Published in final edited form as:

Toxicol Environ Chem. 2017 ; 99(4): 732–733. doi:10.1080/02772248.2017.1288317.

Response to ‘Letter to the Editor: regarding Sylvetsky et al. 2017 *Plasma concentrations of sucralose in children and adults*’

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In response to our recent publication (Sylvetsky et al. 2017), S. Poulos of Calorie Control Council, Atlanta, GA, USA, expresses unease with the interpretation of our data and concludes that our concern about the potential effects of sucralose in children ‘is misleading.’ The author states that ‘the higher sucralose blood levels found in children are of no clinical significance,’ based on the fact that ‘sucralose has been reviewed and confirmed by regulatory agencies around the world.’

We respectfully disagree and feel strongly that the potential for sucralose to influence children’s taste preferences and dietary habits, appetite, weight trajectory, and metabolic health warrants further investigation. These health considerations have not been included in (mostly rodent) studies leading to safety assessments of agencies such as the US Food and Drug Association (FDA), which instead focus on toxicologic (including genotoxic, carcinogenic, immunotoxic) outcomes.

In our report, we take no issue with the Acceptable Daily Intake (ADI), which reflects the upper limit for the ingestion of a food additive on a daily basis over a lifetime without an appreciable health risk. However, we lament the fact that consumers (who know their body weight) cannot determine whether their sucralose intake is below or above the ADI since non-nutritive sweetener concentrations are not listed on food and beverage labels, and are considered proprietary (with the exception of saccharin). Furthermore, ADIs are not standardized worldwide, as in the case of saccharin, for which the ADI is 3-fold lower in Europe compared to the US.

Analogous to the idea that toxicologic safety does not imply metabolic safety, plasma concentrations of sucralose required to exert metabolic effects may be far lower than those required to cause toxic effects. To date, it is entirely unknown how much sucralose is required to influence outcomes such as glucose homeostasis or changes in gut microbiota. In both rodents and humans, sucralose at doses commonly consumed at or below the ADI has been shown to influence these parameters (Abou-Donia et al. 2008; Pepino et al. 2013). We therefore applaud the Dietary Guidelines Advisory Committee (USDA 2015) concluding that ‘since long-term effects of low-calorie sweeteners (including sucralose) are still

uncertain, those sweeteners should not be recommended for use as a primary replacement/substitute for added sugars in foods and beverages.'

In summary, we found that children have markedly higher plasma sucralose concentrations after consumption of a typical diet soda, due to their lower body weight and blood volume. We iterate that additional research is needed to investigate potential effects of early life sucralose exposure on child taste preferences, dietary patterns, gut microbiota, body weight, and metabolic health.

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