



Sweet Taste Exposure, Preferences and Intakes

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Declarations



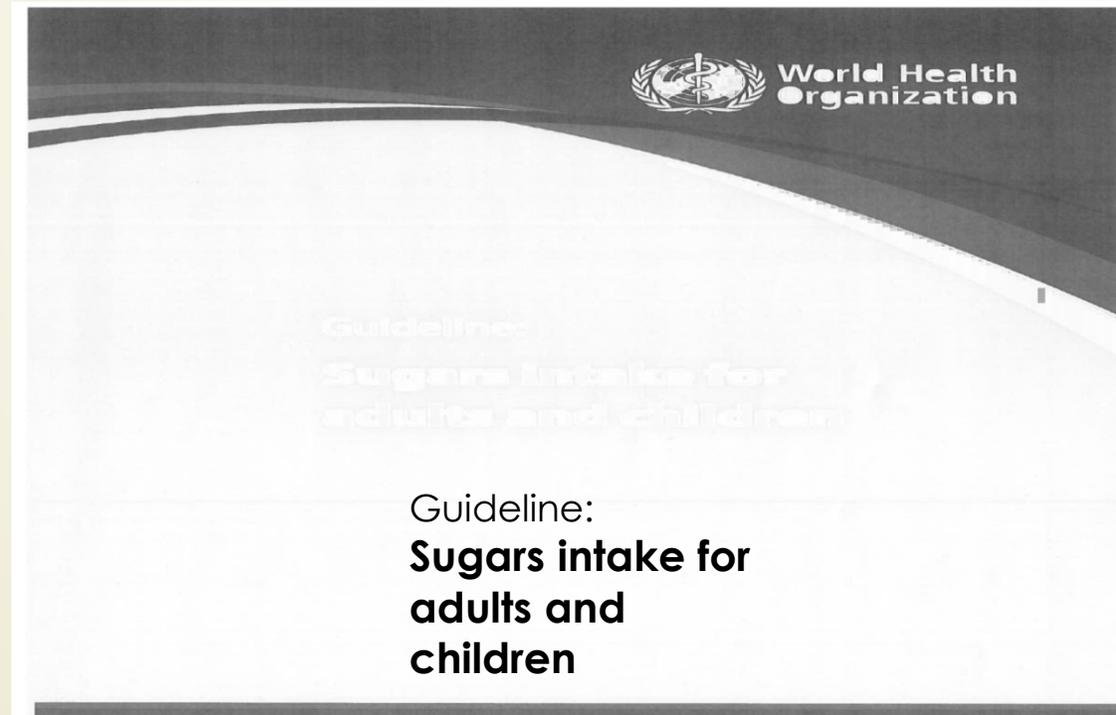
- ▶ Previous research funding from Unilever R & D, NL
- ▶ Current research funding from TIFN, NL, in collaboration with 8 Industry partners (American Beverage Association, Arla Foods, Cargill, Dutch Knowledge Center for Sugar, Firmenich, International Sweeteners Association, SinoSweet, Unilever)
- ▶ Current research funding from International Speakers Association, BE
- ▶ Current research funding from ILSI North America, US

- ▶ Speakers fees/expenses from International Sweeteners Association, BE; PepsiCo, Inc., US; ILSI North America, US.

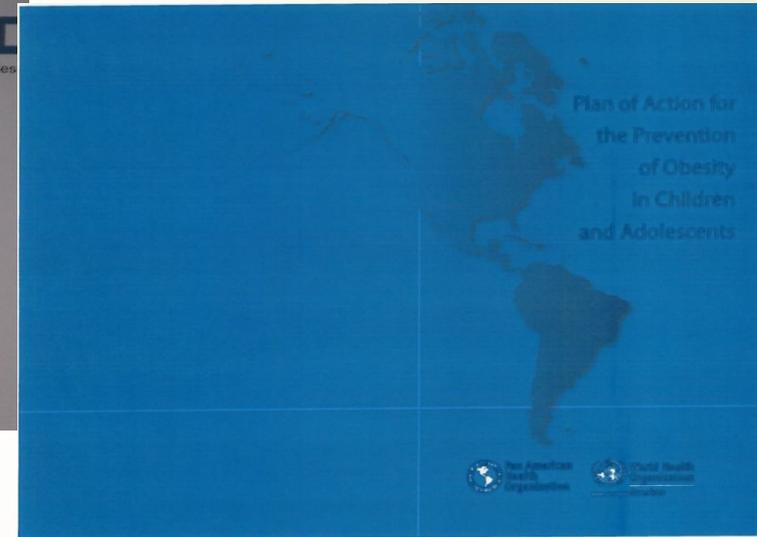
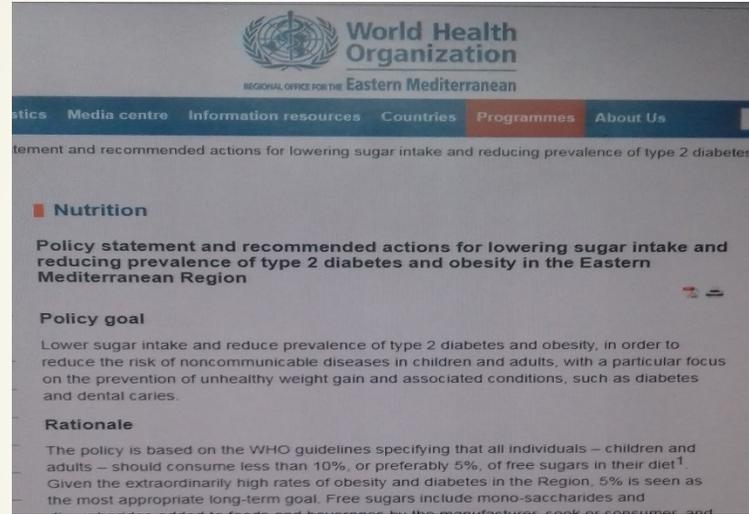
Free sugars



The intake of free sugars should be reduced to less than 10% of total energy intake



Reduce our consumption of sweet taste



Reduce our consumption of sweet taste



Sweet taste exposure and the subsequent acceptance and preference for sweet taste in the diet: systematic review of the published literature

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ABSTRACT

Background: There are consistent, evidence-based global public health recommendations to reduce intakes of free sugars. However, the corresponding evidence for recommending reduced exposure to sweetness is less clear.

Objective: Our aim was to identify and review the published evidence investigating the impact of dietary exposure to sweet-tasting foods or beverages on the subsequent generalized acceptance, preference, or choice of sweet foods and beverages in the diet.

Design: Systematic searches were conducted to identify all studies

the question arises as to whether it is not only exposure to sugars that should be reduced but also exposure to sweet taste.

Sweet taste is innately rewarding, as characterized by a universal liking for high levels of sweetness in foods and beverages in infancy and childhood (2), and it is possible that high levels of sweetness or sustained exposures to sweet taste help maintain or even promote a generalized desire for sweet(er) foods and beverages in the wider diet. Such a generalized “sweet tooth” could make it challenging for individuals to reduce intakes of free sugars (3, 4).

Appleton et al.
AJCN, 2018,
107, 405-19

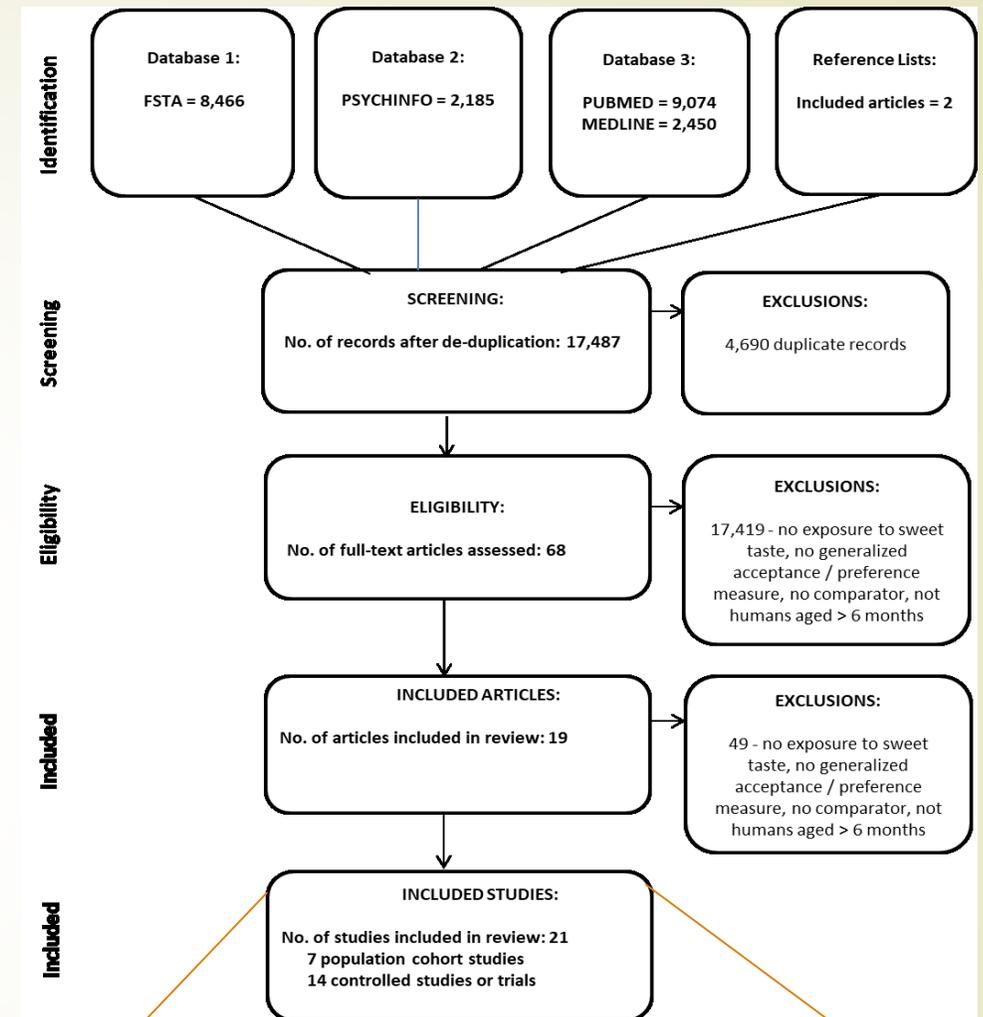
Systematic review of the published evidence

Searches:
PubMed, PsychInfo, FSTA

Articles:
- reported an investigation of the repeated exposure to or a manipulation of sweet taste through foods and beverages in the diet, and comparator

- included a subsequent measure of perception, acceptance, preference, choice and/or intake of other sweet foods and beverages

- conducted in humans aged over 6m



7 population cohort studies
9 shorter-term intervention studies
5 longer-term intervention studies

Systematic review of the published evidence

Appleton et al. AJCN, 2018, 107, 405-419



Taken together, these studies provide no clear consistent support for a relationship between sweet taste exposure and subsequent preferences or subsequent sweet food intakes.

Longer-term studies – limited evidence that is largely equivocal.

Shorter-term studies – limited evidence that suggests that higher exposure to sweet taste results in reduced preferences for sweet taste, but no impacts on sweet food intake.

Population cohort studies – limited evidence that is largely equivocal.

Systematic review of the published evidence

Appleton et al. AJCN, 2018, 107, 405-419

Very little evidence is currently available –

- 7 population cohort studies (2320 children)

- 14 intervention studies (291 children, 822 adults)

The evidence available is -

- highly heterogeneous, high risk of bias

- addresses our research question indirectly

- few studies involved manipulation of taste of the whole diet

- few studies assessed perceptions of the manipulation

- sufficient duration



Systematic review of the published evidence

Appleton et al. AJCN, 2018, 107, 405-419

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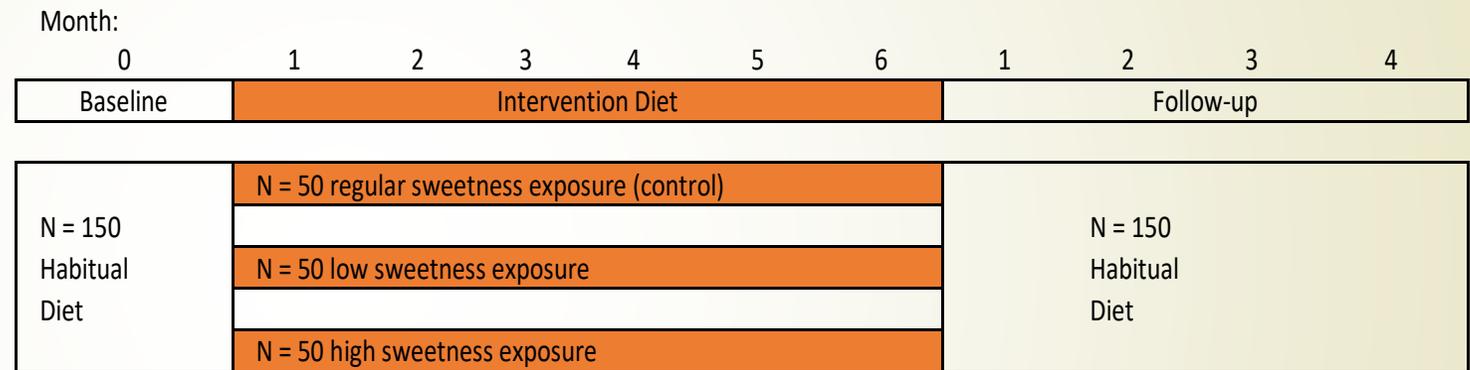
More evidence is needed



Further Evidence



i-Sense Study – de Graaf, Appleton, Mars, 2019-2024



Primary outcome measure:

Sweetness Preference	X	X	X			X	X			X
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Secondary outcome measures:

Sweetness intensity perceptions	X	X	X			X	X			X
Sweet food choice	X	X	X			X	X			X
Taste preferences / cravings	X	X	X			X	X			X

Tertiary outcome measures:

Body weight and anthropometry	X	X	X			X	X			X
Glucose homeostasis	X	X	X			X	X			X

Compliance measures
Adverse events

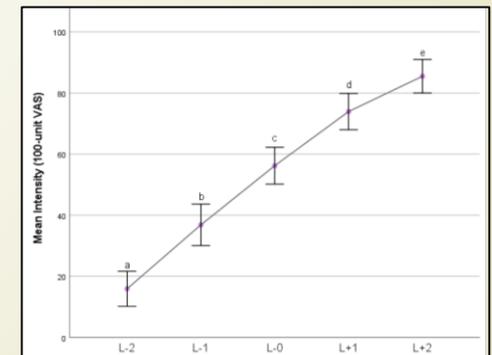
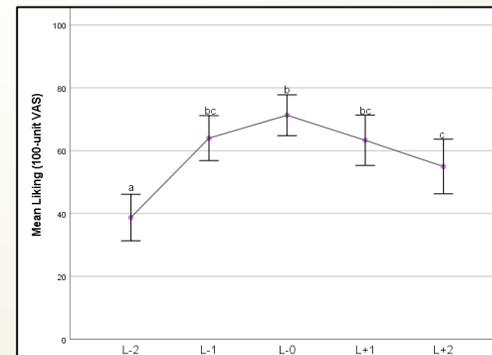
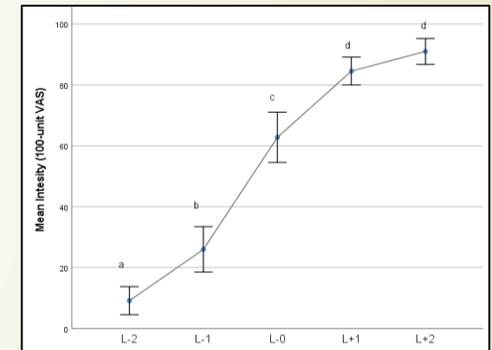
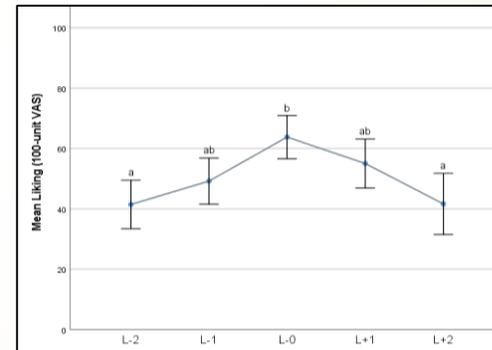
Throughout the intervention
Throughout the intervention

Further Evidence



i-Sense Study – de Graaf, Appleton, Mars, 2019-2024

Primary Outcome – Sweet taste preferences



Further Evidence



Sweet Breakfast Study: Appleton, Rogers, 2018-2020

www.clinicaltrials.gov: NCT03442829

	Weeks 0	1	2	3
	Baseline	Intervention		
	N=54 regular breakfast eaters	Sweet breakfast (N = 27)		
		Non-sweet breakfast (N = 27)		
Primary outcome measures				
Sweet food preferences (breakfast)		X	X	X
Sweet food intakes (breakfast)		X	X	X
Secondary outcome measures				
Sweet food preferences (lunch)		X	X	X
Sweet food intakes (lunch)		X	X	X
Adverse events				
Self-report		X	X	X

Further Evidence



Sweet Breakfast Study: Appleton, Rogers, 2018-2020

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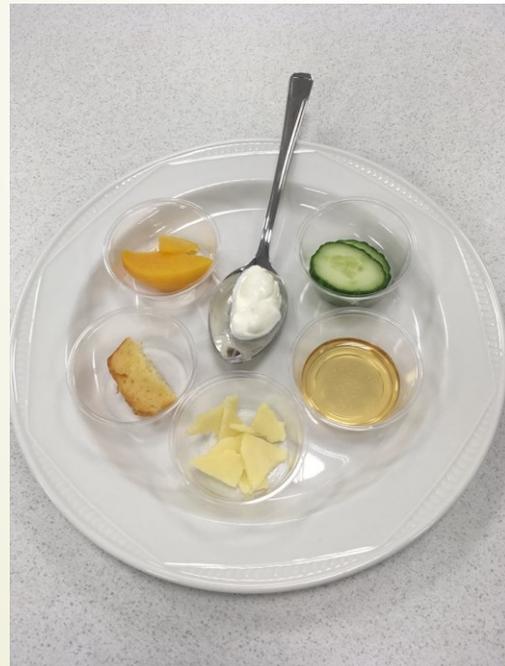
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Adverse events				
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Further Evidence



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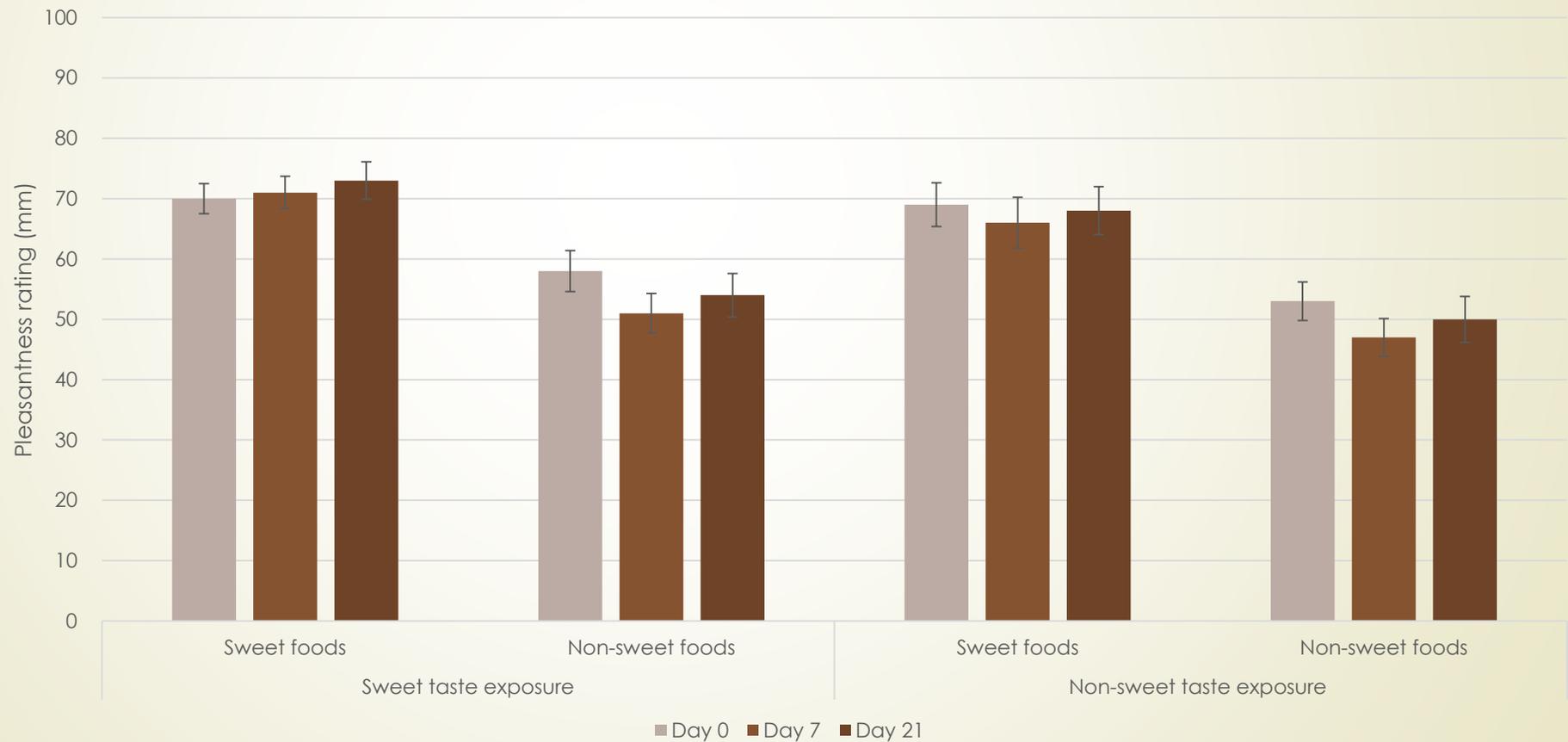


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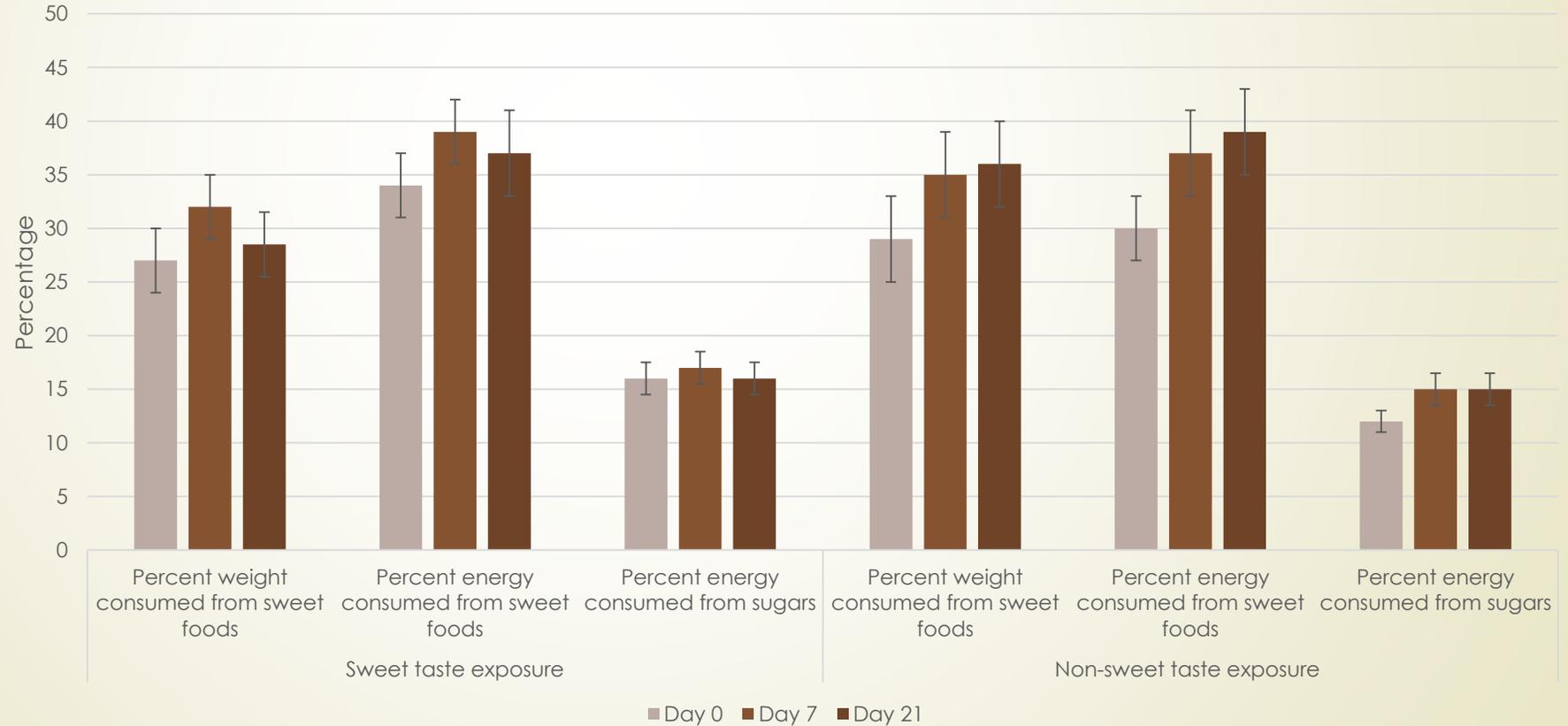


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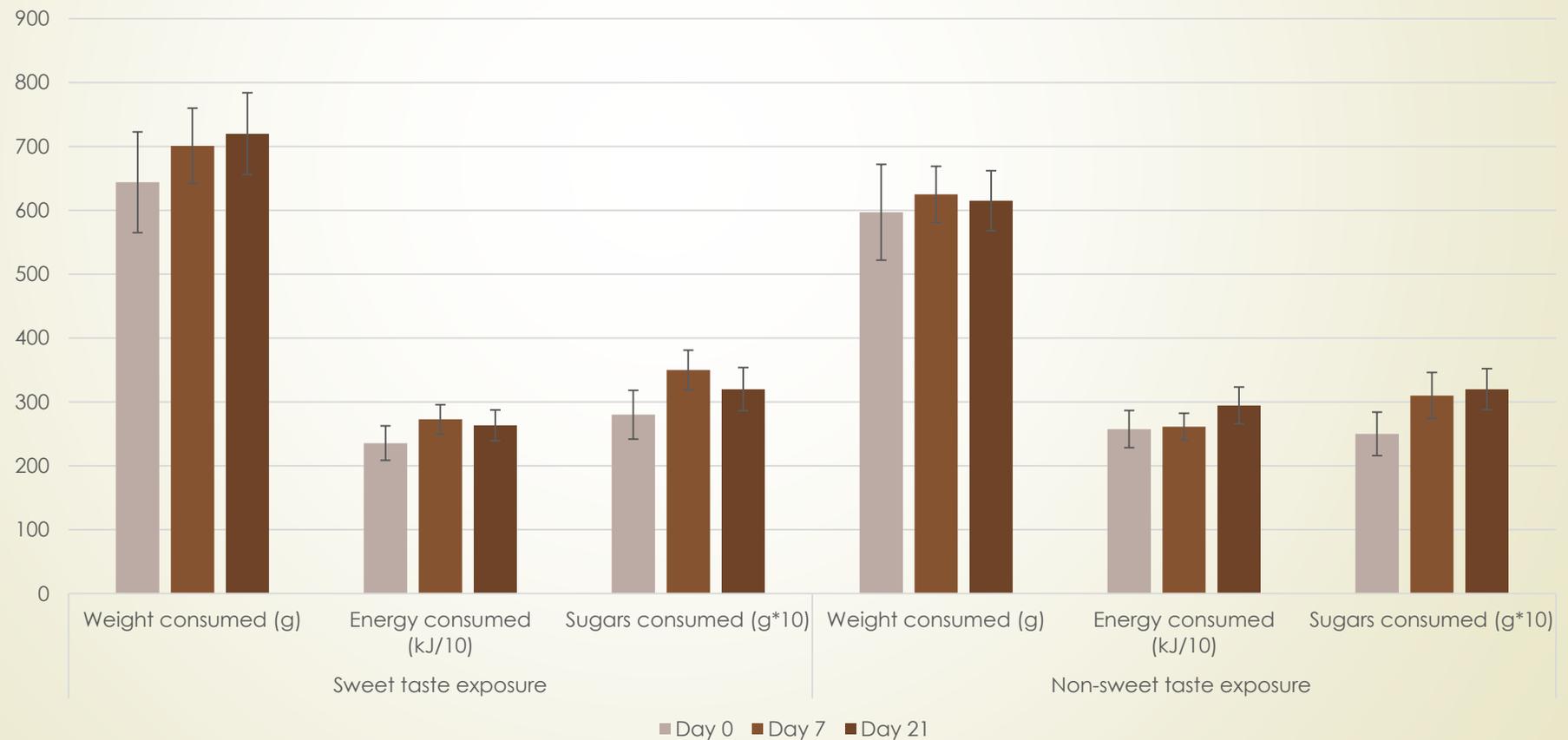


Further Evidence



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Further Evidence



Sweet Breakfast Study: Appleton, Rogers, 2018-2020

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Effects over time – effects due to monotony

No effects of exposure on sweet food intakes or on the rated pleasantness of sweet foods –

mirror the findings of the Systematic Review

mirror the findings of two additional studies

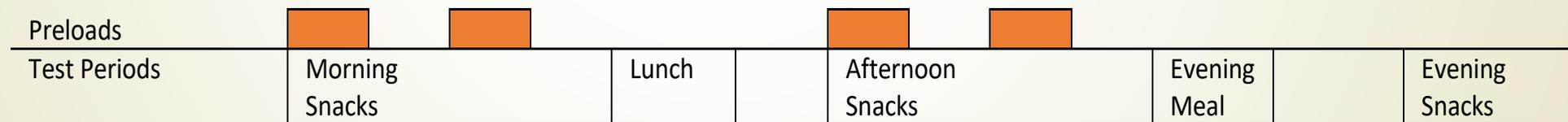
(Fantino et al, Appetite, 2018, Carroll et al, Obesity, 2020)

Further Evidence

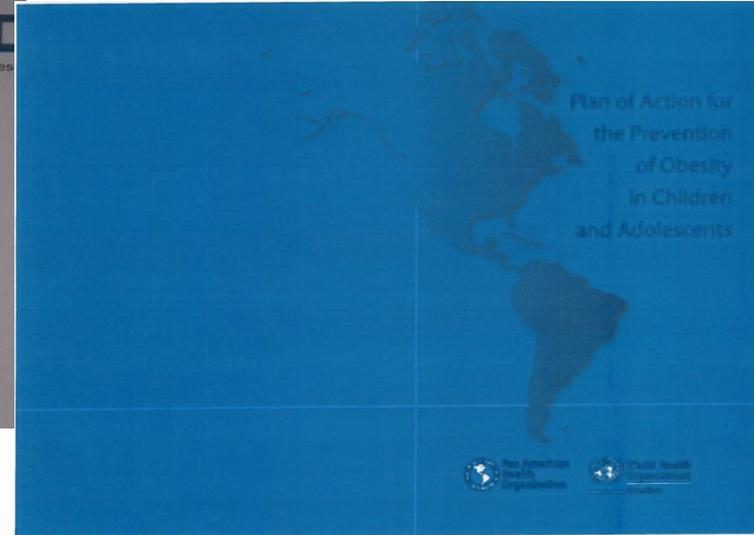
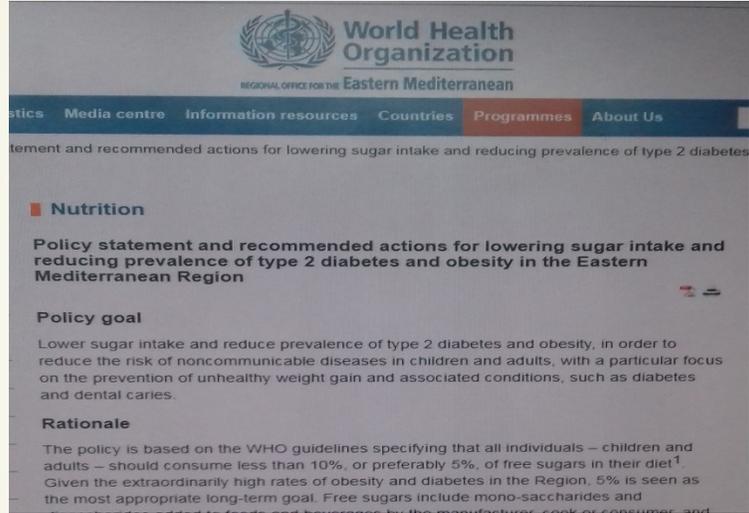


Re-analysis of existing data sets

Appleton KM, Blundell JE. Habitual high and low consumers of artificially sweetened beverages: Effects of sweet taste and energy on short-term appetite. *Physiol Behav* 2007;92:479-48



Reduce our consumption of sweet taste



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Appleton KM, Tuorila H, Bertenshaw EJ, de Graaf K, Mela D. Sweet taste exposures and the subsequent acceptance and preference for sweet taste in the diet: Systematic review of the published literature. *American Journal of Clinical Nutrition*, 2018;107:405-19.

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Thank you for your attention

