

# SUGAR, FRUCTOSE, STARCHES

Simple sugars are called monosaccharides and more complex sugars disaccharides. Fructose is a monosaccharide sugar better known for its prevalence in fruit. Glucose is regulated via Insulin-Glucagon hormone secretion with high intake associated with weight gain and Diabetes. Fructose bypasses the Insulin-Glucagon regulatory mechanism and goes straight to the liver where the liver has to metabolise fructose. High fructose intake is associated with Fatty Liver and Metabolic Syndrome. Starches ultimately is broken down into sugars for absorption and will contribute to sugar load.

Certain digestive conditions call for the avoidance of all sugars, fructose and starches which can be fermented by certain spp of gut bacteria and contribute to Mitochondrial Dysfunction, Chronic Fatigue and other biochemical imbalances.

SUGAR	FRUCTOSE	STARCHES
Fructose (further identified in next column) Glucose Galactose Sucrose (table sugar) Maltose Lactose (milk sugar) Sugar alcohols – sorbitol, isomalt, lactitol, maltitol, mannitol, xylitol, erythritol All sugar – white, brown, raw, demara, rapadura, coconut/palm All sweets and lollies	High-fructose corn syrup (HFCS) Corn syrup solids All processed foods Fruit Fruit juices Fruit juice concentrates Apples, pears Agave nectar Honey Molasses Maple syrup	Potatoes Sweet potatoes Pumpkin Corn Parsnips Taro Squash Yams Beets All Grains All cereals and porridges All breads All pastas All baked goods Thickeners in sauces

Table 1. Sugar content of selected common plant foods (g/100g)<sup>[23]</sup>

Food Item	Total Carbohydrate <sup>a</sup> including "dietary fibre"	Total Sugars	Free Fructose	Free Glucose	Sucrose	Fructose/ Glucose Ratio	Sucrose as a % of Total Sugars
<b>Fruits</b>							
Apple	13.8	10.4	5.9	2.4	2.1	2.0	19.9
Apricot	11.1	9.2	0.9	2.4	5.9	0.7	63.5
Banana	22.8	12.2	4.9	5.0	2.4	1.0	20.0
Fig, dried	63.9	47.9	22.9	24.8	0.9	0.93	0.15
Grapes	18.1	15.5	8.1	7.2	0.2	1.1	1
Navel orange	12.5	8.5	2.25	2.0	4.3	1.1	50.4
Peach	9.5	8.4	1.5	2.0	4.8	0.9	56.7
Pear	15.5	9.8	6.2	2.8	0.8	2.1	8.0
Pineapple	13.1	9.9	2.1	1.7	6.0	1.1	60.8
Plum	11.4	9.9	3.1	5.1	1.6	0.66	16.2
<b>Vegetables</b>							
Beet, Red	9.6	6.8	0.1	0.1	6.5	1.0	96.2
Carrot	9.6	4.7	0.6	0.6	3.6	1.0	77
Corn, Sweet	19.0	6.2	1.9	3.4	0.9	0.61	15.0
Red Pepper, Sweet	6.0	4.2	2.3	1.9	0.0	1.2	0.0
Onion, Sweet	7.6	5.0	2.0	2.3	0.7	0.9	14.3
Sweet Potato	20.1	4.2	0.7	1.0	2.5	0.9	60.3
Yam	27.9	0.5	tr	tr	tr	na	tr
Sugar Cane		13 - 18	0.2 - 1.0	0.2 - 1.0	11 - 16	1.0	high
Sugar Beet		17 - 18	0.1 - 0.5	0.1 - 0.5	16 - 17	1.0	high