



THE PANCREAS & PANCREATITIS

What is the Pancreas?

The pancreas is a large and important gland behind the stomach close to the duodenum. It digests your food and produces insulin, the main chemical for balancing the sugar level in the blood.

This leaflet describes what and where the pancreas is, how it works, what can go wrong with it, how your doctor can diagnose diseases of the pancreas and how they are treated.

Where is the Pancreas?

The pancreas is a solid gland about 10 inches (25cm) long. It is attached to the back of the abdominal cavity behind the stomach and is shaped like a tadpole. Its head is just to the right of the mid-line and its body and tail point upwards at an angle so that the tail is situated just beneath the extreme edge of the left side of the ribs. The head is closely attached to the first part of the small intestine (duodenum), into which the stomach empties food and liquid, already partially digested. It is to this partially digested food that the pancreas adds its digestive juices (enzymes).

The tube draining the liver of its bile (the bile duct) lies just behind the head of the pancreas and usually joins the bowel at the same place where the fluids from the pancreas enter the bowel. Running behind the body of the pancreas are many important blood vessels. Because of its position in the body, it is not easy for a surgeon to operate on the pancreas.

What can the Pancreas do?

Food consists of carbohydrates (e.g. starch), proteins (e.g. meat), and fat (e.g. butter), and digestion is not possible without the enzymes produced by the pancreas.

The pancreas makes a number of different enzymes each of which is responsible for breaking down the different types of food into small particles suitable for absorption. The enzymes are made in small glands within the pancreas and travel along increasingly large tubes until finally they reach the main pancreatic tube. This connects the gland to the first part of the bowel where food passes after it has gone through the stomach.

The enzymes are not active when they are first made within the pancreas (otherwise they would digest the pancreas as well) but when they pass into the bowel they are activated by the juices in the bowel. The main enzymes are called amylase (which digests carbohydrates), trypsin (which digests protein) and lipase (which digests fats). The bile, which comes from the liver is also very important for the digestion of fat because it acts like a soap and breaks up the fat into minute droplets so that the pancreatic lipase can digest it.





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Insulin and Glucose

All the body's cells use glucose (sugar) as an energy source. The level of sugar in the blood is kept constant by insulin, which is made by special cells in the pancreas. If the cells are not working properly and insulin is lacking then diabetes develops.

If the Pancreas stops working what happens?

Depending upon how badly the pancreas functions there are two problems. The first is that food is poorly absorbed, which causes weight loss, and there is diarrhoea, often rather fatty as the undigested fat causes pale, bulky and smelly motions. The second is, if too little insulin is made, diabetes develops with frequent passage of urine and weight loss. These two problems need not occur together.

What is Cystic Fibrosis?

This is an inherited disorder, which affects primarily the lungs, but also causes loss of pancreatic function.

What is Pancreatitis?

Pancreatitis is inflammation of the pancreas and can be a very unpleasant and serious illness. There are two forms of it - the acute form which may be severe and life threatening with complications; and much less commonly, the chronic form which can cause continuing and severe pain and poor function of the pancreas, affecting digestion and causing weight loss.

Acute Pancreatitis

Approximately 10,000 cases of acute pancreatitis occur in the United Kingdom every year. It occurs when the pancreas suddenly becomes inflamed and the two most common causes for it are drinking too much alcohol (alcohol induced pancreatitis) or gallstones within the bile tubes (gallstone pancreatitis). The symptoms of acute pancreatitis are severe upper abdominal pain and vomiting. The pain may be felt in the back and the patient feels very unwell. Fortunately, three out of four cases of pancreatitis settle down without any specific treatment.

It is usual to rest the pancreas by not allowing the patient to eat anything until it has settled. However, one person in four will have a very bad attack (severe acute pancreatitis) which may require a prolonged stay in the intensive care unit and operations to remove parts of the gland that have been destroyed by the attack. Although excessive drinking of alcohol or gallstones are commonly identified causes of acute pancreatitis (two thirds of all cases), your doctor will want to do various tests when you have recovered from the attack to make sure that the diagnosis is definite and that you are unlikely to get another one.

If the Pancreas is inflamed, will it get better?

In most cases the answer is yes. Even if the pancreas has been inflamed and becomes scarred it will continue to work normally because there is so much more pancreatic tissue than we need. However, in some people the inflammation may continue and produce a condition called chronic pancreatitis.





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Chronic Pancreatitis

This is a condition in which the pancreas is severely diseased and its function is impaired. It usually follows many years of alcohol abuse. Patients with chronic pancreatitis have pain, malabsorption of food, leading to weight loss or diabetes. The condition is often painful and special treatment for the pain may be required. Eventually it may 'burn out' leaving the sufferer pain free but requiring treatment for loss of pancreatic function.

How would my doctor know that there is something wrong with my pancreas?

After your doctor has talked to you and made a physical examination he or she may wish to do some blood tests and special X-rays. A check on the level of amylase in the blood is a very helpful test for inflammation of the pancreas. Sometimes it may be necessary to check the motions to see whether there is an excess quantity of fat present, indicating that the pancreas is not producing its normal enzymes. A very useful test is an ultrasound scan, which is a relatively simple and painless way of obtaining a 'picture' of the pancreas gland. The pictures are made by using sound waves, which bounce off solid organs and can be recorded on a scanner (a sort of radar). It is also possible to take a small sample from the pancreas by using a needle through which a little piece of the gland can be sucked and then examined by the pathologist. This is done using ultrasound control and is a safe procedure.

CT Scan

This is a type of X-ray in which the patient lies on a couch and moves through a large 'doughnut' which carries out the X-ray as the patient moves through. This shows excellent pictures of the pancreas, which may be helped by drinking some liquid to outline the intestines around it.

ERCP (Endoscopic retrograde cholangiopancreatography)

This is a special investigation using a flexible telescope (endoscope) passed through the mouth and stomach so that it lies opposite the opening of the pancreas in the bowel. You are usually given heavy sedation for this test.

Once the endoscope is in the correct position, a tiny plastic tube is passed into the pancreas opening and some x-ray liquid is injected to outline the pancreatic tubes, after which X-ray pictures are taken. This procedure is very useful, since pictures of the inside of the pancreas can be obtained and also treatments can be given via the endoscope. For example, narrowing of the bile or pancreatic tubes can be widened and, most importantly, stones in the bile tubes can be removed. Although inflammation can occur after this examination, this is generally a safe procedure. Your doctor will usually keep you in the hospital for 24 hours to make sure that all is well once the examination has been done.

If the pancreas does not work what can be done?

There are many pancreatic enzyme preparations available and some are more effective than others. How much of the enzyme replacement you require will be determined by your doctor but sometimes up to 20-30 capsules every day are required. You may also need to take a tablet to reduce the level of acid in the stomach so that the pancreatic enzyme supplements can work better.



The capsules are often taken with meals or snacks.

If you are diabetic because your pancreas does not work you will need insulin and this has to be given by injection. All diabetics who require insulin quickly learn how to inject themselves once or more daily. You will be under the care of a specialist team for this problem.

The pancreas is a very important gland and fortunately diseases that affect it are relatively rare compared with other digestive diseases.
For further help

The Pancreatitis Supporters' Network provides medical information and support for sufferers of this condition. Their website is: www.pancreatitis.org.uk.

If you have any queries or concerns please do not hesitate to contact us on Tel: 020 8337 9609

