Sugars and Obesity

Introduction:

Obesity has increased worldwide during the past 30 years in all divisioins of society. In 2010, overweight and obesity were estimated to cause 3.4 million deaths, 3.9% of years of life lost, and 3.8 of disability-adjusted life-years worldwide, with major healthcare costs implicated. WHO have estimated that there are 1.9 billion overweight adults in the world, 600 million of which were obese. This equates to 13% of the global adult population. If recent trends continue, it is estimated that there will be 2.16 billion individuals classified as overweight and 1.12 billion as obese by 2030.
In the UK, 67% of men and 57% of women are either overweight or obese. More than a quarter of children are also overweight or obese – 26% of boys and 29% of girls. Obesity costs the NHS more than £5 billion every year, with indirect costs at an estimated £22 billion.[11] If obesity rates were to continue unchecked, it is estimated that 60% of adult men, 50% of adult women, and 25% of children in the UK could be obese by 2050. The McKinsey group recently estimated that the total annual economic cost of obesity globally is £1 trillion[3], and £47 billion in the UK[1].

BMI is a measure of how healthy someone's weight is in relation to his or her height[1].

$$\text{BMI} = \frac{\text{WEIGHT (kg)}}{\text{HEIGHT}^2\text{(m)}}$$

Healthy BMI = 18.5-24.9 kg/m^2
Overweight = 25-29.9 kg/m^2
Obese = above 30 kg/m^2

Obesity occurs when energy intake from food or drink consumption is greater than the energy expenditure through metabolism or exercise[2]. There are many ways in which we can classify a person's health in relation to their weight, but the most widely used is **Body Mass Index (BMI)**. Generally a person is thought to be overweight when their BMI exceeds **30 kg/m^2.** A high BMI does not support a definitive diagnosis of obesity, because some people can have excessive muscle, which increases their weight significantly. However, it is generally a good indication of whether someone is overweight.[1]

Causes of obesity:

Everyone is at risk of becoming obese if they have an unhealthy lifestyle or diet. However, there are other risk factors that increase a person's chances of becoming obese[5]. These include:

- Quitting smoking
- Genetics
- Socio-economic factors (no safe areas to exercise, no money to buy healthy food etc.)
- Lack of sleep
- Age

How does sugar fit in with the obesity epidemic?

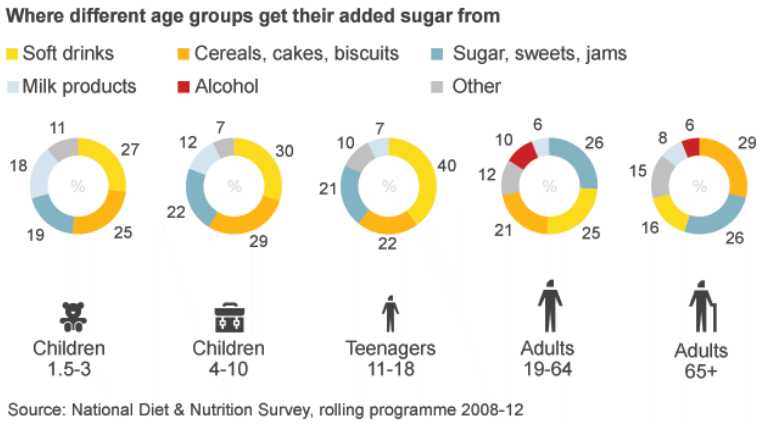
Excessive unhealthy food and sugars-sweetened soft drink consumption has been linked to weight gain, as it provides a major and unnecessary source of calories with little or no nutritional value.
In 2010, WHO commissioned a systematic literature review to answer a series of questions relating to the effects of sugars on excess adiposity[4]. These questions asked whether reducing or increasing intake of dietary sugars influences measures of body fatness in adults and children, and whether the existing evidence provides support for the recommendation to reduce intake of free sugars to less than 10% of total energy. Body fatness was

selected as an outcome in view of the extent to which comorbidities of obesity contribute to the global burden of non-communicable disease.

The result of the meta-analysis suggests that intake of sugars is a determinant of body weight in free living people consuming ad libitum diets. The data suggest that the change in body fatness that occurs with modifying intake of sugars results from an alteration in energy balance rather than a physiological or metabolic consequence of monosaccharides or disaccharides.
Owing to the multifactorial causes of obesity, it is unsurprising that the effect of reducing intake is relatively small. However, when considering the rapid weight gain that occurs after an increased intake of sugars, it seems reasonable to conclude that advice relating to sugars intake is a relevant component of a strategy to reduce the high risk of overweight and obesity in most countries.

Furthermore, the Scientific Advisory Committee on Nutrition (SACN) reviewed randomised control trials, which indicated that consumption of sugars-sweetened beverages, as compared with non-calorically sweetened beverages, results in weight gain and an increase in BMI in children and adolescents. Prospective cohort studies also generally confirm the link between sugars-sweetened beverages and increased obesity[2].

Image source: Jeavans, 2014. BBC News.



Current dietary advice:

We currently consume far too much sugar in our diets. The report published by the Scientific Advisory Committee on Nutrition (SACN) highlights the need for reduction of sugar intake from the previous recommendation of 10% to **5%** of our total dietary caloric intake[5]. In other words, the equivalent of approximately **7 teaspoons/cubes (=30g)** of sugar per day for anyone age 11 or above. The recommendation for children between 4 and 6 years old is **19g**, and the recommendation for children between 7 and 11 years old is **24g**. This is far below the current intake which is 11.9% in children aged 1.5 to 3; 14.7% in children aged 4 to 10; and 15.6% in children 11 to 18. It is also thought that adherence to the 5% recommended sugar intake would halt the increase in obesity[7].

To further reduce the increase in obesity, doctors recommend that patients:

- Eat a low calorie diet (typically 1200-1500 calories per day for women and 1500 to 1800 calories per day for men when losing weight and **2,000 calories** per day for women and **2,500 calories** for men when trying to maintain a healthy weight)[4].
- Exercise **150-300 minutes** per week or half an hour a day. (moderate intensity exercise)[1].
- Join a counselling or support group. It has been shown that supportive communities are key in shaping people's lifestyle and dietary choices[4].

References:

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For further information please contact
Action on Sugar
Wolfson Institute of Preventive Medicine,
Queen Mary, University of London
London, EC1M 6BQ,
Email Sugar@qmul.ac.uk
Website www.actiononsugar.org.uk

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