



ARTIFICIAL SWEETENERS AND ORAL HEALTH

Cvetanoski Ognen, Ilievski Stefan, Naskova Sanja, Dimova Cena

INTRODUCTION:

Too much sugar can be detrimental to health, rotting teeth, building fat, damaging blood vessels and stressing out the system that regulates blood sugar. Some people turn to artificial sweeteners, but those are under increasing suspicion of creating metabolic problems, such as diabetes and obesity.

Natural alternative sweeteners exist, but even they have pitfalls if consumed in excess. Sugar substitutes taste like sugar, but have no calories or carbohydrates. They don't contribute to weight gain, don't cause cavities and don't raise blood sugar levels. Since sugar substitutes are many times sweeter than sugar, only small amounts are needed to sweeten foods and beverages.

All, except saccharin, are approved as safe for use during pregnancy.

AIM: The aim of the study was to highlight the importance of knowledge of using Artificial sweeteners and their effects on oral health and recommendations of the World Health Organization.



SWEETENERS: A PERIODIC TABLE													
RAW		COOKED						PARTLY REFINED		REFINED SUGAR		SUGAR ALCOHOL	
0.97 Hn Honey Has antioxidants, but may contain pesticides; dangerous for infants	0.5 Yc Yacón syrup or powder High in fiber; daily intake might cause weight loss	300 St Stevia leaf powder Not approved as a food additive, but can be bought as a	1 Ms Maple syrup Mostly sucrose; contains antioxidants, minerals and B	1 Br Brown sugar, Sugar in the raw Trace amounts of nutrients; mostly sucrose	1 Su Sucrose. Table sugar Linked to kidney disease, gout and fatty liver disease	1.7 Fr Fructose. Agave nectar Boosts appetite; raises triglycerides and bad cholesterol	0.7 Gl Glucose. corn syrup, Karo syrup Lowers appetite; quickly raises blood-sugar levels	0.9 Tg Tagatose, Naturlose Lowers blood glucose levels in people with elevated blood sugar	0.6 Gy Glycerol, glycerin Keeps foods moist; high doses cause nausea and dizziness	1 Xy Xylitol, Xylowest Good for teeth; as sweet as sugar			
Less than 1 Lu Lucuma powder Anti-inflammatory; sometimes processed with tree nuts/peanuts	300 Mk Monk fruit. Lo han Ancient Chinese sweetener; sometimes "cut" with dextrose	0.8 Mo Cane sugar molasses Mostly sucrose; contains antioxidants, minerals and B vitamins	1.1 Sg Sorghum syrup Mostly sucrose; contains antioxidants, minerals and B	50 Li Glycyrrhizin. Licorice Treats hepatitis in Japan; in excess, might cause high blood	480 Re Rebaudioside, <i>Truvia</i> , <i>Sweet'leaf</i> Not adequately tested, says one group	1.2 Hf High fructose corn syrup Stabilizes processed foods; has been linked to	1.2 In Inverted sugar Sucrose split into glucose and fructose by an acid	0.5 Ma Maltose. Brown rice syrup Syrup arsenic levels often higher than	0.8 MI Maltitol, <i>SweetPearl</i> Has less of a cooling effect than other sugar alcohols	0.6 Mn Mannitol Hard coating for pills; very large doses can damage kidneys, heart			
SYNTHETIC SUGAR		OTHER REFINED		SYNTHETIC SUGAR ALCOHOL									
300 Sc Saccharin, <i>Sweet'N Low</i> Once banned for causing bladder cancer	500 Sr Sucralose, <i>Splenda</i> Keeps crystalline form even in high heat; persists in environment	200 As Aspartame, <i>Equal</i> Generates formaldehyde in the body; can increase	20,000 Ad Advantame Derived from aspartame; effects on brain have not been thoroughly tested	8,000 Ne Neotame "Flawed safety studies," says Center for Science in the	200 Ac Acesulfame potassium, <i>Sweet'N Low</i> CSPI: "Safety tests . . . were of mediocre	0.6 Is Isomalt Used to make edible decorations							

Sweeteners: a periodic table
This table charts the wide variety of sweeteners available in the United States, either in bulk amounts or as additives in food.

Not listed are super-sweet-tasting, zero-calorie proteins from several African fruits (monellin, brazzein and thaumatin), which have not been approved for use by the FDA.

Also not included: banned or poisonous sweeteners, such as lead acetate, which ancient Romans made by cooking sour wine in lead pots.

RESULTS: The severity of sugar's impact on your teeth can vary depending on the amount, type and form of sugar consumed, but the effects remain the same - cavities. However, the total amounts of sugar you eat have less of an impact on your teeth than how often you consume the sugar.

Sugar consumed in liquid form, such as sodas or juices, gets into every hard-to-reach nook and cranny in your mouth. Even with regular brushing, those sugars can be difficult to reach encouraging the growth of harmful bacteria. Chewing foods laden with sugar can leave larger-than-normal amounts of sugar residue on your teeth. Your saliva will not wash away this residue. And harmful bacteria are invited to wreak havoc on your tooth enamel.

CONCLUSION:

- WHO recommends a reduced intake of free sugars throughout the lifecycle (strong recommendation1).
- In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake2 (strong recommendation).
- WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake (conditional recommendation3).