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link to Reader's Digest article [1]

digestion [2]

Being about the size and shape of a large dog's tongue, the pancreas sits deep in the abdomen, behind the stomach and in front of the spine. In combination with the thymus, the animal pancreas is sometimes eaten as "sweetbread". Much more important in humans is its role in helping us make the most of what we eat, and we can help it out by eating the right foods. The pancreas has been called the most complex organ in the body; its roles in digestion and bodily protection are certainly formidable.

Digestion

"For my key role in digestion, I produce about two pints of digestive juices a day". So wrote John D Ratcliff in "I am Joe's pancreas" for the *Reader's Digest* more than 50 years ago, describing the valuable secretions which neutralise stomach acid as it enters the gut. That's one litre of juice each day, ten times the mass of the pancreas itself.

Talented pancreatic enzymes meanwhile break down carbohydrates, fats and proteins in the gut, rendering them useable by the body. Without these enzymes, mountains of food could be consumed yet malnourishment still result.

In acute pancreatitis [3], the enzymes start to digest the pancreas itself; triggers can include gallstones (which block the flow of enzymes away from the pancreas) and heavy alcohol use.

Protection

Blood sugar is burnt in the cells of the body to generate energy. The pancreatic hormone insulin sees to it that cells get exactly the amount of fuel they require, whilst also boosting fat stores and protecting protein stores in muscles from instead being used as fuel.

Insulin also protects the body by “unlocking” cells and “letting sugar in”. Without insulin, surplus glucose in the blood damages blood vessels [4] and nerves [5], leading to heart attacks, strokes, kidney damage, eye trouble and even dementia [6].

In diabetes [7], the body cannot make insulin or the body has difficulty using insulin. The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014, according to the World Health Organization [8]. Adults with diabetes have a two- to three-fold increased risk of heart attacks and strokes and 2.6 per cent of global blindness can be attributed to diabetes.

Glucagon is another hormone made by the pancreas. In almost all respects its actions are opposite to those of insulin, being released during times of low blood sugar to raise sugar levels. In this way, glucagon keeps the brain supplied with sugar, preserving its function.

Protecting the pancreas

“Losing less than 1g of fat from the pancreas can restart production of insulin, reversing type 2 diabetes,” says Professor Roy Taylor from Newcastle University. It’s thought that type 2 diabetes may be due to fat clogging the pancreas; weight loss can lead to reduced levels of fat inside the pancreas, helping the pancreas function again.

GP David Unwin [9] and politician Tom Watson [10] espouse weight loss and diabetes remission through cutting down on carbohydrates such as bread, pasta, rice and potatoes, and instead eating meat, fish, green vegetables, eggs, nuts, whole fat dairy products and olive oil (whilst also taking up exercise). Others warn that more research is needed, since carbohydrates are an important source of energy and fibre, and impact blood sugar levels.

The National Institute for Health and Care Excellence [11] suggests eating carbohydrate from fruit, vegetables, whole grain and pulses; foods containing sugar can still be enjoyed as long as they form part of a healthy and balanced diet and lifestyle.

“There’s no such thing as a perfect diet that suits everyone” says Professor Taylor. Weight loss [12] can though protect your pancreas and help it recover function that once was lost.

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Links
[1] https://www.readersdigest.co.uk/health/wellbeing/all-you-need-to-know-about-the-pancreas [2] https://www.helencowan.co.uk/../tags/digestion [3] https://www.health.harvard.edu/a_to_z/acute-pancreatitis-a-to-z [4] http://www.diabetesincontrol.com/how-high-blood-sugars-damage-blood-vessels/ [5] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4008011/ [6] https://www.alzheimers.org.uk/research/our-research/research-projects/investigating-relationship-between-diabetes-and-dementia [7] https://www.readersdigest.co.uk/health/health-conditions/all-you-need-to-know-about-insulin [8] https://www.who.int/news-room/fact-sheets/detail/diabetes [9] https://www.bmj.com/content/360/bmj.k1122 [10] https://www.theguardian.com/lifeandstyle/2018/sep/12/tom-watson-lost-seven-stone-reversed-type-2-diabetes-interview [11] https://www.nice.org.uk/guidance/ng28/ifp/chapter/Diet-and-lifestyle [12] https://www.directclinicaltrial.org.uk/Documents/DiRECT%202nd%20Year%20Findings%20Press%20Release.pdf