

Does sugar cause Type 2 diabetes?

Food is a huge part of daily living and can affect both your health and happiness. This paper is aimed at people who have an interest in diabetes and want to make informed choices about the food they eat.

The public understanding about diabetes is generally poor and often limited to the fact that people with diabetes cannot regulate their levels of blood glucose properly. For many people this leads to a natural assumption that to control blood glucose levels and to avoid getting diabetes, it is all about regulating the amount of “sugar” in your diet.

When we talk about sugar, we are referring to sucrose or sugar that is added (“added sugar”) to food and drink by ourselves or food companies. This includes table sugar that we add to tea, caster sugar for baking our cakes and sugar and syrups hidden in drinks for example.

What causes diabetes?

There are two main types of diabetes - Type 1 and Type 2 diabetes. In Type 1 diabetes the insulin producing cells in the pancreas are destroyed by the immune system. We don't fully understand why this happens, but it is not related to being overweight or the amount of sugar you eat and there is no cure. Type 2 diabetes is a bit more complex. Whilst being overweight is a significant risk factor for Type 2 diabetes, other factors such as genetics (family history of diabetes), increasing age and ethnicity play a big part. This means some people who are carrying extra weight won't develop diabetes while others who are of a healthy weight, might. It's the combination of our genes and our lifestyle that influences the development of Type 2 diabetes.

However, we know that the high and increasing number of people with Type 2 diabetes is due to the growing number of people in our society who are overweight or obese.

So, what role does sucrose play in developing Type 2 diabetes?

At the moment there are two hypotheses:

1. Sucrose causes Type 2 diabetes by making us gain weight
2. Sucrose causes Type 2 diabetes through another mechanism

The evidence for the **first** hypothesis is strong. Eating too many calories - including those from sugar - can make a significant contribution to becoming overweight [2, 3] and being overweight increases the risk of developing Type 2 diabetes [4, 5]. And a number of studies have shown that, particularly in children, regularly drinking sugary drinks can cause weight gain [6, 7, 8] as these drinks are high in calories and not very filling [9].

Evidence for the **second** hypothesis, that sucrose may cause Type 2 diabetes through a mechanism other than weight gain, is less clear. The best evidence we could get would be from long-term studies of the effect of diet on diabetes risk in large groups of individuals over many years. In 2013 a large long-term European study investigating the effect of diet on health [10] found an association between the amount of sugary soft drinks people had and their risk of Type 2 diabetes. In this study weight gain had a big effect on diabetes risk and sugary drinks had a small effect on diabetes risk even after Body Mass Index (BMI) was taken into account. Unfortunately BMI is not a complete measure of body fat, but it was the only data the research team had. The small effect seen in this study might not

have been seen if the research team had been able to correct fully for the effect of body fat, so the evidence from this study cannot be considered strong and further studies are needed.

Unfortunately, when research studies like this are reported in the media, it is rare to see the issues discussed in any depth and the scientific debate is often falsely represented as disagreement over whether or not “sugar causes diabetes”. The scientific debate is important, but the fact of the matter is that we already know enough about the impact of too much added sugar in our diets to justify taking action as individuals to improve our health.

The UK Scientific Advisory Committee on Nutrition is currently reviewing all evidence on dietary carbohydrate (including added sugar) and health and we look forward to reviewing their recommendations when they are published in 2014.

What advice is given to prevent Type 2 diabetes?

Even though the sugar may be linked to Type 2 diabetes by making a significant contribution to becoming overweight, thinking about sugar alone in your diet is not enough. Weight is determined by total energy intake and by how much you burn in activity, so maintaining a healthy weight through a balanced diet combined with an active lifestyle is really important.

Being overweight is a known risk factor for Type 2 diabetes and being overweight is preventable. If you are overweight, you should make lifestyle changes to bring your weight down and if you are a healthy weight already, it is worth making the effort to maintain it. As well as significantly reducing your chances of developing Type 2 diabetes, it will also reduce your risk of heart disease and some cancers [3, 5, 11].

The way to do this is to follow a healthy balanced diet and get regular physical activity. When we talk about a healthy balanced diet, we mean one that has plenty of plant based foods such as fruit, vegetables and pulses, starchy carbohydrates, some lean meat and dairy and can include modest amounts of foods and drinks containing added sugar (such as cakes and biscuits) as well as being low in fat, salt and alcohol [12].

While reducing the amount of sugar in our diets can be important, people should do this because sugar contains lots of calories rather than because of any direct effect it may or may not have on risk of Type 2 diabetes. If people were to reduce the amount of sugar in their diet but just replace it with fat, they would be unlikely to reduce their risk of Type 2 diabetes and might be doing harm to their health in other ways

Visit www.diabetes.org.uk for information on about diabetes and healthy eating.

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