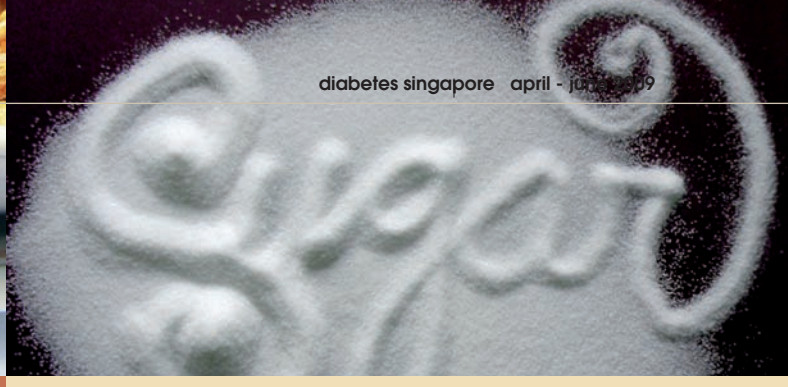

Dear Dietitian,

I have heard that something called plant sterols may help lower cholesterol. Is this true and in which foods can you find them?

Plant sterols are sometimes called phytosterols. They have a similar chemical structure to cholesterol which helps to reduce cholesterol absorption at the digestive tract. This can also reduce serum LDL cholesterol (LDL-C) concentrations. This is good news as a high serum LDL-C is a risk factor for heart disease.

Research suggests that taking 2g of plant sterols per day can reduce about 10% LDL-C. Taking more than 2 to 3g per day does not seem to have any additional cholesterol lowering benefit.

Plant sterols are naturally found in small amounts in some vegetable oils, nuts, grains fruits and vegetables. Food manufacturers are also adding them into foods like margarines, milk, etc. It may be difficult for you to achieve 2g intake of plant sterols a day from natural foods alone. However, please do not over consume any food or beverage with plant sterols just to get your 2g per day or you may gain excessive weight, which is not ideal in diabetes or cholesterol management.

Although plant sterols may help with lowering LDL-C, do not forget the basics: reduce intake of saturated and trans fat, increase soluble fibre intake, exercise and maintain a healthy weight!

Dear Dietitian,

I know EQUAL® is an artificial sweetener made of aspartame. My friend told me that there is another sweetener made of sucralose. What is sucralose and how is it different?

Aspartame is about 200 times sweeter than sugar. Its caloric value is similar to sugar (4 kcal/g), but the amounts used are small enough to consider aspartame essentially free of calories. Aspartame is converted in the body to methanol and two amino acids--aspartic acid and phenylalanine.
Sucralose is about 600 times sweeter than sugar and has no calories. Sucralose is derived from sugar through a patented process that substitutes three chlorine atoms for three hydrogen-oxygen (hydroxyl) groups on the sugar molecule. Our body does not recognise sucralose as a carbohydrate and does not break it down for energy. The sucralose molecule passes through the body largely unchanged and is not metabolised.

Sucralose is marketed as having a good safety profile and suitable for baking and cooking due to its stable molecular structure. In 1999, the US FDA allowed sucralose as a general-purpose sweetener in all foods.

Brands of sucralose include Splenda, Sweetico and Tropicana Slim Diabetes.

Below is a table on the Acceptable Daily Intakes (ADI) of four common sweeteners found in Singapore, as defined by three regulatory bodies around the world. This is the maximum amount considered safe to eat each day during your lifetime. ADIs are intended to be about 100 times less than the smallest amount that might cause health concerns.

Table 1: Date of discovery and approval of some currently marketed artificial sweeteners and their Acceptable Daily Intake (ADI) (adapted from Mattes & Popkin 2009)

Sweetener	Year Discovered	Year Approved for use in foods	JECFA* ADI mg/kg body wt	EFSA* ADI mg/ kg body wt	FDA* ADI mg/kg body wt
Acesulfame-K	1967	1988	15	9	15
Aspartame	1965	1981	40	40	50
Saccharin	1879	1977	5	5	5
Sucralose	1976	1998	15	15	5

*JECFA=Joint Commission of Experts on Food Additives of the World Health Organization and the Food and Agriculture Organization; ESFA=European Food Safety Agency; FDA= US Food and Drug Administration

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