Conclusions: Benefits of a higher FV or FV-flavonoid intake for type 2 diabetes risk markers may be partly attributable to the lower dietary GI associated with a preferred consumption of these foods or nutrients.
Protocol registration: not applicable
Funding source: Wereld Kanker Onderzoek Fonds (WCRF NL) (grant 2013/975)

18. Liquid calories from sugars do not increase body weight more than solid calories: A Systematic Review and Meta-Analysis of Controlled Feeding Trials (Jarvis Noronha)

Jarvis Clyde Noronha[*12], Vivian Choo[12], Sonia Blanco Mejia[2], Effie Viguiliouk[12], Viranda Jayalath[2], Cyril WC Kendall[123], John L. Sievenpiper[1245]*
[1]Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, [2]Toronto 3D Knowledge Synthesis and Clinical Trials Unit, Risk Factor Modification Center, St. Michael's Hospital, [3]College of Pharmacy and Nutrition, University of Saskatchewan, [4]Li Ka Shing Knowledge Institute, St. Michael's Hospital, [5]Division of Endocrinology and Metabolism, St. Michael's Hospital.

Objective: Although liquid calories from sugars have been shown to be more poorly compensated than solid calories in pooled analyses of acute preload trials, it is unclear whether they contribute more to weight gain over the longer term. To synthesize the evidence of the effect of liquid calories from sugars versus solid calories on body weight in controlled trials.
Methods: We searched Medline, EMBASE, and Cochrane Library through September 15, 2014. We included controlled trials of $\geq$ 7 days investigating the effect of liquid calories from sugars in exchange for solid calories from various sources on body weight. Two independent reviewers extracted relevant data as well as assessed study quality (Heyland methodological quality score) and risk of bias (Cochrane Risk of Bias Tool). Data were pooled using the generic inverse variance method and expressed as mean differences (MD) with 95% confidence intervals (CIs). Heterogeneity was assessed (Cochran Q statistic) and quantified (I^2 statistic).
Results: Six trials involving 84 participants met the eligibility criteria. The exchange of liquid calories from sugars for solid calories from various carbohydrates did not lead to significant weight gain (MD= 0.14 kg (95% CI -2.24 kg to 2.53 kg) over a median follow-up of 6-weeks. There was no evidence of inter-study heterogeneity (I^2 = 0%). Most trials were of high quality without any serious risk of bias.
Conclusion: Pooled analyses failed to show that liquid calories from sugars result in weight gain compared to solid calories from different carbohydrates. The small number and short duration of the available trials are important sources of uncertainty. There remains a need for larger and longer high quality trials.
Funding: The Canadian Institutes of Health Research (funding reference number, 129920) through the Canada-wide Human Nutrition Trialists' Network (NTN) and PSI foundation.