To juice, or not to juice?

Eating a diet rich in fruit and vegetables as a part of a healthy, balanced diet may reduce the risk of heart disease, obesity, cancer and type 2 diabetes. Fruits are rich in fibre, antioxidants, phytochemicals and several vitamins that may have beneficial health effects. Increasing fruit consumption has been recommended for the primary prevention of many chronic diseases, including type 2 diabetes (World Health Organization, 2003). Both the NHS website and United States Department of Agriculture (USDA) recommend fruit or unsweetened 100% fruit juice. The USDA recommends around two cups of fruit per day while the recommendation in the UK is to consume five portions of fruit a day. Several studies have, however, shown that consumption of fruit and vegetables either has a minimal health benefit or no benefit at all (Dauchet et al, 2005; He et al, 2007; Koushik et al, 2007; World Cancer Research Fund/ American Institute for Cancer Research, 2007).

The NHS website further specifies that juice counts as a maximum of one portion a day towards its target of five, irrespective of the volume consumed. That is mainly because juice contains less fibre than whole fruits and vegetables. This information could be detrimental as people may tend to consume more fruit juice presuming it is not harmful and, in fact, may be beneficial. Much of the fruit juice available in supermarkets contains added sweeteners, like sucrose or high fructose corn syrup. As a result, it is easy to consume a large number of calories without getting any additional nutrition or fibre.

A prospective, longitudinal cohort study of health professionals in the United States involving around 190 000 participants, which was conducted to determine whether individual fruits are differentially associated with risk of type 2 diabetes, showed that a greater consumption of fruit, particularly blueberries, grapes and apples, was significantly associated with a lower risk of type 2 diabetes, whereas increased consumption of fruit juices was associated with a higher risk of type 2 diabetes (Muraki et al, 2013).

There are a number of reasons why eating fruit is better than consuming fruit juice. The glycaemic load of juice is higher than that of fruit, and the absorption of sugar is slowed due to the fibre content in the fruit. As each fruit self-defines its portion size, one tends to be conscious of the amount or number of fruits consumed. Chewing the skin around the fruit slows the rate at which fruits are consumed. The number of calories burned chewing and digesting the fruit skin, though almost insignificant, nevertheless provides some benefit. In addition to the relatively high glycaemic load of fruit juices, beneficial nutrients are lost during the juicing process. Processing results in fewer vitamins and minerals because the nutrient-rich skin is left behind. Juicing also removes the pulp, which contains fibre.

There is significant glycaemic excursion following consumption of fruit juice when compared with eating fruit. This may be due to the fact that juice is in liquid form and fruit in solid. As fluids pass more readily to the stomach and small intestine after ingestion, they trigger more rapid secretion of insulin and glucagon-like peptide. The mean amplitude of glycaemic excursion (MAGE) would be higher, increasing the strain on the beta cells of the pancreas. Further research is needed to confirm the impact of fruit and fruit juice on MAGE.

Whole fruit is better than fruit juice. Our patients should be encouraged to eat fruit and to avoid the presumption that fruit juice is equivalent to fruit. ■

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