

Fructose Fact Sheet



CLEARING UP MISCONCEPTIONS

FACT 1

SOME NUTRITIONISTS SAY: Fructose is a **natural** sweetener found in honey, fruits, berries and vegetables. This alone makes it a healthy sweetener.

LINDA LIZOTTE, R.D.: *Xylitol is naturally found in foods such as mushrooms, fruits and vegetables. Xylitol, and other sugar alcohols, are natural sweeteners, they all have a low glycemic index, and they do not produce the negative health effects associated with fructose. It is commercially extracted from birch trees and corn husks. Many people do not realize that up to 15 grams of Xylitol is metabolized by the body in normal metabolism each day. Humans can utilize several hundred grams of xylitol per day and studies show it is nontoxic. Xylitol is metabolized through the hexose monophosphate shunt and the pentose shunt. These pathways begin and end with the Krebs Cycle allowing the body to easily use xylitol as an energy source. Xylitol dehydrogenase is an active enzyme in red blood cells involved in the conversion of NADP to NADPH. Because of this, three conditions that occur due to glucose-6-phosphate dehydrogenase (G6PD) deficiency can benefit from Xylitol by bypassing the glucose-6-phosphate pathway. These conditions are: neonatal jaundice, acute hemolytic crisis, and congenital nonspherocytic hemolytic anemia. This NADP energy is produced in order to keep glutathione in its reduced state so it can continue to protect the red cell membrane from free radicals. Without this protection the red cell will die. This means Xylitol can act as an extra energy source for keeping glutathione active in protecting red cells from hemolysis due to oxidation.*

German and Japanese researchers (1960's) concluded:

- Xylitol is a nontoxic substance
- Humans can utilize several HUNDRED grams of xylitol per day
- The utilization of xylitol is insulin independent making it useful in the treatment of diabetics
- Xylitol is antiketogenic, also making it good for diabetics
- In Japan xylitol is used for parenteral nutrition

FACT 2

SOME NUTRITIONISTS SAY: Apples contain an average of 15 to 20 grams of sugar, the majority of which is fructose.

LINDA LIZOTTE, R.D.: *True. The real problem we face is the fact that the food industry has increased its usage of fructose and high fructose corn syrup as sweeteners. The last thing we need to do is to also add fructose to nutritional products as well. Fructose consumption in the US has increased by 26% since 1970. The incidence of obesity and type II diabetes has increased drastically during this exact same time period. According to Katherine Flegal, an epidemiologist at the National Center for Health Statistics, the percentage of obese Americans stayed relatively constant through the 1960's and 1970's at 13% to 14%. It then shot up by 8% in the 1980's. By the end of that decade, nearly 1 in 4 Americans was obese, overweight children tripled in number, and for the first time, physicians began diagnosing Type 2 Diabetes in adolescents. This does not make fructose look good, and no matter how you slice it, all the research on large intakes of fructose is extremely negative.*

FACT 3

SOME NUTRITIONISTS SAY: Fructose has the **lowest glycemic index** (GI) of any of the sugars. Fructose is a low GI sugar, making it a healthy choice.

LINDA LIZOTTE, R.D.: *True, but it is interesting that sucrose is made up of 50% fructose. Focusing on glycemic index, or glucose in the bloodstream, is silly when fructose metabolism does not involve insulin. Let's look at the whole body and what happens after fructose gets readily taken up by the liver and gets quickly converted into lipids. Here's what happens according to research: cholesterol levels increase, triglyceride levels increase, glycosylated hemoglobin increases, insulin resistance is well on its way, and blood pressure may even rise.*

FACT 4

SOME NUTRITIONISTS SAY: Fructose provides a **sweeter taste** than either sucrose or glucose; it is 1.7 times sweeter than sucrose. This means **less fructose is needed** than sucrose or glucose for the same sweetness.

LINDA LIZOTTE, R.D.: *Why use glucose, sucrose or fructose when sugar alcohols exist in nature and the body and contribute to none of the negative health consequences just mentioned? Xylitol helps to prevent cavities and ear infections. According to research obese people given xylitol lost weight without dieting due to a decrease in appetite. Research also shows that xylitol helps to mineralize bones.*

FACT 5

SOME NUTRITIONISTS SAY: Fructose is the preferred sugar source for diabetics because little or no increase in blood glucose is noted after ingestion of large amounts of fructose and because fructose is approximately 30% less potent than glucose in promoting secretion of insulin in insulin-deficient individuals.



LINDA LIZOTTE, R.D.: *I completely disagree. Aren't diabetics at very high risk for cardiovascular disease and hypertension? How could a sugar that contributes to both be a healthy sugar for diabetics? Again, sugar alcohols would be preferable. In 1969, after studying safety data and the metabolism of xylitol, the WHO/FAO accepted the use of xylitol as a dietary additive for diabetics. The utilization of xylitol is insulin independent and xylitol will not affect ketosis.*

FACT 6

SOME NUTRITIONISTS SAY: Fructose is primarily absorbed in the gastrointestinal tract through a facilitated transport process, which results in it being **absorbed more slowly** and ineffectively than glucose. Less fructose is absorbed when it is used as the primary or exclusive sweetener than when it is used in the form of sucrose or accompanied by glucose.

LINDA LIZOTTE, R.D.: *Sugar alcohols, such as xylitol, are absorbed very slowly as well. After they are absorbed, however, they do not raise triglyceride and cholesterol levels.*

FACT 7

SOME NUTRITIONISTS SAY: Fructose is not transported directly into the bloodstream after digestion and absorption, but is converted into glycogen in the liver where it is stored and used for energy at a later time. This is one of the main reasons normal consumption of fructose **does not lead to increased blood sugar**.



Linda Lizotte, R.D., CDN, is a co-founder of Designs for Health and a nationally known nutritionist.

She has 15 years of experience with thousands of clients using nutrition to treat weight loss, adrenal burnout, female hormonal imbalances, toxic metal elimination, and a range of other health issues.

LINDA LIZOTTE, R.D.: *Again we are being told here a very small part of the picture. Will some convert into glycogen? Maybe, but research proves that over-consumption of fructose raises the lipids that contribute to heart disease.*

FACT 8

SOME NUTRITIONISTS SAY: Consumption of fructose is associated with a significant **decrease in glycosylated hemoglobin** in serum, as well as a significant **decrease in fasting blood glucose** levels in type 2 diabetics.

LINDA LIZOTTE, R.D.: *Research does not support this, in a matter of fact, it supports the exact opposite, that fructose consumption **INCREASES** glycosylated hemoglobin more than any other sugar. This is another valid reason for not recommending fructose as a sweetener for diabetics.*

FACT 9

SOME NUTRITIONISTS SAY: Fructose **weakens both glucose and insulin peaks** that are induced by other sugars. In addition, fructose alone appears to result in **little or no blood glucose and insulin increase**.

LINDA LIZOTTE, R.D.: *Regardless of fructose's immediate effect on insulin and blood glucose, research shows that fructose consumption contributes to obesity and insulin resistance and elevates the lipids that cause heart disease. Fructose is also one of the least expensive sweeteners.*

A FEW MORE IMPORTANT FACTS TO CONSIDER ABOUT FRUCTOSE

- In research it is common to feed rats fructose to make them hypertensive in order to study the effectiveness of hypertensive drugs.
- Fructose intolerance is on the rise and one third to one half of patients with irritable bowel syndrome symptoms are fructose intolerant. This was presented at the 2004 annual meeting of the American College of Gastroenterology. The research was done at the University of Iowa Hospital by Dr. Young K. Choi. The symptoms include abdominal discomfort, bloating, and constipation and/or diarrhea. Dr. Choi concluded that a fructose-restricted diet significantly improved symptoms in these patients.

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