewed every four days.

A lack of nutrients and the wrong kind of food can mean faulty digestion, faulty absorption, abnormal gut reactions including bloating and inflammation, gut infections and poor elimination. The knock on effects disrupt every body system - immunity, the brain and nervous system, hormonal balance and our ability to detoxify.

Digestion starts in the senses. The sight and smell of food initiate chemical reactions that get us ready to assimilate and digest food. Chewing is particularly important because messages are sent to the digestive tract to prepare enzyme secretions depending on what's in the mouth.

Stomach Acid - The Right Balance

Food then passes into the stomach. This is where large proteins are broken down into smaller groups of amino acids. Since the body is only programmed to accept certain breakdown products like simple sugars and amino acids it is essential to have efficient protein digestion. The first step of protein digestion is carried out by hydrochloric acid, released from the stomach wall. The production of hydrochloric acid is dependent on a sufficient intake of zinc. Hydrochloric acid production often declines in old age, as does zinc status. The consequence is indigestion, particularly noticeable with high protein meals, and the likelihood of developing food allergies because undigested large food molecules are more likely to stimulate allergic reactions in the small intestine.

The nutritional solution for too little stomach acid is to take a digestive supplement containing betaine hydrochloride, plus at least 15mg of zinc in an easily absorbable form such as zinc citrate. Some people produce too much stomach acid. This is usually rectified by avoiding acid forming and irritating foods and drinks. Alcohol, coffee, tea and aspirin all irritate the gut wall. All meat, fish, eggs and other concentrated proteins stimulate acid production and can aggravate over-acidity. The minerals calcium and magnesium are particularly alkaline and tend to have a calming effect for those suffering with excess acidity.

DIGESTIVE ENZYMES

The stomach also produces a range of enzymes to break down protein. Collectively these are called proteases. Protein digestion also continues in the first part of the small intestine, the duodenum. Into the duodenum flow digestive enzymes produced in the pancreas and in the liver. The pancreas is the primary organ of digestion. Special cells produce enzymes for breaking down carbohydrates, proteins and fats. These enzymes are called protease, amylase and lipase. Again, there are many different kinds. The production of digestive enzymes depends on many micronutrients, especially vitamin B6. Sub-optimum nutrition often results in sub-optimum digestion, which, in turn, creates sub-optimum absorption so nutritional intake gets worse and worse. The consequence is undigested food in the small intestine which helps to generate excess of the wrong kind of bacteria and other micro-organisms. The symptoms of this can include flatulence, abdominal pain and bloating. The easiest way to correct such a problem is to supplement a broad-spectrum digestive enzyme

supplement with each meal. This can make an immediate difference. You can test the effects of these enzyme supplements by crushing them and stirring them into a thick porridge. If the product is good the porridge will become liquid in 30 minutes. Nowadays there is a 'gastric function test' that can determine enzyme and acid levels. While there is no harm in taking digestive enzymes on an on-going basis, correcting digestive enzyme levels with supplements paves the way for increasing body levels of nutrients. Once this is achieved digestion often improves of its own accord and then the digestive enzyme supplements may no longer be necessary.

As well as being digested fat has to be prepared for digestion. This is achieved by a substance called bile, produced by the liver and stored in the gall bladder. Bile contains lecithin which helps to emulsify large fat particles and turn them into tiny fat particles with a greater surface area for the fat-splitting lipase enzyme to work. Supplementing lecithin as granules or capsules improves emulsification and can help those with poor tolerance of fat. For someone who has had their gall bladder removed bile doesn't store and therefore dilute bile is continually entering the digestive tract. Adding lecithin to meals containing fat can improve fat digestion.

GUT REACTIONS

While indigestion can be caused by a lack or excess of stomach acid, or a lack of digestive enzymes, these are not the only possibilities. Many foods we eat irritate and damage our very sensitive and vitally important interface with the inside world. One such food is wheat. Wheat contains a protein called gluten which contains gliadin. This is a known intestinal irritant. A small amount may be tolerated, but most people in Britain consume wheat in the form of biscuits, toast, bread, cereals, cakes, pastry and pasta at least 3 times a day. Modern wheat is much richer in gluten. Baking increases the availability of gluten to react with the gut wall. In severe gluten sensitivity the villi, the tiny protrusions that make up the small intestine, get completely worn away.

GUT INFECTIONS

The best way to get a gut infection is to eat plenty of sugar, suffer from indigestion and have regular courses of antibiotics. There are around 300 different strains of bacteria in the gut. Most of these are essential. They protect us from harmful bacteria, viruses and other

dangerous organisms. Antibiotics wipe out all the good and bad bacteria in the body and are best not taken unless absolutely necessary. If there are the wrong kind of bacteria in the gut, or perhaps an overgrowth of *Candida albicans*, a yeast-like organism, a high sugar diet, including fruit, can feed the problem. Symptoms of intoxication, drowsiness and bloating after an intake of sugar are a good indicator of a potential imbalance. In the same way that yeast ferments sugar to alcohol it is possible to test for the presence of yeast-like organisms by feeding sugar and running a before and after blood test for the presence of alcohol. The kinds of alcohol produced indicate a problem.

A number of powerful natural remedies have been proven to help with gut infections. Caprylic acid, from coconut, is anti-fungal. Grapefruit seed extract, taken as drops in water, is anti-fungal, anti-viral and anti-bacterial without destroying all the essential strains of bacteria. Even so it is best taken away from meals. Another strategy, called probiotics, is to improve the strength of the beneficial bacteria in the gut. This is easily achieved by short courses (a month) of beneficial bacteria supplements. Since bacteria are fragile it is good to choose a high quality product containing acidophilus and bifidus bacteria. Some probiotic supplements are cultivated from strains that occur in the gut such as *acidophilus salivarius*, *bifidus infantis* and other strains.

Preventing Wind and Constipation

Indigestion is a cause of wind, as is eating foods which contain indigestible carbohydrates. These carbohydrates are particularly present in beans and vegetables. Another enzyme available to supplement is alpha-galactosidase. This breaks down these indigestible carbohydrates and reduces flatulence.

Constipation has many causes, the most common of which is hard faecal matter. Natural foods stay soft in the digestive tract because they contain fibres which absorb water and expand inside the digestive tract. Fruits and vegetables naturally contain a lot of water. Provided they are prepared properly whole grains, such as oats and rice absorb water and provide watery bulk for the digestive tract. Given that we are literally 65% water it makes sense to eat foods with a high water content. Meats, cheese, eggs, refined grains and wheat (because of its gluten content) are all constipating. While it should not be necessary to add fibre, oat fibre has particular benefits. This is naturally present in oats which are best soaked and eaten cold. Some foods and nutrients exert a mild laxative effect. These include linseed, which can be ground and sprinkled on food, prunes and also vitamin C in doses of several grams.

Most laxatives, even natural laxatives, are gastrointestinal irritants and, while they work, they don't really solve the underlying issue. A new kind of laxative, fructo oligosaccharides, provided as a powder, are a complex carbohydrate that helps keep moisture in the gut and also stimulate production of healthy lactic acid bacteria. While results are not quite so rapid this is a highly preferable way of reducing constipation.

Eating plenty of fruits, vegetables and wholegrains, plus drinking lots of water is obviously essential as well.

For some people long-term constipation can result in physical blockages and distentions of the bowel. Dietary changes help but are not always enough to clean out the intestinal tract. A combination of particular fibres, such as psyllium husks, beet fibre, oat fibre and herbs that help loosen up old fecal material can help. These are available from colon cleansing formulas, consisting of powders and capsules to be taken over a one to three month period. Another helpful treatment is colonic therapy. This is an advanced enema where water is passed into the bowel under pressure and, together with abdominal massage, helps to release and remove old fecal material. Exercise that stimulates the abdominal area also helps to improve digestion, as do breathing exercises that relax the abdomen. It is a natural reflex of the body to stop digesting in times of stress.

Improving digestion is the cornerstone to good health. With a healthy digestion energy levels improve, skin becomes softer and clearer, body odour reduces and the immune system is strengthened. The trick is to work from the top down, first ensuring good digestion, then good absorption and then good elimination. If you experience any specific digestive difficulties the best person to see is a nutrition consultant. With current testing methods and recent advances in natural treatments most digestive problems can be solved with relative ease, little expense and no need for invasive tests or treatment.

RECOMMENDED READING

For more information, read my books:

- Improve Your Digestion (Piatkus, £6.99)
- The New Optimum Nutrition Bible (Piatkus, £12.99)

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