EDENTREE RI EXPERT BRIEFING | APRIL 2019

# SUGAR CONSUMPTION

In this RI Expert Briefing, we look at sugar and how it impacts on health and wellbeing. Whilst there are a number of environmental and social concerns in relation to sugar cultivation and trade, Health and Wellbeing is one of the sustainable investment themes which form a part of our responsible and sustainable screening approach, which is why we have chosen it as the focus here.


## NOT ALL SUGARS ARE CREATED EQUAL

'Sugar' is a blanket term for high-energy carbohydrates; it is important to know that not all sugars are created equal.

Even sugars which have the same chemical formula (e.g. fructose and glucose, both $C_6H_{12}O_6$), have different ring structures, chemical bonds and three-dimensional structures, and are therefore metabolised differently by the human body. There are two main categories of sugar – monosaccharides and disaccharides. Common monosaccharides include the afore-mentioned fructose ("fruit sugar") and glucose (the type used by the body for energy), and galactose (present in mammals' milk); common disaccharides include sucrose (glucose + fructose) and lactose (glucose + galactose).

The health risks of eating sugars are primarily related to consuming so-called "free sugars", which are added to foodstuffs and beverages, and are also present in fruit juices, syrups and honeys. We also hear of "refined sugars"; these come from sugar cane or sugar beet which are processed to extract the sugar.

## A BRIEF HISTORY OF SUGAR CONSUMPTION

Originally a Southeast Asian plant, sugarcane was dispersed across the Eastern Pacific littoral and Indian Ocean around 3,500 years ago, carried by seafarers, and reached the

Mediterranean in the 13th century. Although large-scale cultivation first occurred on Madeira, it was not until the establishment of slave plantations in the New World – in Brazil and the Caribbean – that global sugar production began its exponential growth. During the 17th century alone, over half a million Africans were shipped to Brazil and other New World colonies to work on sugar plantations.

As sugar production in the Americas increased through the eighteenth and nineteenth centuries, and industrial-scale production of refined sugar took hold, consumption in Britain, Western Europe and the United States rose. Sugar's prevalence in Western European and North American diets has been rising steadily since the mid-nineteenth century, as exemplified by the graph below. The 1846 Sugar Duties Act, which equalised import duties for sugar from British colonies, marked the beginning of a sustained rise of per-capita sugar consumption.

## HEALTH RISKS OF EXCESSIVE SUGAR CONSUMPTION

Sugar consumption in and of itself does not pose health risks. In fact, so essential is glucose to our basic metabolic functions that, if we do not consume glucose in our diets, the body will manufacture glucose itself. Health risks start to occur when sugar consumption – particularly that of "free" or "added" sugars – exceeds our bodies' metabolic capacity. Many people in the West are now greatly exceeding recommended intake levels, as shown on the chart overleaf. For reference, the recommended maximum intake of free sugars, according to the NHS, is 30g/day for adults, and significantly lower for children.

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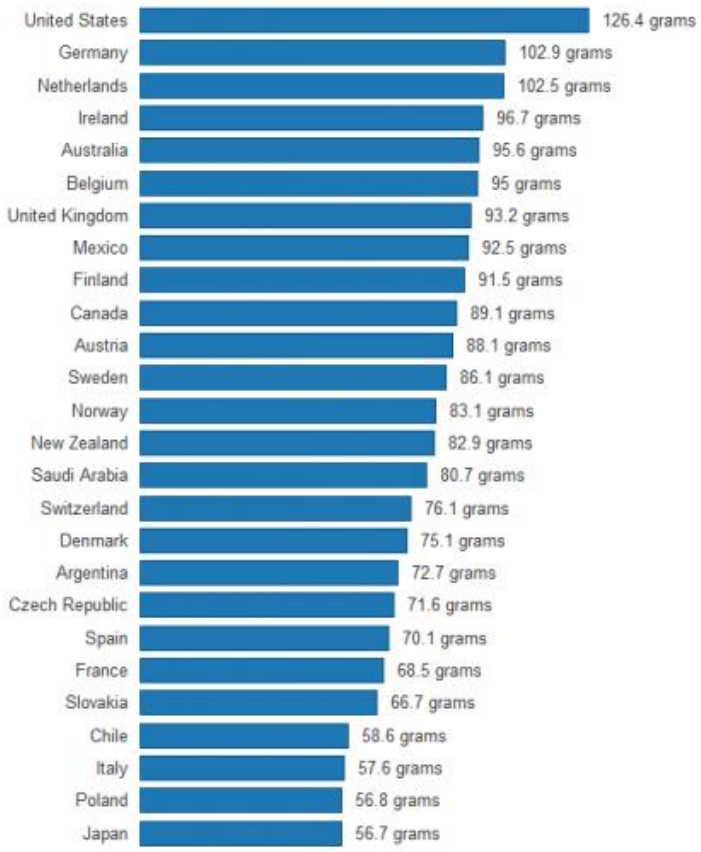


Figure 2. Daily per capita sugar intake in top 26 countries by daily per capita sugar consumption, 2012/13. Source: Euromonitor.

One of the main problems with certain sugars is that they dramatically raise the body's insulin levels, (as do trans-fats, alcohol, and dietary amino acids, which are found in corn-fed American beef). Refined sugars are broken down very quickly by the body, which causes insulin and blood sugar levels to rise rapidly. The release of insulin causes energy to be stored in fat cells, and is associated with weight gain and obesity.

High levels of free sugar consumption can also lead to metabolic syndrome, elevated cholesterol and triglycerides.[1]

As sugar consumption has risen, so has the prevalence of obesity (and, concurrently, Type 2 diabetes) in Western societies. In 2015/16, close to 40% of American adults were considered "obese" (in the US, fully 75% of men, and 69% of women, were either overweight or obese in 2016).[2] Contrary to popular belief, however, excessive sugar consumption does not "cause" Type 2 diabetes. It is more accurate to say that excessive sugar consumption increases the likelihood of obesity, which in turn is associated with a higher risk of developing Type 2 diabetes, as well as a higher risk of heart disease, stroke, and certain types of cancer that are among the leading causes of preventable, premature death. Sugar is also a leading cause of tooth decay. These so-called 'lifestyle' diseases put enormous strain on national health systems; recent estimates suggest that diabetes and obesity may cost the NHS upwards of £15 billion per year; for the US healthcare system, the figure is as much as $350 billion dollars per year.[3]

Because of the links between sugar and the development of major health problems, the sugar and food & drink industries have come under sustained pressure in recent years. For instance, Simon Capewell, then Professor of Clinical Epidemiology at the University of Liverpool, was quoted in an *Action on Sugar* press release in 2014, stating that: "Sugar is the new tobacco. Everywhere, sugary drinks and junk foods are now pressed on unsuspecting parents and children by a cynical industry focused on profit not health."[4]

[1] Stanhope, et al. 2013. 'Adverse metabolic effects of dietary fructose: results from the recent epidemiological, clinical, and mechanistic studies', *Current Opinion in Lipidology,* Vol. 24, No.3 (June 2013), 198-206; Stanhope, K.L., et al. 'Consuming fructose-sweetened, not glucose-sweetened, beverages increases visceral adiposity and lipids and decreases insulin sensitivity in overweight/obese humans', *Journal of Clinical Investigation,* Vol. 119, No. 5 (May 2009), 1322-1334.

[2] US Centres for Disease Control and Prevention (also source of US obesity statistics used here).

[3] As referenced in the British Medical Journal: https://www.bmj.com/company/newsroom/could-sugar-be-responsible-for-the-obesity-and-diabetes-epidemics/

[4] As quoted at: https://www.nhs.uk/news/obesity/is-sugar-causing-the-obesity-epidemic/

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## IS SUGAR ADDICTIVE?

It is fitting that Professor Capewell likened sugar to tobacco, because an allegation which has received much attention in recent years, is that sugar is addictive. Despite much research, the jury is still out.

Claims made by some[5] that sugar is as addictive, as dangerous and as habit forming as controlled drugs such as cocaine or heroin are strongly contested by psychiatrists and general practitioners.

Yet there are major bodies of research to support the notion that sugar may have addictive qualities. Outspoken sugar-critic and paediatric expert Robert Lustig contends that sugar's metabolic and hedonic properties do make it addictive, albeit on a par with nicotine, not heroin. It is a view corroborated by research collated by a former Commissioner of the US Food and Drug Administration. Ceasing a high-sugar diet has been shown to result in withdrawal effects in rodents (although the methodology used in these trials has been subject to a great deal of scrutiny)[6], and people do attest to having a hard time weaning themselves off sugary products.

Brain imaging studies show that the same areas of the brain are activated when consuming sugar as when consuming cocaine, but these are simply areas associated with pleasure, and are also activated if we win a game, go for a run, or listen to our favourite song. Nonetheless, addiction is quite a specific mental health condition, and sugar addiction is not listed in the most recent version of the Diagnostic and Statistical Manual, the DSM-5. According to Tom Sanders, Emeritus Professor of Nutrition and Dietetics at King's College, London, while it is true that a liking for sweet things can be *habit-forming,* it is not addictive like opiates or cocaine.[7]

But while sugar may not be addictive in the strict sense of the word, it is increasingly difficult for consumers to avoid it in everyday food and drink.


## GOVERNMENT ACTION IN THE UK

In April 2018, the UK government's much-anticipated "sugar tax" – a levy on sugar-rich soft drinks – came into force. The legislation, aimed at combating rising obesity rates, particularly in children, placed a tax of 18p per litre on drinks with a sugar content of more than 5g per 100ml, and 24p per litre for drinks with 8g per 100ml or more. Tax revenues raised through the levy (expected to be in the region of £240m for the first full year) are to be put towards new sports facilities in schools, and healthy breakfast clubs. The levy is expected to lead to more product reformulation so as to avoid the tax.

## THE INDUSTRY RESPONSE – PRODUCT REFORMULATION

Even before the UK sugar tax became law, the industry responded on a considerable scale. Prior to last April, over half of soft drinks manufacturers (including retailer own-brands), reduced sugar levels in their products. Nestlé (Amity Short-Dated Bond), for instance, announced in March 2018 that it had reformulated San Pellegrino to contain around 40% less sugar. In a similar move, Tesco (Amity UK, Amity

[5] DiNicolantonio J.J., O'Keefe, J.H., and Wilson, W.L. 2017. 'Sugar Addiction: Is it Real? A Narrative Review', *British Journal of Sports Medicine,* 52, (August 2017), 910-913.

[6] Colantuoni C1, Rada P, McCarthy J, Patten C, Avena NM, Chadeayne A, Hoebel BG.,. 2002. 'Evidence that intermittent, excessive sugar intake causes endogenous opioid dependence', *Obesity Research*, Vol. 10, No. 6 (2002), 478-88.

[7] As quoted in *The Guardian,* 25 August 2017 https://www.theguardian.com/society/2017/aug/25/is-sugar-really-as-addictive-as-cocaine-scientists-row-over-effect-on-body-and-brain

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International, Amity Sterling Bond) cut the amount of sugar in its 251 own-label soft drinks to below the 5g per 100ml tax threshold.

Reformulation (without compromising on taste) has been the most noticeable industry response to legislation, but sugary drinks are only one part of a wider problem. Although high levels of free-sugar content in food is still not subject to the same sort of taxation, some companies are reformulating recipes across a range of products. To use Nestlé as an example once more, the company has committed to reduce free sugars in products by 5% by 2020, and cut sugar in its products by 32% between 2000 and 2013, with a particular focus on foodstuffs eaten by children. This has been part of a wider reformulation of over 6,500 products over the past decade to meet geographic-specific nutritional deficiencies, and to reduce salt, fat, and sugar content.

## EDENTREE'S VIEW

Across our Amity funds, we have some exposure to food & drink companies which sell products with high sugar content, including food retailers, confectionary specialists, and beverage retailers.

Although sugar is not dangerous to human health, too much sugar is. In essence, the question is whether the responsibility for healthy diets lies with the customer, the retailer, the producer, or a combination of all three. This is a particularly important consideration when added sugars are used to make food and drink taste better and therefore to encourage further consumption. As such, our assessment of companies' approach to the issue goes beyond the sugar content in their products, and includes advertising practices, clear nutritional labelling, product placement (i.e. does a supermarket sell confectionary at checkouts?), and range of offerings (i.e. are low-sugar options or small portion sizes available and appropriately advertised?). Whilst it is ultimately the customer's choice, we recognise the role retailers can play in influencing and informing customer behaviour.

## WHAT DOES EDENTREE DO?

Based on our view of retailer responsibility outlined above, we engage with companies held across our screened Funds on the issue of sugar as part of wider thematic engagement on health & wellbeing – one of our core themes. For instance, we are currently engaged in an ongoing dialogue with some of the major UK food retailers about nutrition, encompassing sugar, fat, and salt content in own-brand and non-own-brand products. We are also in discussion with Fever Tree Drinks, held in our Amity UK Fund, over the sugar content of their tonics/mixers.

Prior to investment, we assess companies against a set of environmental, social, and governance criteria, including the health & wellbeing theme. Where a company is heavily involved in unhealthy products, its fundamental incompatibility with this theme may cause it to be deemed unsuitable for our Amity funds. This was the case in 2015, when we screened German sugar producer Südzucker AG, the largest sugar producer in Europe, which has an annual sugar production of around 4.8 million tonnes. Whilst the company was assessed as having 'reasonable' sustainability processes, we believed a company wholly dedicated to sugar production was not consistent with our health & wellbeing investment theme.

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We have a specialist in-house Responsible Investment (RI) team who carry out thematic and stock-specific research to identify ethically responsible investment ideas for our range of Amity funds. Headed up by Neville White, Head of RI Policy & Research, and supported by Responsible Investment Analysts Esmé van Herwijnen and Jon Mowll, the team is also responsible for creating an on-going dialogue with companies, allowing us to engage on a wide variety of ethical and socially responsible investment concerns. Our ethical and responsible investment process is overseen by an independent Amity Panel that meets three times a year, and comprises industry and business experts, appointed for their specialist knowledge.

**We hope you enjoy this RI Expert Briefing and find it useful and informative. For any further information please contact us on 0800 011 3821 or at ifa@edentreeim.com**