

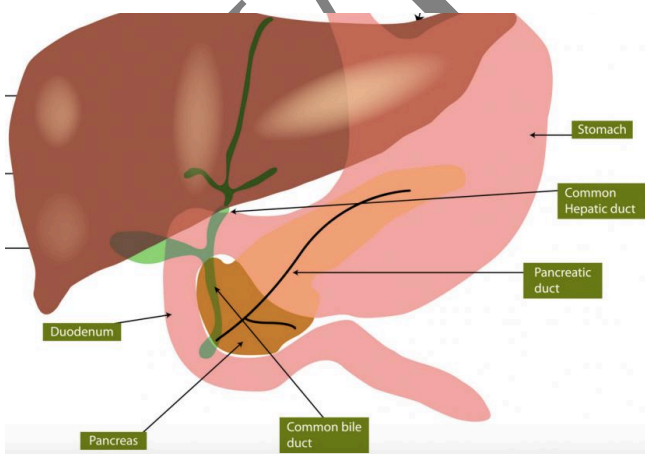
The Effects of Sugar on the Body

Sugar is a somewhat misunderstood compound that is a part of every person's diet but, when consumed in excess, can have serious health consequences. It comes in numerous forms, all of which can be identified by the -ose suffix with which they end. Examples include sucrose, glucose, fructose, and lactose. In all forms, sugar is a simple carbohydrate or molecule, which the body breaks down to produce energy in a process called cellular respiration. Sugar is found naturally in fruits and vegetables as fructose and in dairy products as lactose. When we talk about the sugars that cause health problems, we are talking about refined sugars that have been added to food products; these usually come in the form of sucrose that is a combination of both fructose and glucose (CTCA, 2014). These two sugar types are processed by the body separately and have slightly different effects. Glucose triggers the production of insulin, the hormone that transfers glucose from the blood into the cells where it is used as energy. Fructose is transformed into glucose by the liver and so has impacts on that organ that glucose doesn't (Voss, 2014).



The liver and pancreas

The liver's role in sugar metabolism is to turn fructose into glucose. However, if you eat too many foods filled with refined fructose, the liver starts converting it into fat instead. Fat is deposited not just in the



places we normally think of, like the hips and belly, but also in the liver itself. This is called lipogenesis, which leads to non-alcoholic fatty liver disease and can eventually require a liver transplant.

The pancreas, which produces the insulin necessary to turn glucose into energy, can also be overwhelmed by too much sugar. With too high an insulin demand, the pancreas loses its ability function, which is one of the causes of diabetes.

Excess levels can also cause insulin immunity within the body and can lead to diabetes (Voss, 2014).

The brain

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Aging

In a 2009 study, glucose was linked to accelerated aging of cells. Skin is supported by collagen and elastin that makes it flexible. When the skin is damaged, for instance by the sun, collagen and elastin breakdown, but the body is able to repair them. As we get older, the ability to repair skin cells slows, a process that is quickened by excess sugar consumption. Amino acids in the skin bond with the sugar, hindering repair. These links are permanent so prevention is important (Beres, 2012).

Cancer

Sugar may play a role in and even cause cancer. In 2013, researchers found that the protein β -catenin, which is detected at higher levels when more sugar is present, may make cells more susceptible to cancer (Kirkpatrick, 2013). Blood glucose levels, which are a result of sugar consumption, have also been linked to odds of mortality versus remission. Keeping all other factors the same, countries that have a higher per capita level of sugar consumption also have a higher rate of death from breast cancer (Krone and Ely, 2005). Mortality (death) rates of colon cancer patients have also been associated with high sugar consumption (Kirkpatrick, 2013).

Reading Comprehension Questions

1. With what
2. What
3. What
4. Where is fructose processed in the body?
5. What is the formation of pockets of fat in the liver called?
6. What
7. What does leptin do?
8. What is another term for belly fat?
9. What

Extension Questions

10. Keep a
11. One of the biggest risks of excess sugar consumption is the development of diabetes. Research

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