

Hyson's Review Ignores Long-Term Research and Recent Global Guidelines That Recommend No More Than 4 Ounces of Fruit Juice a Day Due to Adverse Health Effects^{1,2}

Dear Editor,

The recent review by Hyson (1) on 100% fruit juice ignores dietary guidelines and major long-term studies that raise serious questions related to the potentially significant adverse health effects of fruit juice. However, her review, funded in part by the Juice Products Association, ignores both the current US school food guidelines that suggest no more than one-half serving of 100% fruit juice per day and an array of literature to suggest long-term adverse effects of fruit juice, but not whole fruit, on human health. Although no global consensus has been reached on this topic and there are no solid randomized controlled trials, all the long-term studies suggest fruit juice functions metabolically quite similarly to any other sugared beverage in terms of dietary compensation and effects of the sugar in the fruit juice on health (2).

For some time scholars suggested that the 5-a-day message (now changed to the recommendations at Fruits and Veggies: More Matters) was supported in part by the National Cancer Institute and global cancer funds. However, newer research; <http://www.fruitsandveggiesmorematters.org/> found that fruits and vegetables did not prevent many cancers. This was backed by a detailed meta-analysis and review by the World Cancer Research Fund and the American Institute of Cancer Research and then was noted by all other major cancer groups (3). At the same time, accumulating evidence supports the benefits of fruits and vegetables for heart disease.

My letter focuses not on the important fruit and vegetable category but rather on the concurrent assessment of the role of 100% fruit juices in our diet. The Special Supplemental Program for Women, Infants, and Children standards and the Institute of Medicine (IOM) committee led the way, noting excessive consumption of 100% fruit juice and reducing the recommendation to no fruit juice for infants and not >4–6 ounces for those aged 1–6 y (4).

Juice, primarily consumed as fruit juice, is part of the current food package for infants ≥ 4 mo of age. In contrast, juice is not provided in the revised food packages for infants at any age, and the quantity of juice is reduced in food packages for children and women. Deleting or reducing the quantity of juice in the set of food packages helps allow for the inclusion of whole fruits and vegetables while containing food costs. The reduction in the amount of juice provided for older children

to ~ 4 ounces/d is consistent with the American Academy of Pediatrics (AAP) recommendation for that age group (5).

The AAP has reviewed this issue in many documents (6, 7). The most recent American school food program guidelines also note that children should consume no more than one-half serving of fruit juice.

Moreover, a second key issue is that the author ignored many large long-term studies that found adverse effects of 100% fruit juice on diabetes and other health conditions in the study populations. Ignoring these studies and the global reviews and recommendations for reduced fruit juice consumption concerns me. These studies cover an array of populations and range from a 12-mo study on adverse effects of fruit juices on blood pressure to much more sophisticated studies on the effects of fruit juice intake on diabetes (8). Many studies have compared fruit with fruit juice and found positive effects for fruit intake and adverse effects for fruit juice consumption on various cardiometabolic outcomes (9, 10). One of the most careful studies was conducted in Singapore (11).

Clinical studies are also limited on fruit juice and satiety; most compared 100% fruit juice with fruit in various other forms (2, 12, 13) and were conducted by 2 prominent teams of appetite and satiety scholars. The lack of randomized controlled trials on fruit juice and health is notable, and the literature on this is quite mixed, because most studies are short-term with the exception of a limited Australian study (14).

Many scholars, including the letter writer, fear that the impact of 100% fruit juice is quite similar to that of sugar-sweetened beverages. Because much of the fruit juice consumed globally is reconstituted and reflects a combination of fruit juice concentrate, natural flavoring, and water, it is easy to see how this is the equivalent in biological effect of sugar-sweetened fruit drinks on cardiometabolic outcomes. Further, there is no evidence that freshly squeezed fruit juice rather than reconstituted fruit juice has long-term beneficial effects on cardiometabolic problems.

The Hyson review (1) does us a disservice by picking highly selective studies that document limited short-term benefits while ignoring these large reviews, dietary guidelines, and the IOM. Many reviews, including the AAP review, and some of the long-term studies suggest significant adverse effects of 100% fruit juice on the risk of diabetes in particular. The recently released US Dietary Guidelines Committee Report reiterates all the concerns I note in this letter (15).

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Note: The author of the original article chose not to submit a reply.

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