

## Short Oral Abstract 8 - Fructose Containing Sugars-Sweetened Beverages and Their Contribution to Body Weight: a Systematic Review and Meta-Analysis of Controlled Feeding Trials (Vivian L. Choo, Canada)

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**Background:** Sugars-sweetened beverages (SSBs) containing fructose are emerging as important public health targets in the epidemic of obesity.

**Objectives:** To conduct a systematic review and meta-analysis of controlled feeding trials to assess the effect of fructose containing SSBs on body weight.

**Data sources:** We searched MEDLINE, EMBASE, CINAHL, and the Cochrane Library (through May 23, 2014).

**Data selection:** Analyses included controlled dietary trials  $\geq 7$  days on the effect of fructose containing sugars in fluid form on body weight.

**Data extraction:** Two independent reviewers extracted relevant data from eligible trials and assessed study quality. Data were pooled using the generic inverse variance method and expressed as mean differences (MD) with 95% confidence intervals (95% CIs). Heterogeneity was assessed (Cochran's Q statistic) and quantified ( $I^2$  statistic).

**Data Synthesis:** We included 28 substitution trials (isocaloric comparison of fructose containing SSBs with other carbohydrates) (n=822), 26 addition trials (hypercaloric comparison of excess calories from fructose containing SSBs compared to a diet without SSBs) (n=1165), and 6 subtraction trials (hypocaloric comparison through a reduction in calories from fructose containing SSBs using water or low calorie sweetened beverages) (n=2707).

**Results:** There was no effect of fructose containing SSBs in substitution trials, whereas fructose containing SSBs increased body weight in addition trials (MD, 0.59 kg [95% CI, 0.34 to 0.85]), and decreased body weight in subtraction trials (MD, -0.53 kg [95% CI, -1.02 to -0.03]).

**Conclusion:** Pooled analyses show that fructose containing SSBs do not alter body weight when provided in isocaloric substitution for other carbohydrates. However, fructose containing SSBs do lead to weight gain when they supplement diets with excess calories and weight loss when their calories are displaced from diets by water or low calorie sweetened beverages, suggesting that the effects of fructose containing SSBs are mediated through their contribution of energy. There is a need for larger, longer, higher quality trials that focus on ad libitum replacement of fructose containing SSBs with other sources of calories to inform public health policy.

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