



Institute
and Faculty
of Actuaries

Sugar Consumption – A Rating Factor of the Future?

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Today's Presentation

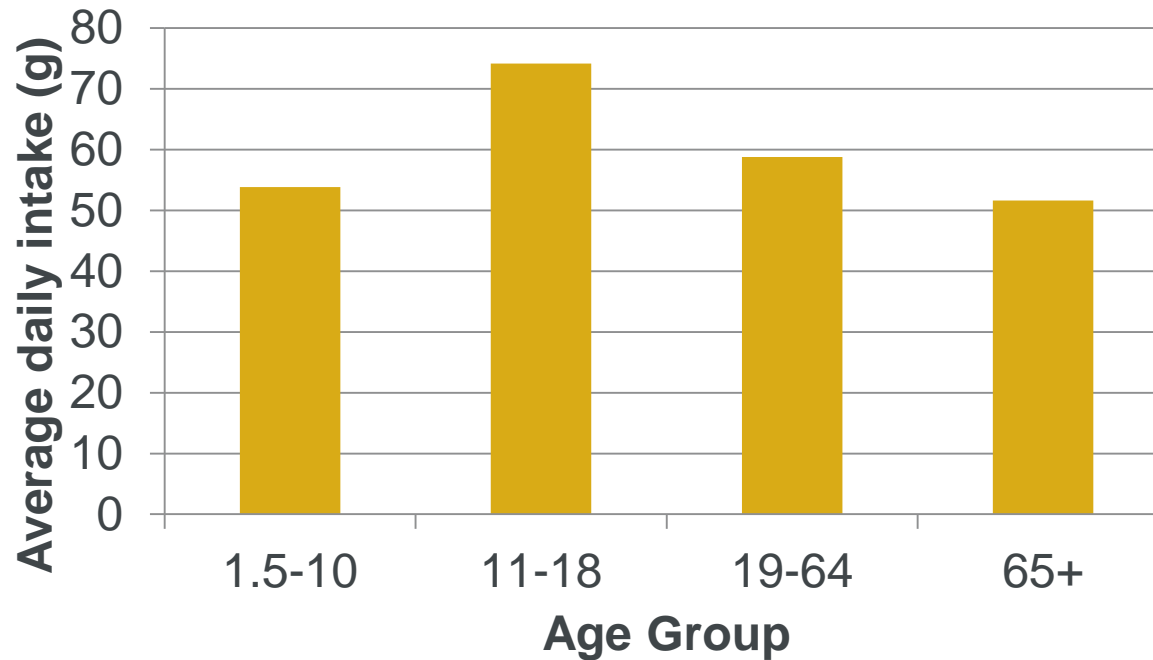
- Sugar
 - Where do we find it?
 - How it affects us
 - Why it affects us
 - Impact on our health
- Underwriting
 - What are the numbers?
 - Other considerations

Sugar is everywhere



Sugar is everywhere

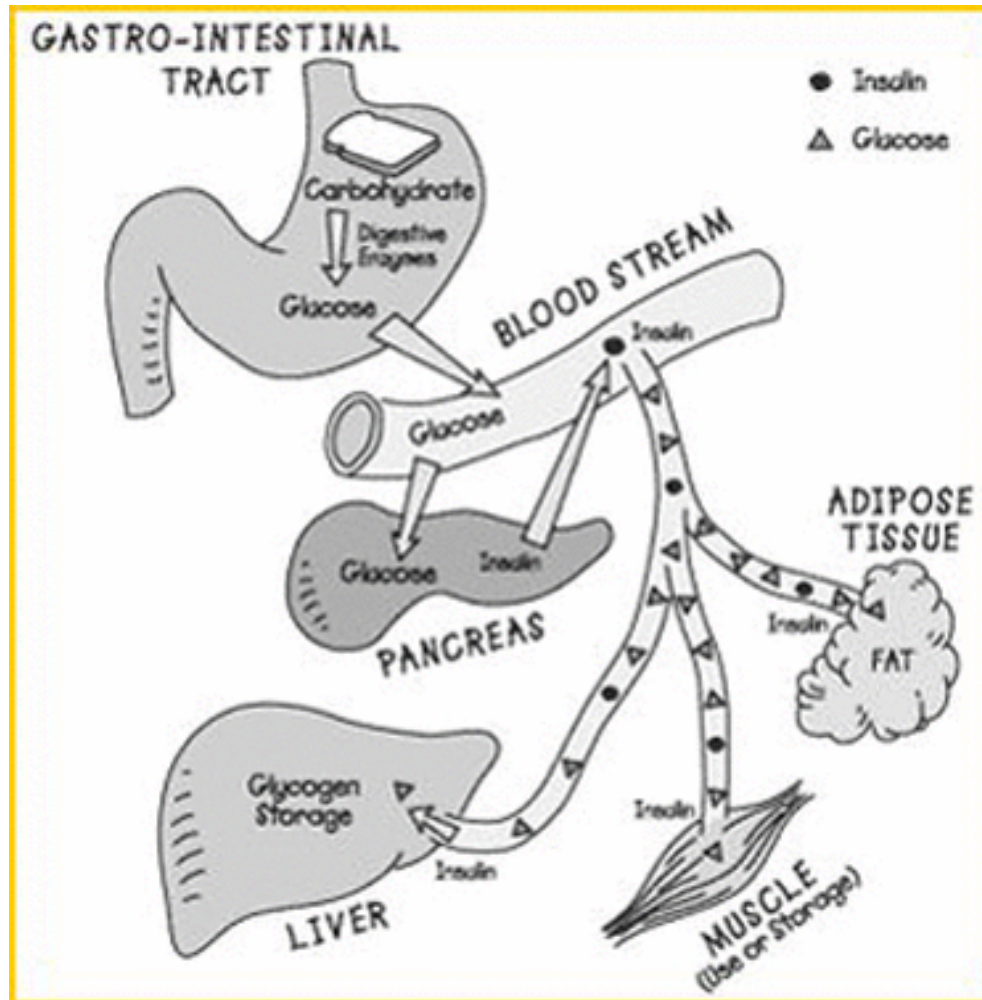
Average Daily intake of Non-milk extrinsic sugars (g)



- WHO 2015 draft guidelines:
- Reduce sugar to <5% of total energy intake (~25g) a day

Source: National Diet and Nutrition Survey, 2008/2009 – 2011/2012

The problem with sugar



Why we love sugar

- Humans are designed to crave sugar
- Sugar has a similar effect on our brains as any addictive substance

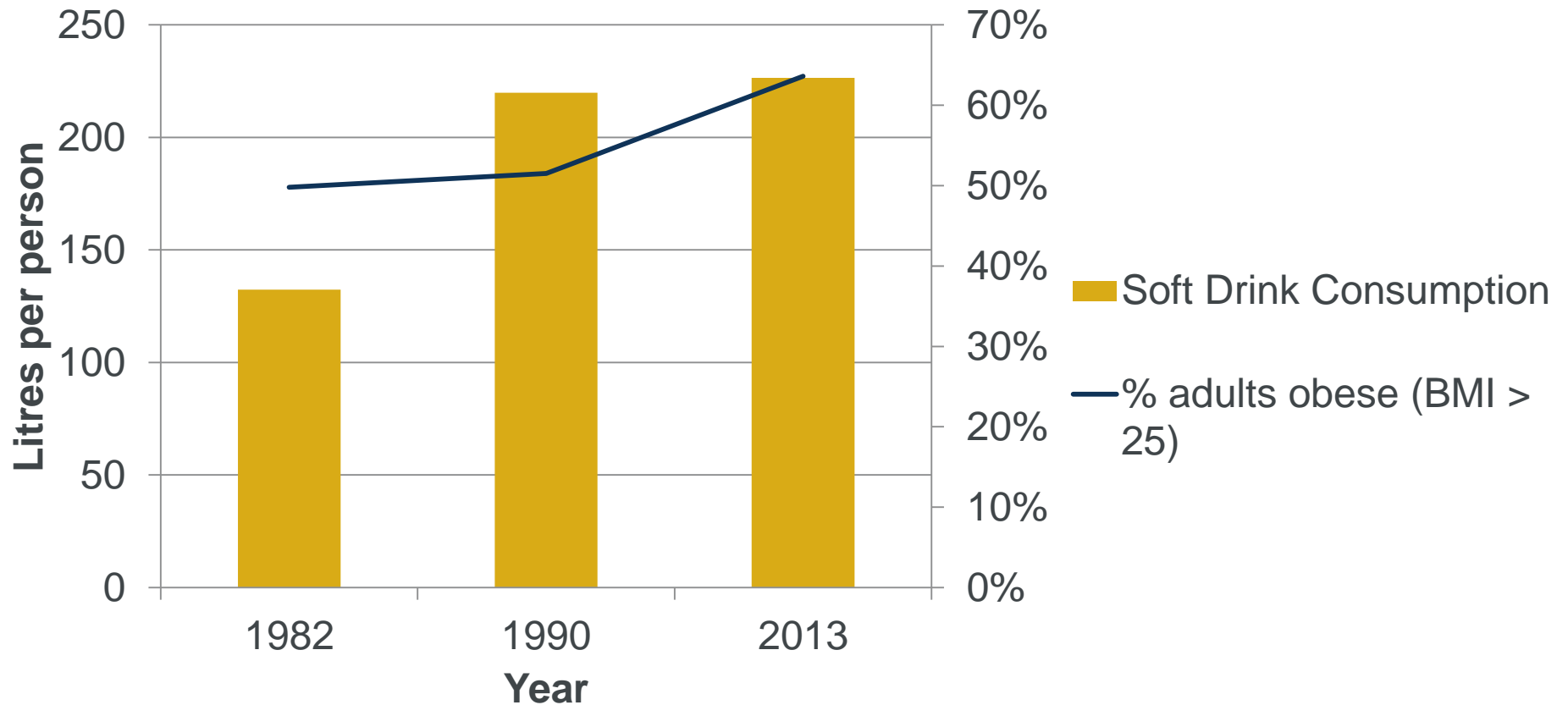


Impact on health

- It can lead to tooth decay
- Stresses the liver => Non-Alcoholic Fatty Liver Disease
- Can lead to insulin resistance, a driver for metabolic syndrome, cardiovascular disease, obesity, Type 2 diabetes
- Increased risk of cancer, owing to elevated levels of insulin and increased inflammation
- Leads to increased cholesterol, raised insulin and blood sugar, and abdominal obesity => major risk factors for heart disease.

Impact on health

UK soft drinks consumption vs obesity levels

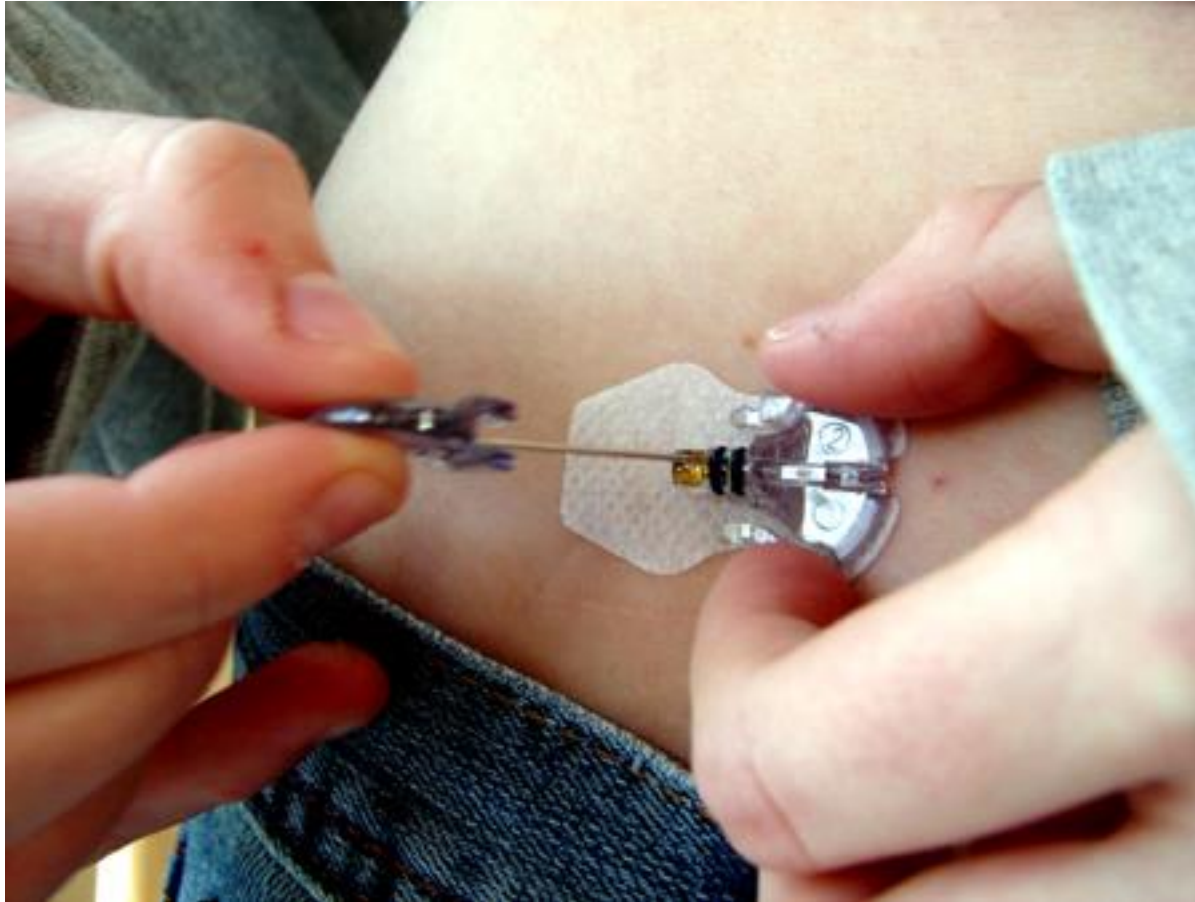


Sugar consumption as a rating factor

- Current rating factors measure risks which have already occurred
- What if we could predict someone's health risk by measuring sugar consumption?
- An accurate measure of sugar consumption is not too distant a possibility...

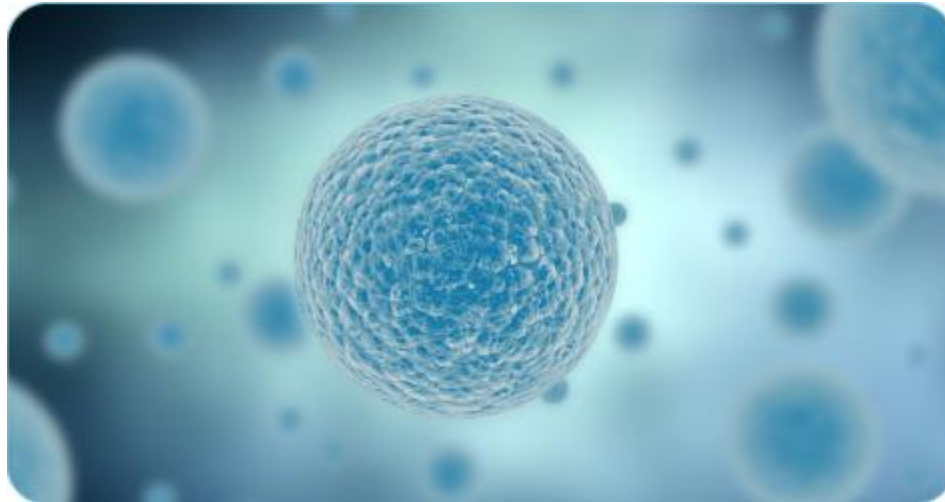
Sugar consumption as a rating factor

- Continuous Glucose Monitor, developed 4-5 years ago



Sugar consumption as a rating factor

- Journal of Nutrition, June 2013: Scientists have identified a biomarker for dietary sugar



Sugar consumption as a rating factor

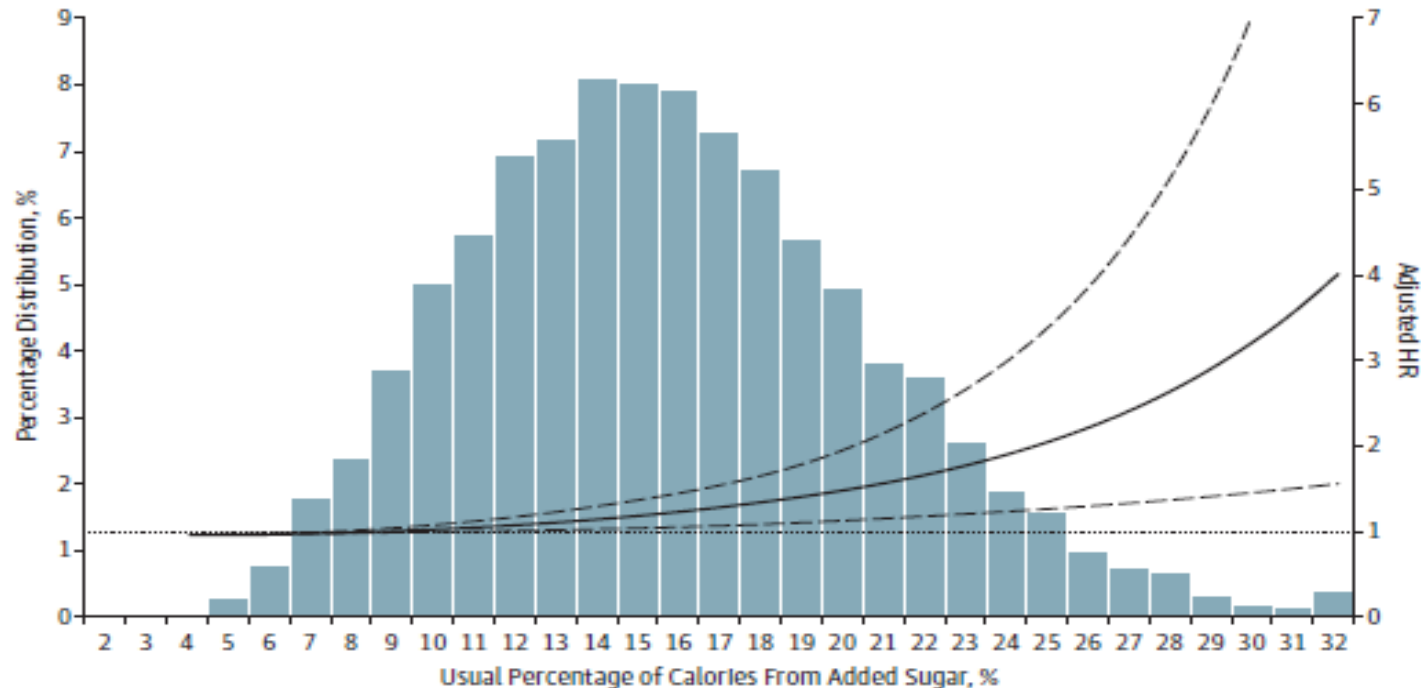
- Non-invasive blood glucose measures, e.g. Gluco-Wise developed in 2014



Sugar consumption as a rating factor

- How does sugar consumption translate to risk?

Figure 1. Adjusted Hazard Ratio (HR) of the Usual Percentage of Calories From Added Sugar for Cardiovascular Disease Mortality Among US Adults 20 Years or Older: National Health and Nutrition Examination Survey Linked Mortality Files, 1988-2006



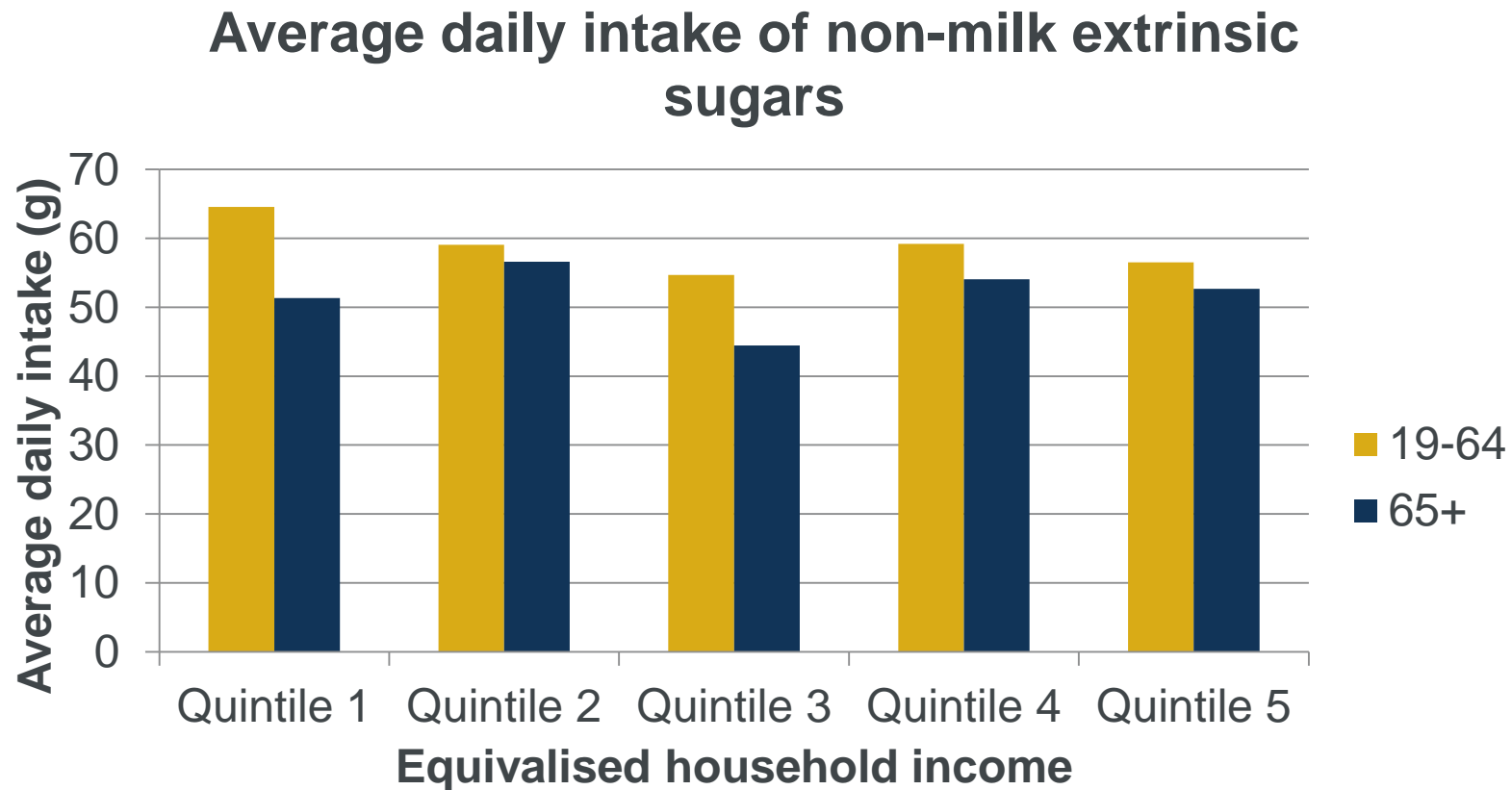
Source: Added Sugar Intake and Cardiovascular Diseases Mortality Among US Adults, *Journal of the American Medical Association (JAMA)*, 2014

Other considerations

- Impact of exercise on sugar requirement
 - Nutritionists generally advise that athletes get 10% of their total daily calories from sugar.
 - Research shows that when a runner consumes high-glycemic foods, like white bread, ice-cream or high-sugar energy bars an hour before a run, he or she may become fatigued more quickly
 - Increasing research in the sports science field indicating that fats are a better source of energy
 - We don't need THAT much sugar, just because we exercise!

Other considerations

- Socio-economic impact



Source: National Diet and Nutrition Survey, 2008/2009 – 2011/2012

Other considerations

- Sugar is only one part of the picture



Summary

- Too much sugar has an adverse impact on our health
- Compounded by our natural design to crave sugar
- The science now exists to enable measure of habitual sugar consumption
- The technology now exists which might allow such measurements to be non-invasive and relatively painless
- There are other considerations to take into account before using sugar consumption as a rating factor, e.g. impact of exercise, socio-economic impact and impact of salt and fat



Questions



Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.