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the PANCREAS

from DAN'S HAND

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Glazed donuts, cakes, candies, cookies, pies, ice cream — many of us have grown up with these marvelous sweet treats. In the old days — and I mean the really old days — these sweet treats were truly that: treats. It took time to churn a freezer of ice cream by hand or make a cake from scratch. Sweet treats were not a way of life; they were consumed infrequently, few and far between. They were often made from pure maple syrup right from the tree or honey pulled from the beehive. So we indulged infrequently, and we savored the moment.

Our digestive systems evolved over millions of years to digest whole foods primarily from vegetables, fruits, grains, legumes, nuts and proteins. Soon after the turn of the 20th century, machines were invented to mass produce food products. We began over-processing all these wholesome foods, adding sugar to everything from ketchup to crackers. Our digestive systems have been trying to play "catch-up" ever since.

Sugar is now in everything and by processing these once "wholesome foods," we have changed the Glycemic Index (the rate of digestion) of them dramatically. As a result, our bodies break down these carbohydrates so quickly that they turn into glucose (sugar) faster than simple white table sugar does! Our bodies' digestive systems are now working harder than ever to process these over-processed sugar laden foods. The organ that perhaps is working harder than all the rest is the pancreas and sooner or later, it just stops working.

The Pancreas – Key to a Healthy Life

The pancreas is an elongated gland that lies behind the abdomen, behind the stomach. Its main function is to regulate the sugar that enters the blood system. It consists of both endocrine and exocrine tissue. The exocrine tissue secretes enzymes that enter the duodenum (first part of the small intestine leaving the stomach). These enzymes breakdown and digest proteins, carbohydrates, fats and nucleic acids. The pancreas also secretes bicarbonate to neutralize stomach acid entering the duodenum. The endocrine cells compose more than a million small clusters of cells known as the islets of Langerhans scattered throughout the pancreas. About 70% of these cells are beta or B cells and produce the hormone insulin, which lowers glucose (sugar) concentration in the bloodstream. The remainder of these cells are alpha or A cells and secrete the hormone glucagon; these cells raise the glucose levels in the bloodstream.

When there is an abundance of sugar or glucose in the blood, the B cells produce insulin that stimulates liver, fat, and muscle cells to take it up and metabolize it.

It also stimulates the liver to store glucose as glycogen (energy) and promotes the storage of fats and proteins to be used during leaner times. The A cells secrete glucagon between meals, when the blood sugar is low. Glucagon stimulates the liver to convert glycogen back to glucose and raises the blood sugar level. It causes the adipose tissue to release its stores of fatty acids into the blood.

When this overabundance of sugar, either from added sugar or easily broken down processed foods, becomes a way of life, the pancreas simply begins to wear out and cannot make enough insulin to regulate the excess sugars in the blood stream. As a result, these sugars are quickly metabolized into triglycerides and fat cells. BAD!

What has the sugar craze done to our bodies? Experts now claim that an estimated 20 million Americans either have Type 1 (insulin dependent) or Type 2 Diabetes (non-insulin dependent). Type 2 Diabetes is claiming approximately 100 million victims worldwide annually! But diabetes is not the only disease linked to sugar; obesity, hypoglycemia, gum infections, yeast infections, Candida, tooth decay, hyperactivity all can be traced to excessive amounts of sugar and processed carbohydrates.

An Exception to the Rule

Immediately following a workout, your glycogen stores are partially or fully exhausted. Our bodies release an enzyme called glycogen synthase. This enzyme recognizes the presence of sugar in the bloodstream and ushers these sugars directly into the muscles where glycogen is stored, completely bypassing the liver. Carbohydrates and sugars ingested immediately following a workout — usually between 30–45 minutes — will help you recover, stopping your body from being thrown into a catabolic (muscle wasting) state. These sugars are stored as glycogen and not shuttled off to be stored as fat. They re-volumize your muscle cells, bringing 2.7 grams of water with every gram of glycogen, helping to rehydrate your body too!

Remember — you can reverse disease. Begin taking your life and nutrition into your own hands; it's 70% of the battle.

Simple Rules to Live by

- Eat 5–7 smaller meals daily.
- Combine carbs, proteins and fats at every meal.
- Begin eating within 30 minutes of waking up.
- Eat low-glycemic foods, except immediately following your workout.

Eat Well!

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Eat Well. Live Well (and Long).