

## Eletters

### Topic:

Commentary

[Dietary sugars: a fat difference](#)

Susanna M. Hofmann, Matthias H. Tschöp

*J. Clin. Invest.* 2009; **119**(5):1089

## Restraint urged in extrapolation of unphysiologic fructose experimentation to predictions of real-world outcomes

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In their commentary accompanying the recent mechanistic paper from Peter Havel's group (1), Hoffman & Tschöp (2) do not show the same restraint Havel does in extrapolating his admittedly unphysiologic results to typical human diets.

Their focus on added sugars disregards the importance of looking at all caloric sources. Energy intake over the past 35 years from added sugars, flour/cereal and fats increased 50, 190 and 300 cal/d, respectively (3). We are not just taking in more fructose sweetener; we are eating more of everything.

The authors confuse two commercial products. Pure (crystalline) fructose is a specialty ingredient used for specific functional reasons comprising <1% of the sweetener market (4). High fructose corn syrup (HFCS) is nearly equal parts fructose and glucose; it is now generally agreed to be metabolically equivalent to sucrose (5-8).

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Hoffman & Tschöp fail to put Havel's work into proper perspective—there are no reliable data that fructose poses a specific health risk at typical intake levels (9.1% of energy) (9). The fructose diet used by Havel at 25% of energy is a poor model for the typical human diet on two counts: it tests pure sugars in isolation, whereas fructose and glucose are nearly always taken together in fruits/vegetable/nuts or added sugars (sucrose, HFCS, fruit juice

[unphysiologic fructose experimentation to predictions of real-world outcomes](#) concentrates, honey); and it uses levels 2.5-fold higher than mean consumption levels and 50% greater than even the highest consumers of fructose (95th percentile <18% of energy).

It is precisely because of the lack of perspective offered by Hoffman & Tschöp and others that the public is now convinced fructose poses a health risk, when in reality none has been demonstrated in humans at typical intake levels.

**Conflict of interest statement:** The author is a consultant to the food and beverage industry in the area of nutritive sweeteners. His clients include research institutes, food industry councils, trade organizations and individual companies.

## References

1. Stanhope, K.L., Schwarz, J.M., Keim, N.L., Griffen, S.C., Bremer, A.A., Graham, J.L., Hatcher, B., Cox, C.L., Dyachenko, A., Zhang, W., et al. 2009. Consuming fructose-sweetened, not glucose-sweetened, beverages increases visceral adiposity and lipids and decreases insulin sensitivity in overweight/obese humans. *J Clin Invest* 119:1322-1334.
2. Hofmann, S.M., and Tschöp, M.H. 2009. Dietary sugars: a fat difference. *J Clin Invest* 119:1089-1092.
3. Buzby, J., and Wells, H.F. 2007. Loss-Adjusted Food Availability Data: Calories. USDA-Economic Research Service.
4. Hanover, L.M., and White, J.S. 1993. Manufacturing, composition, and applications of fructose. *Am J Clin Nutr* 58:724S-732S.
5. Fulgoni, V., 3rd. 2008. High-fructose corn syrup: everything you wanted to know, but were afraid to ask. *Am J Clin Nutr* 88:1715S.
6. American Medical Association. 17 June 2008. AMA finds high fructose syrup unlikely to be more harmful to health than other caloric sweeteners. Chicago: American Medical Association.
7. American Dietetic Association. 2009. High fructose corn syrup and weight status. In *Hot Topics*.
8. Jones, J.M. 2009. Dietary sweeteners containing fructose: overview of a workshop on the state of the science. *J Nutr* 139:1210S-1213S.
9. Marriott, B.P., Cole, N., and Lee, E. 2009. National estimates of dietary fructose intake increased from 1977 to 2004 in the United States. *J Nutr* 139:1228S-1235S.

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