Sugar & Sweeteners Masterclass

Setting the scene

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Nutrition Communications

Sugar in the news …

EXPRESS

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Home Life & Style Diets

Time to ditch the fruit bowl? How much sugary health food we should really consume

NOW that sugar is deemed to be public enemy number one, how much of this 'healthy option' should we be consuming?

By Matt Chittock

theguardian

News Sport Comment Culture Business Money Life & style

News UK news

Refined sugar is the real villain because it raises risk of heart disease

Simon Capewell of Liverpool University says the guideline should be 10 vegetables a day if people's diets are to change

Sarah Boseley, health editor
The Guardian, Monday 31 March 2014 23.29 BST
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Sugar 'worse' than tobacco, campaigner claims

9 January 2014 Last updated at 15:37 GMT

Sugar is "worse" than tobacco and should be regulated as such, a campaigner has claimed.

Dr Aseem Malhotra, director of campaign group Action on Sugar, says its addition to processed food removes the ability to "exercise personal responsibility."

Dr Malhotra told **BBC Radio 5 live's Victoria Derbyshire**: "Tobacco isn't added into processed food. It's not being consumed by the overall mass of the population, so one could argue [sugar] is more of issue."

theguardian | TheObserver

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Life & style Food & drink

Life without sugar: one family's 30-day challenge

Sugar is now at the centre of the battleground between food and health. How easy would it be to cut it out of your diet?

Louise Carpenter
The Observer, Friday 14 March 2014 14.00 GMT
Jump to comments (376)

Louise Carpenter at home in Dorset with her children and some of the foods that were essential to their low-sugar diet. Photograph: Richard Saker for the Observer

As a mother of four I am not sure how I am supposed to feel about sugar.

The Telegraph

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Fruit juices and smoothies contain 'horrifying' su

Telegraph analysis shows that many fruit juices and smoothies contain m
the World Health Organisation recommends an average person should co

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What do we mean by sugar?

- Total sugar?
- Added sugar?
- Refined sugar?
- Simple carbohydrates?
- Sucrose, fructose, glucose?
- Non-milk extrinsic sugars?
- Empty calories?

Good sugar?

100g portion = 6.5g sucrose
GI = 59

Bad sugar?

1 teaspoon = 6g sucrose
GI = 61

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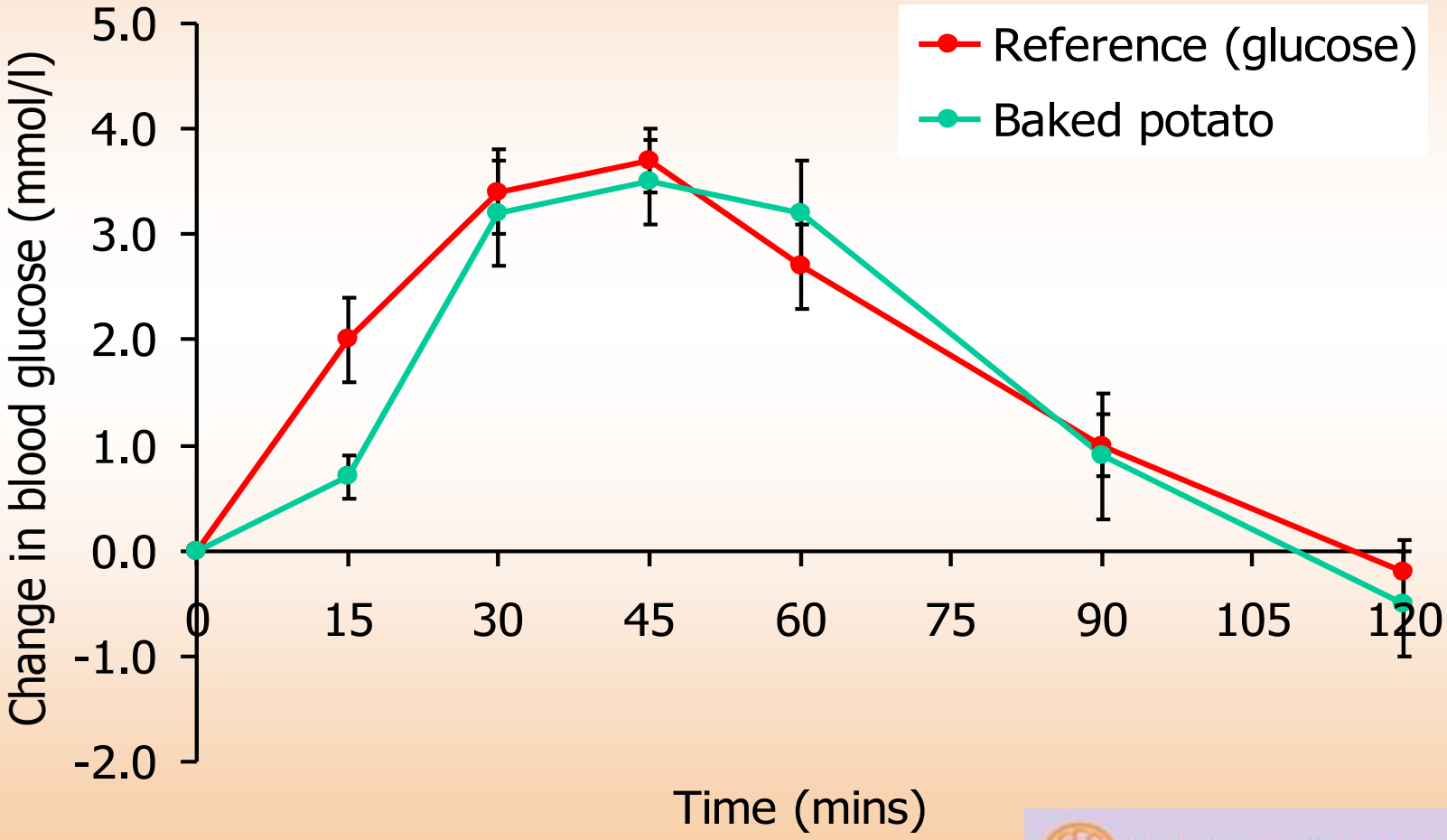
Complex vs. simple carbohydrates



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Sugar guidelines worldwide

- <10% total energy
  - UK, Denmark, Sweden, Finland, Iceland, Norway, Malta, Turkey, WHO (considering <5% energy)
- Other quantitative amounts
  - France, Italy, Portugal, Czech republic
- Food-based or diet advice
  - USA, Austria, Belgium, Germany, Ireland, Spain, Greece, Switzerland, Bulgaria, Australia, Eurodiet
- No specific sugar advice
  - Netherlands, Canada, Japan, China

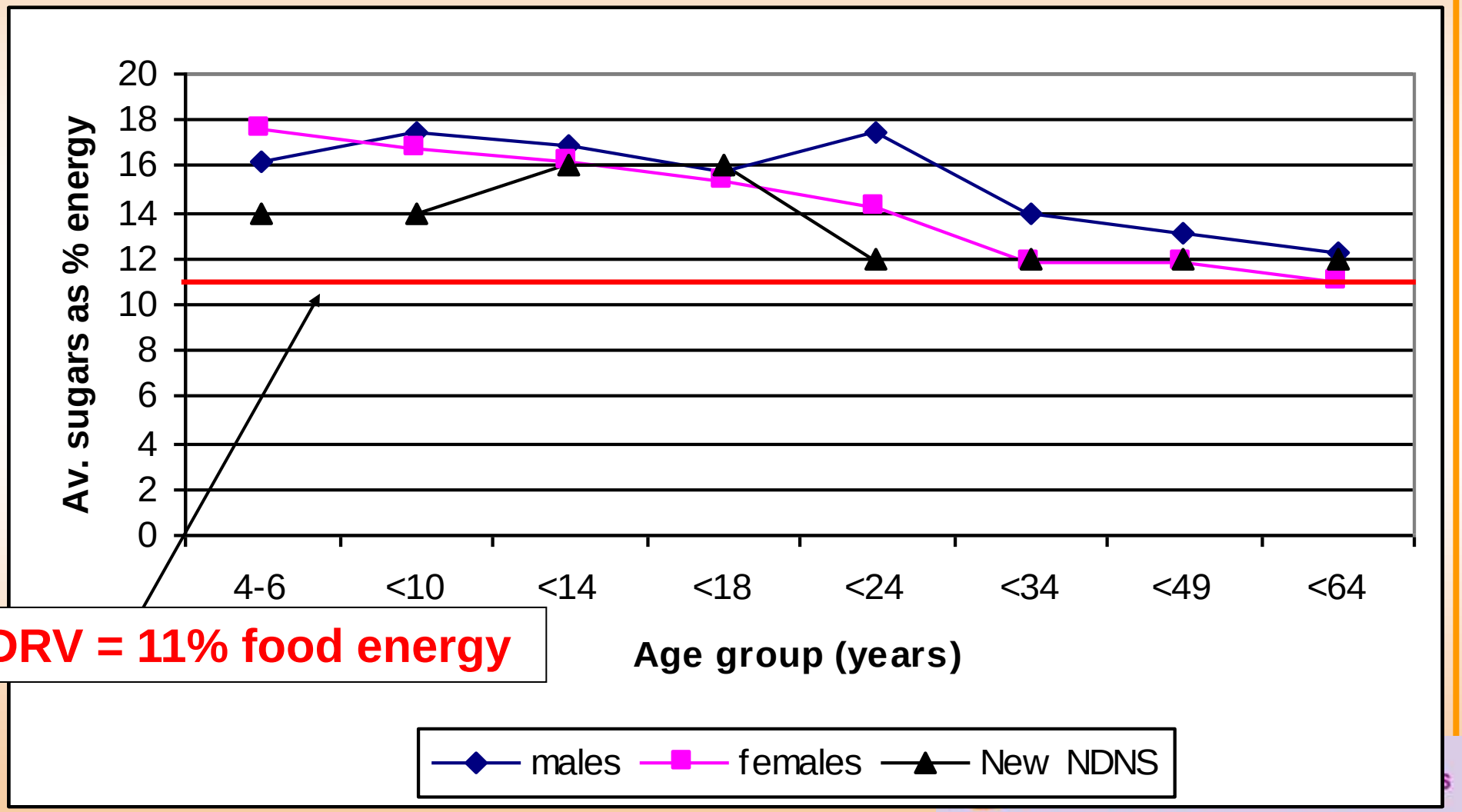
EFSA opinion

"the available data do not allow the setting of an upper limit for intake of (added) sugars on the basis of a risk reduction for dental caries"

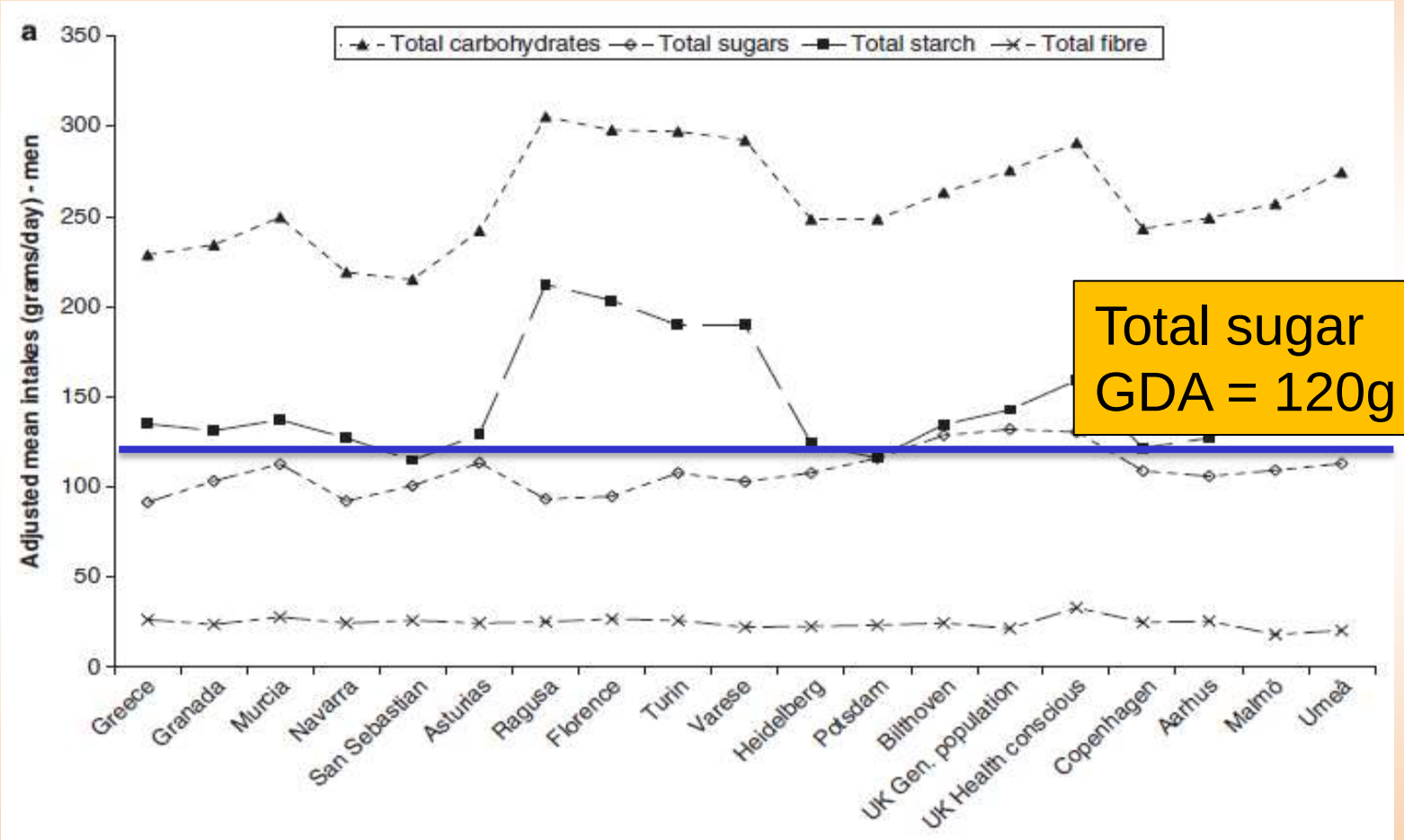
"negative associations between added sugar intake and micronutrient density … are mainly related to patterns of intake of the foods from which added sugars in the diet are derived rather than the intake of added sugars *per se"*.

European Food Safety Authority, 2010

Sugar intakes vary with age



Total sugar intakes EU



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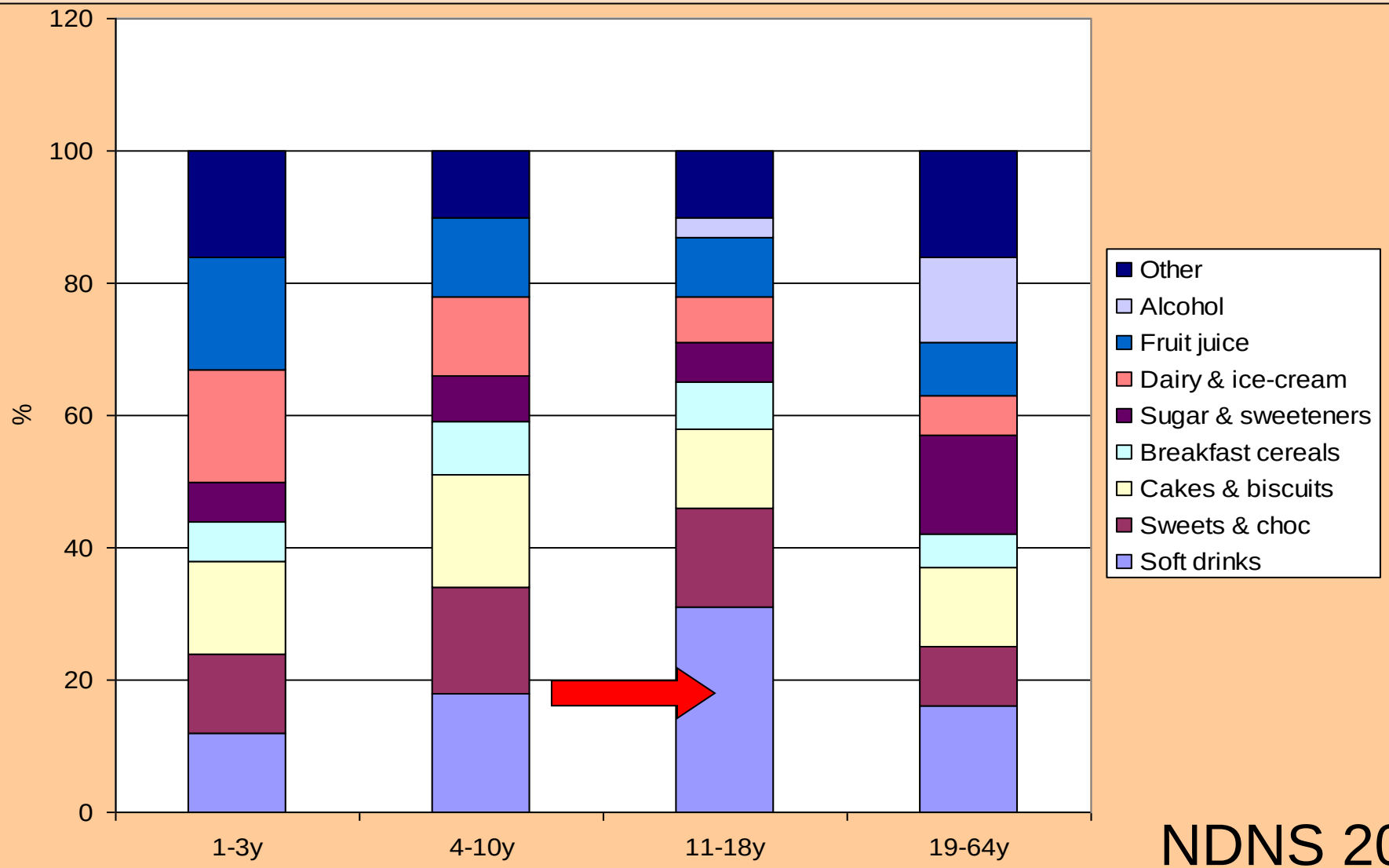
Sources of sugar in the diet



NDNS 2010

Why are we interested in sugar?

- Studies linking sugar with obesity, heart disease, dental disease, cancer, diabetes
- Sugar intakes higher than official recommendations
- Innate preference for sweetness
- Sugar naturally present in many foods
- Consumer liking for sweet foods and drinks

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Evidence not clear-cut

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Am J Public Health. 2013 Mar;103(3):501-7. doi: 10.2105/AJPH.2011.300562. Epub 2012 Jun 14.

Consistency between increasing trends in added-sugar intake and body mass index among adults: the Minnesota Heart Survey, 1980-1982 to 2007-2009.

Wang H[1], Steffen LM, Zhou X, Harnack L, Luepker RV.

Author information

Abstract

OBJECTIVES: We described 27-year secular trends in added-sugar intake and body mass index (BMI) among Americans aged 25 to 74 years.

METHODS: The Minnesota Heart Survey (1980-1982 to 2007-2009) is a surveillance study of cardiovascular risk factors among residents of the Minneapolis-St Paul area. We used generalized linear mixed regressions to describe trends in added-sugar intake and BMI by gender and age groups and intake trends by weight status.

RESULTS: BMI increased concurrently with added-sugar intake in both genders and all age and weight groups. Percentage of energy intake from added sugar increased by 54% in women between 1980 to 1982 and 2000 to 2002, but declined somewhat in 2007 to 2009; men followed the same pattern (all $P < .001$). Added-sugar intake was lower among women than men and higher among younger than older adults. BMI in women paralleled added-sugar intake, but men's BMI increased through 2009. Percentage of energy intake from added sugar was similar among weight groups.

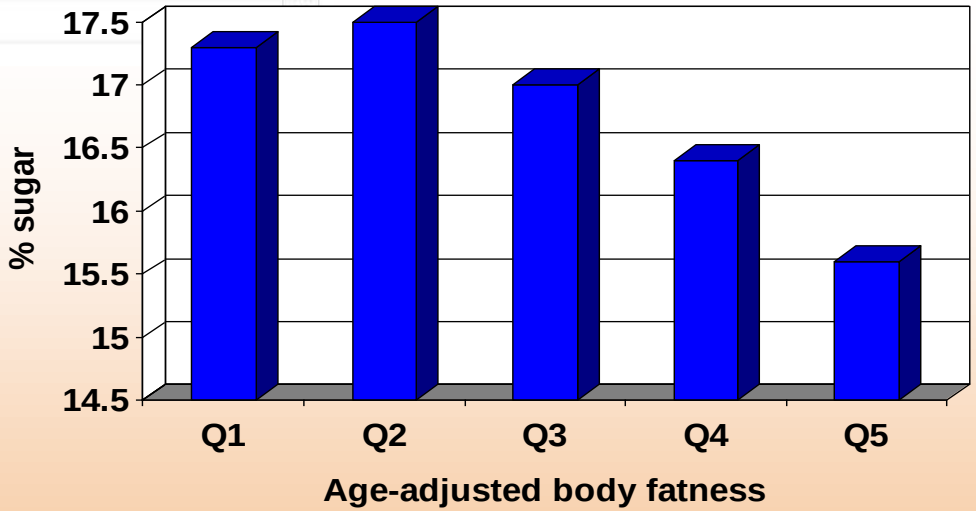
CONCLUSIONS: Limiting added-sugar intake should be part of energy balance strategies in response to the obesity epidemic.

PMID: 22698050 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances, Grant Support

LinkOut - more resources

Data on 4-18 year olds, NDNS Gibson (2004)



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Impact of sugar on weight management

Study	Sugar as % E	Results
RCT, n=68, 8wk low kcal diets	5% vs. 10%	Similar wt loss Lower fat in 10%
RCT, n=398, 6mo, *ad lib* intake	<10% vs. 30%	Similar wt loss 1.6kg vs. 2.4kg
RCT, n=20, 6wk low fat, low kcal	4% vs. 43%	Similar wt loss 7kg vs. 7.4kg

West & de Looy, 2001; Saris et al, 2000; Surwit et al, 1997

Who is right?

Obes Rev. 2013 Aug;14(8):606-19. doi: 10.1111/obr.12040. Epub 2013 Jun 13.

Resolved: there is sufficient scientific evidence that decreasing sugar-sweetened beverage consumption will reduce the prevalence of obesity and obesity-related diseases.

Hu FB.

Author information

Abstract

Sugar-sweetened beverages (SSBs) are the single largest source of added sugar and the top source of energy intake in the U.S. diet. In this review, we evaluate whether there is sufficient scientific evidence that decreasing SSB consumption will reduce the prevalence of obesity and its related diseases. Because prospective cohort studies address dietary determinants of long-term weight gain and chronic diseases, whereas randomized clinical trials (RCTs) typically evaluate short-term effects of specific interventions on weight change, both types of evidence are critical in evaluating causality. Findings from well-powered prospective cohorts have consistently shown a significant association, established temporality and demonstrated a direct dose-response relationship between SSB consumption and long-term weight gain and risk of type 2 diabetes (T2D). A recently published meta-analysis of RCTs commissioned by
weight (0.80 kg, 95% confidence interval
0.30-1.19; P = 0.001). A parallel meta-an
CI 32-82%) higher risk of being overweig

Obes Rev. 2013 Aug;14(8):620-33. doi: 10.1111/obr.12048. Epub 2013 Jun 7.

Will reducing sugar-sweetened beverage consumption reduce obesity? Evidence supporting conjecture is strong, but evidence when testing effect is weak.

Kaiser KA[1], Shikany JM, Keating KD, Allison DB.

Author information

Abstract

We provide arguments to the debate question and update a previous meta-analysis with recently published studies on effects of sugar-sweetened beverages (SSBs) on body weight/composition indices (BWIs). We abstracted data from randomized controlled trials examining effects of consumption of SSBs on BWIs. Six new studies met these criteria: (i) human trials, (ii) ≥ 3 weeks duration, (iii) random assignment to conditions differing only in consumption of SSBs and (iv) including a BWI outcome. Updated meta-analysis of a total of seven studies that added SSBs to persons' diets showed dose-dependent increases in weight. Updated meta-analysis of eight studies attempting to reduce SSB consumption showed an equivocal effect on BWIs in all randomized subjects. When limited to subjects overweight at baseline, meta-analysis showed a significant effect of roughly 0.25 standard deviations (more weight loss/less weight gain) relative to controls. Evidence to date is equivocal in showing that decreasing SSB consumption will reduce the prevalence of obesity. Although new evidence suggests that an effect may yet be demonstrable in some populations, the integrated effect size estimate remains very small and of equivocal statistical significance. Problems in this research area and suggestions for future research are highlighted.

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Which sugar intake level prevents dental caries?

J Dent Res. 2014 Jan;93(1):8-18. doi: 10.1177/0022034513508954. Epub 2013 Dec 9.

Effect on caries of restricting sugars intake: systematic review to inform WHO guidelines.

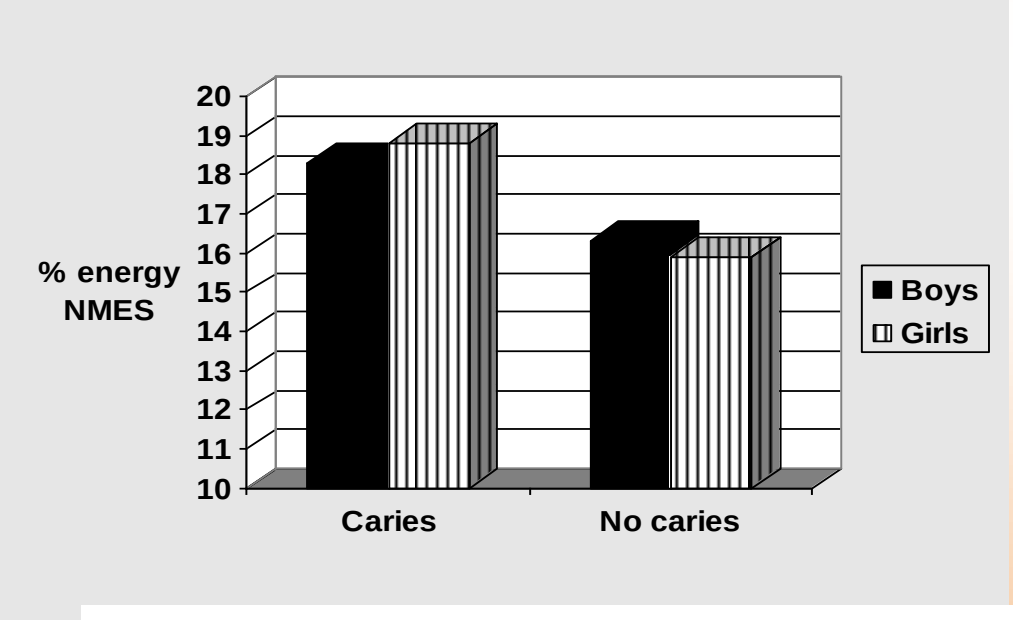
Moynihan PJ[1], Kelly SA.

Author information

Abstract

A systematic review of studies in humans was conducted to update evidence on the association between the amount of sugars intake and dental caries and on the effect of restricting sugars intake to < 10% and < 5% energy (E) on caries to inform the updating of World Health Organization guidelines on sugars consumption. Data sources included MEDLINE, EMBASE, Cochrane Database, Cochrane Central Register of Controlled Trials, Latin American and Caribbean Health Sciences, China National Knowledge Infrastructure, Wanfang, and South African Department of Health. Eligible studies reported the absolute amount of sugars and dental caries, measured as prevalence, incidence, or severity. The review was conducted and reported in accordance with the PRISMA statement, and the evidence was assessed according t[illegible] papers identified, 55 studies were eligible - 3 intervention, 8 cohort, 20 population, and 24 cross-s[illegible] studies, 42 out of 50 of those in children and 5 out of 5 in adults reported at least one positive ass[illegible] evidence of moderate quality showing that caries is lower when free-sugars intake is < 10% E. W[illegible] observed, but the evidence was judged to be of very low quality. The findings are relevant to mini[illegible]

"*evidence of moderate quality showing that caries is lower when free-sugars intake is < 10% E*"



Caries-free at 16% E; FSA-funded survey; n=719 3-17 year olds (Sheehy et al, 2008)

Are intrinsic and extrinsic sugars really any different?

- N=10, abstain from toothbrushing
- Rinse or chew whole vs. mashed vs. juiced fruits (apple, orange)
- Control = 10% sucrose solution
- Plaque pH measured
- No significant difference in pH change for ‘intrinsic’ vs. ‘extrinsic’ sugars

Pollard M et al (1996) Int J Ped Dent; 6, 81-6.

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Key research questions

- How much sugar can people reasonably eat without risking health problems?
- Are health risks due to sugar *per se,* or calories, glycaemic index/load, types of foods chosen, or is sugar simply a marker for unhealthy lifestyles?
- Do all types of sugars, and foods containing sugar, present similar health risks?

Before advice to the public is changed, ask ourselves ..

- Is the advice on sugar evidence-based and objective?
- Is it likely to improve health?
- Does it take account of people's likes, dislikes and preferences?
- Can people realistically implement the advice?
- Does the advice have any unintended consequences e.g. discouraging fruit?

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Overview of masterclass

- **Science** – Charlotte Evans
- **Campaigning view** – Aseem Malhotra
- **Trends** – David Jago, Cathy Capelin
- **Reformulation challenges** – Julian Cooper, Sarah Marshall
- **Low GI case study** – Mick Shaw
- **Media analysis** – Ailbhe Fallon

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The Food & Drink Innovation Network

Sharing innovation best practice in the food & drink industry