

Increased intake of fructose is not advisable for diabetics

BfR Opinion Nr. 041/2009, 6 March 2009

For a long time, diabetics were advised to replace conventional sugar with fruit sugar (fructose). Thus, fructose is used commonly in diabetic foods. However, since individuals suffering from diabetes mellitus type 2 do not simply have “the sugar”, but often also have problematic protein and lipid metabolisms, it is important to study the effects of fructose on the metabolism. In past opinions, the Federal Institute for Risk Assessment (BfR) has already assessed whether fructose is more tolerable and digestible than conventional sugar for diabetics. The Institute came to the conclusion that fructose bears no advantages, and that its use is not recommendable. Accordingly, the Institute also considers the positive claim of foods as “suitable for diabetics” for expendable.

The BfR has reviewed current international research literature on the topic of fructose and the development of the metabolic syndrome as well as obesity and adiposity. The metabolic syndrome refers to the simultaneous occurrence of overweight, lipid metabolic disorder, high blood pressure and insulin resistance. Numerous new research results indicate that the increased intake of fructose via industrially produced foods such as lemonade sweetened with fructose has negative effects on health: it fosters adiposity since high amounts of fructose influence hormonal weight regulation, and it promotes the development of the metabolic syndrome that is closely related to diabetes mellitus type 2. Animal experiments show that the intake of high amounts of fructose leads to increased levels of insulin in blood, to pathological increases in blood lipids and uric acid in blood. Human studies have shown that an increased intake of fructose fosters the regeneration and storing of fats in fatty tissue and in the liver and is thus connected with the non-alcoholic fatty liver, an early sign of the metabolic syndrome, as well as increased LDL cholesterol and blood lipid levels, both of which are risk factors for cardiovascular diseases.

From the BfR's view, numerous authors thus confirm the Institute's recommendation to abstain from fructose as sugar substitute in industrially produced foods. Diabetics should avoid the increased intake of fructose-containing (diabetic) products. They should observe a diet rich in dietary fibre and vitamins through the daily intake of large amounts of fruits, vegetables and salads as well as legumes and whole wheat products.

The full version of the BfR Information in German is available on http://www.bfr.bund.de/cm/208/erhoehte_aufnahme_von_fruktose_ist_fuer_diabetiker_nicht_empfehlenswert.pdf