New Zealand Society of Gastroenterology

NZSG Patient Brochure Series

What is Good Digestion?

What is good digestion?

Digestion is the breakdown of food into smaller particles that can then be transported across the gut wall to be available for the body for metabolism - that is, for energy and for building and repair of tissues.

Therefore by this definition digestion is probably proceeding well if weight is maintained and if measurements of important nutrients such as vitamin levels are normal. Ideally good levels of energy could be added to this measure but tiredness and lack of energy is so common that this cannot be regarded as a sign of good or bad digestion.

What is bad digestion?

Many people believe that they have "poor digestion". This usually is not due to a *disease* of the gut but a sensation of *dis-"ease"* after eating. There may be some discomfort (or pain) in the abdomen, perhaps also a sensation of bloating, fullness after meals, excess flatulence, and a variability of bowel habit. These symptoms have medical descriptive terms like "dyspepsia" and "irritable bowel syndrome" but the reasons for the symptoms are actually poorly understood.

The notion of "bad digestion" and ways to help get back "good digestion" are often promoted by alternative therapies. The definition of these concepts and the underlying science is often rather "soft" but nonetheless cannot be dismissed completely because of our limited understanding of the nature of many gut symptoms.

Has IBS anything to do with bad digestion?

The medical approach has been to try to group symptoms that appear to cluster together under one heading. The main example of this is the condition called irritable bowel syndrome (IBS). Once this clustering is defined then studies can be performed for clues as to the cause and possible treatments. IBS usually starts in the mid-20's and is more common in females. There is a familial tendency – may run in families – but there has been minimal progress in identifying some genes that may be involved. For some people the symptoms start after an episode of gastroenteritis. It is possible to identify some problems with motility – that is a disorder of the normally smooth passage of food through the stomach and intestines. Perhaps the most important abnormality is an enhanced sensitivity of the gut, particularly for stretch – this may explain why wind, and excluding foods that cause excess wind, is an important concept

What about lifestyle and how we eat? Should we eat and drink at the same time?

Does how you eat make a difference? i.e is it not just about the content of the meals. Probably yes – but there is not much science here. Eating in a relaxed setting may help. Rushing may encourage more gulping and air swallowing and the nervous control of the gut may not be in the right "setting". Eating breakfast is probably helpful. The "cup of coffee on the run" is not a great start to the day. This pattern tends to load the volume of the meal towards the end of the day when the digestive processes are actually more ready to work at top efficiency in the morning (when we break the "mini" overnight fast). Eating and drinking at same time is usually not a problem except for a few people who cannot tolerate a greater volume in the stomach

What are some common diseases that cause digestive problems?

A gastroenterologist deals with diseases of the gut that may affect digestion. Examples are coeliac disease and Crohn's disease. The result of these diseases ranges from mild to severe impairment of the digestion and absorption of nutrients. Diseases of bile ducts, liver and pancreas can also impair digestion because of the crucial role of biliary and pancreatic secretions. Surprisingly problems with acid secretion do not affect digestion to any significant degree. This is fortunate as suppression

of acid secretion with medication is widely given for heartburn and upper abdominal discomfort after meals (sometimes called dyspepsia). The condition called pernicious anaemia leads to be severe impairment of acid secretion but no problems with digestion apart from having a low vitamin B12 level.

Is constipation due to poor digestion?

Constipation is due to problems in the colon – the large intestine. No digestion or absorptions of nutrients occurs here, so constipation is not related to "poor digestion" and does lead to problems with nutrients. Usually the muscle tone in the colon is reduced – so called lazy bowel – or there is a problem with the process of defaecation

What are the best foods for keeping things digested and moving along?

Some people need to think about helping steady movement through the gut - for others the opposite is true - food moves through too rapidly. Therefore advise on dietary changes / exclusions and inclusions will vary accordingly.

If there is constipation then the best natural laxative is kiwifruit. This may need to be more than 1-2 per day so the kiwifruit juices or extracts can be very convenient. Fibre is a mixed blessing!! There are many types and sources of fibre and many proposed benefits. If we concentrate simply on helping constipation then extra fibre of all types – cereal, fruit and vegetable fibre –soluble and insoluble is helpful. The downside is the there may be excessive wind formation because of increased bacterial fermentation of undigested plant material (i.e fibre). This wind may be a minor nuisance although for people with IBS extra wind may be a major aggravating factor. So don't assume that a high fibre diet is a panacea for all gut problems!

Extra fruit (particularly dried fruit and fruit juices) is a laxative mainly because of the fructose content. Again this causes excess wind. A reduction in fructose is the cornerstone of a popular diet for IBS called the FODMAP diet.

Am I missing out on nutrients if I have diarrhea?

There are many causes of diarrhea and the answer to the question depends on the cause of diarrhea. However much of the time diarrhea is the result of irritability of the bowel - in this situation the food does move through the small and large intestine more quickly but there is always enough time for digestion and absorption of nutrients. If you have diarrhea and the impression that food "rushes through" then avoiding spicy food, coffee, alcohol, carbonated drinks and many diet products with artificial sweeteners is important.

If the main problem is bloating and wind then avoiding wheat (having mainly rice) and avoiding wind-forming vegetables (beans, cabbage, cauliflower for example) may be useful.

Does exercise immediately after a meal affect digestion?

Exercise soon after a meal is probably not a problem. There is a modest amount of energy involved in digestion, but this doesn't detract from our ability to exercise. Some people may have some abdominal discomfort if exercising immediately after eating but this is not harmful.

Is indigestion a problem with digestion or just a pain after meals?

The term 'indigestion' is a misnomer given that heart burn and reflux have nothing to do with food digestion? Indigestion is a popular expression for discomfort after meals. This can be either burning pain behind the breastbone (heartburn) or upper abdominal discomfort. The most common cause of this symptom is acid reflux. Acid from the stomach reaches the oesophagus and triggers pain receptors causing a "burning discomfort". This can be unpleasant but does not affect digestion. The key processes of digestion occur in the small intestine (not the stomach).

Are there some foods that help digestion?

There is a lot of discussion in the popular press of foods that may help digestion. These claims are not usually backed buy any evidence. For example claims about foods with enzymes to "help digestion" such as papaya are unproven. Any enzymatic activity in food is minimal compared to the powerful breakdown qualities of pancreatic enzymes (for protein digestion) and the emulsifying (detergent) action of bile for fat digestion.

Are there some foods or drinks that should be avoided?

There is perhaps some more agreement on foods that are potential aggravating, particularly for people with sensitive "stomachs" - otherwise called irritable bowel syndrome. Coffee increases gut sensitivity and causes intestinal hurry in some people. Fatty

foods delay emptying of the stomach and may lead to a sensation of bloating and fullness after meals. Spicy food causes increased acid secretion and an increased chance of having heartburn after meals as well as causing diarrhoea in some people. None of these foods actually impair digestion - they just cause symptoms that could be attributed (falsely) to poor digestion.

Are there any natural products that help digestion?

There are many natural products that claim to change bad to good digestion. Many products taken by mouth are claimed to cleanse the gut, perhaps the whole body and perhaps optimizing the function of the liver (which certainly is the "detox" centre of the body). Some products aim to optimize the function of pancreas and gallbladder (undoubtedly crucial to the digestive process).

There is also something very "medieval" about this idea of "detox". The body is bad and the excretions from the body must also be very bad and in need of purification. There is no doubt that constipation results in a generalised feeling of ill-health as well as bloating and abdominal discomfort. But constipation does not lead to a build-up of toxins.

Aloe vera and slippery elm have modest laxative effects but no other proven benefits. Ginger and ginko is claimed to have benefits for nausea. Flaxseed has mild laxative effects. Magnesium salts have a laxative effect. Manuka honey and apple cider are promoted as digestive normalize but without any evidence.

Peppermint is sometimes taken after meals (often offered at restaurants). This dies not help digestion - the only effect is to relax the valve at the top of the stomach and this helps release some wind (also sometimes food and acid). If belching is encouraged this may lead to some resolution of bloating although could also result in heartburn. This is also some connection with the old tradition that a belch after a meal compliments the host.

What about prebiotics and probiotics

The largely unknown and unheralded part of our gut system is our 10 trillion bacteria mainly in the colon (10 x more bacteria than cells in the body). Lots of evidence would suggest that the nature of our bacterial flora affected our sense of "good digestion".

Frequent antibiotics will disrupt this balance of bacteria. The notion of "good" and "bad" bacteria is perhaps a popular concept without much scientific backing - all of our bacteria appear to be useful. However there is modest evidence for giving some strains like *Lactobacillus* and *Bidifidobacterium* for some gut problems. This is an idea of intensive research and the marketing and advertising of this concept is pressing ahead of the evidence.

The idea of prebiotics is to increase the "food" available for bacteria - this increases bacterial numbers and the effects of bacterial metabolism. Is this a good thing? Maybe in some ways - there is some experimental evidence that supports a protective effect against bowel cancer. The detrimental effect is the production of wind and sometimes diarrhea. Examples of prebiotics are soluble fibre, resistant starch and fruto-oligosacharides (FOS).

There is a lot of pseudo-science describing the problem of a leaky gut and the inappropriate absorption of harmful toxins, bacteria other or compounds that will cause allergy. Probiotics are claimed to enhance tight junctions. A leaky gut does not occur in the well person. The concept was first suggested in people who are very unwell (ie. in intensive care). The use of probiotics for allergic conditions – hayfever, sinus problems, asthma is an unproven but an interesting hypothesis

What about taking more of the body's digestive goodies - stomach acid (HCl) and digestive enzymes?

Lack of acid does not lead to problems with digestion. Taking extra HCl tablets is pointless. Tablets containing pancreatic enzymes is also futile. Low or abnormal pancreatic secretion is very uncommon - in fact you need to lose 90% of normal secretion before there is a noticeable effect on digestion. Pancreatic enzymes are derived from animals. They are easily destroyed by stomach acid and therefore do not reach the small intestine where digestion and then absorption needs to take place.