Diabetes, Endocrine Functions of the Pancreas, and Natural Healing

The pancreas produces enzymes for digestion (exocrine) and makes hormones (endocrine). The pancreas makes more exocrine than endocrine. Ninety-eight to ninety-nine percent of the pancreas is used for the digestive juices, but the pancreas also contains scattered groups of neuroendocrine cells called pancreatic islets, or islets of Langerhans. The pancreas is about 12 inches long and tapers to your left. It's located in the upper abdominal cavity, towards the back, in the C curve of the duodenum.

This is an excerpt from the ridiculously long article, *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones* I believe that it's easier to heal the body when you understand how the body works, but understanding the endocrine system is big a task. It's a long article, but I think it's worth it and I hope you'll check it out. If you just ant information on diabetes, check out *How to Improve Blood Sugar Levels and Reverse Diabetes.*

Physiology of the endocrine pancreas – four cell types

The islet of Langerhans is comprised of four distinct types of cells, alpha, beta, delta, and gamma.

Alpha cells

Alpha cells constitute 20% of the islet's cells. They secrete a hormone known as glucagon which is a polypeptide made up of 29 amino acids, which raise blood sugar as needed to maintain normal levels.

The pancreas releases glucagon when glucose levels in the blood fall too low. Glucagon causes the liver to convert stored glycogen into glucose, which is released into the bloodstream. High blood glucose levels stimulate the release

of insulin.

Beta cells

Beta cells constitute around 80% of islet cells. They produce and secrete insulin, a small protein hormone that regulates how the cells in the body utilize glucose. Seventy-five percent of this glucose is used for brain function, while the rest is used for muscle function, red blood cell production, and fuel for every single cell in the body.

Beta cells also produce insulin-like growth factors (specifically, IGF-2), which are available in many body tissues at concentrations that far exceed insulin. IGF -2 shares the molecular structure and shape of insulin and is involved in growth.

Delta cells

Delta cells, which constitute less than 1% of pancreatic islets, secrete somatostatin, the same growth-hormone-inhibiting hormone secreted by the hypothalamus. This hormone inhibits insulin release and slows the absorption of nutrients from the GI tract.

Gamma cells (F cells)

Gamma cells also constitute less than 1% of pancreatic islets. They secrete a pancreatic polypeptide to inhibit somatostatin release.

Delta cells and Gamma cells regulate each other.

Diabetes Mellitus

As of 2015, diabetes is the seventh leading cause of death in the U.S. and it’s moving up, especially throughout the rest of the world. If stats took into consideration cardiovascular disease (when caused by diabetes) and kidney failure, those numbers could be considerably higher.

There are two main types of diabetes. Type I is insulin-dependent diabetes mellitus and Type II is non-insulin-dependent diabetes, which used to go by the name “maturity-onset” or “adult-onset diabetes,” but with our modern diets, it’s not just adults over 40 anymore, or even just adults who are diagnosed with Type II. The third type of diabetes, gestational diabetes, is a temporary condition that occurs during pregnancy. Type I and Type II diabetics end up at essentially the same place, though they arrive there in a very different manner.

With Type I, the body can’t produce enough insulin to drive the sugar into cells where it needs to be used for energy production. With type II the body produces enough insulin (at least in the beginning), but cells become insulin resistant, so sugar stays in the blood.

Natural Protocol for Dealing with Diabetes

Alternative methods for dealing with both types of diabetes are similar, but there are a few additional needs for anyone with type I due to the fact that it’s an autoimmune disease as well as an endocrine disease.

Metformin is the first-line medication for the treatment of type 2 diabetes, generally used to keep blood sugar levels low. Like almost every other pharmaceutical, it’s toxic and has a list of side effects. The good news is the following herbs are shown to work just as well, or even better when you consider the lack of side effects:

- **Gymnema sylvestre,** also called “miracle fruit” (note that this is a common name for two unrelated plants), is an herb native to the tropical forests of southern and central India and Sri Lanka. Studies have shown that this plant can help maintain healthy blood sugar levels.

- The **prickly pear cactus,** known as nopal in Mexico, offers many medicinal effects including the ability to lower blood sugar. It has been well documented by many studies, and it’s used for treating type-2 Diabetes in Mexico.

Other herbal supplementation known to stabilize blood sugar levels:

- Fenugreek extract
- Momordica charantia
- Corosolic acid
- Mulberry

The following nutrition can help reverse insulin resistance:

- Chromium GTF
- Beneficial fatty acids with DHA
- Konjac mannan
- Cinnulin PF

You can also help to rebuild the beta cells in the pancreas to optimize insulin production with:

- Gymnema sylvestre
- R lipoic acid

Remember, adrenaline suppresses the release of insulin. Some say to reduce stress, which is always a good idea, but more importantly, handle stress well without losing your temper.

Specific Additions for Type I diabetes (insulin dependent)

Since Type I diabetes is an autoimmune disease, addressing autoimmune activity makes sense. But, the following nutrition wouldn’t be a bad idea for type II diabetes or for almost any autoimmune disease.

Immunomodulators

The following can balance immune system activity and reduce inflammation.

- L-carnosine
- Cetyl myristoleate (CMO)
- Ginseng

Infection

Viruses may be a cause of Type I diabetes (and Lyme, and many other autoimmune diseases). It’s not at all the whole story (and our bodies can turn off and on viruses depending on our health and genetics, and incidentally, our genetics change with our health as well). Candida, bacterial infections, other fungi, parasites, and/or viruses are likely to be running havoc on anyone with diabetes.

- Garlic (antimicrobial, many other benefits, pills are ok but best when eaten raw, crushed, see more on garlic)
- Olive leaf (rare herb that leaves beneficial bacteria intact, kills bad guys)
- SF722 (antimicrobial, specifically very effective antifungal
- Berberine (powerful antimicrobial)

Other Nutrition

Protect organs from damage and repair damage caused by the high insulin caused by diabetes:

- Blood cleaning formula, because the healthier the blood is, the healthier the body is.
- Proteolytic enzymes (aka systemic enzymes) to break down protein. (Better assimilation of proteins, and helps break down virus proteins, too.)
- Probiotics, because anyone who’s eaten enough sugar to get a diabetes diagnosis needs to take a good probiotic for a long time!
- Coenzyme Q10 may help with blood glucose control, and

it’s got a massive amount of other benefits, many of which help with diabetic issues.

Diet is, as always, paramount. Check out *Detox Cheap and Easy Without Fasting – Recipes Included.* And again, this is an excerpt from the ridiculously long article, *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones.*

Related Reading:

- *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*
- *Candida, Gut Flora, Allergies, and Disease*
- *Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases*
- *Hypothyroidism – Natural Remedies, Causes, and How To Heal the Thyroid*
- *How To Detoxify and Heal From Vaccinations – For Adults and Children*