

Re: Fruit Juice and Child Health

We commend the Committee on Nutrition (hereafter referred to as the Committee) for their landmark policy statement on the consumption of fruit juice during childhood.¹ Their recommendations, if implemented, will improve the health of children worldwide. However, we wish to prompt a reassessment of the Committee's statement regarding the administration of fruit juice to children with diarrhea.

There is little debate that oral electrolyte solutions are physiologically superior to fruit juices, water, sport electrolyte drinks, etc.² However, in children with minimal dehydration in high-income countries, parents are more likely to administer their children's preferred fluids (which may include fruit juices) than oral electrolyte solutions. In fact, in a recent trial, researchers demonstrated that children 6 to 60 months of age with acute gastroenteritis and minimal dehydration randomly assigned to consume dilute fruit juice and preferred fluids had fewer treatment failures than those who were administered the oral electrolyte solution.³ This finding underscores the importance of fluid consumption, notwithstanding the theoretical risk of glucose overload in minimally dehydrated children. Thus, from a practical perspective, recent data suggest that a flexible approach integrating patient preferences might generate superior outcomes.³

Children <1 year of age present a special case, and we concur with the Committee that data regarding dilute fruit juice and preferred fluid use in infants are lacking. Researchers conducting the aforementioned clinical trial excluded infants <6 months old because of the risk of hyponatremia, and only 14% of the participants were <1 year of age.³ Hence, we are not yet confident in the safety and efficacy of dilute fruit juice or preferred fluid use in children <1 year of age

during mild diarrheal episodes. It should also be noted that only one-third of the participants were dehydrated at study entry as determined by using a dehydration scale score.³ However, such scores have a tendency to overestimate the degree of volume depletion in children.⁴ Therefore, although we believe that fruit juice and preferred fluids can be considered in the right circumstances (ie, nondehydrated to minimally dehydrated children aged 6–60 months), we concur with the Committee's recommendation to not administer fruit juices during diarrheal episodes in younger or more severely affected children.

It should also be noted that rotavirus vaccine implementation has led to a significant reduction in the incidence and severity of rotavirus disease. This has resulted in a larger proportion of infants with milder episodes of acute gastroenteritis. Consequently, the proportion of affected children without evidence of dehydration has expanded. Such children must maintain euvoemia while avoiding the impetus of clinicians to administer intravenous fluids (eg, prompted by vomiting or oral fluid refusal). Given that solution palatability is related to willingness to consume⁵ and that beyond 1 year of age the risk of developing hyponatremia with the consumption of hypotonic solutions is exceedingly rare, we hope the Committee is willing to revise its recommendation to be more tolerant of the use of fruit juices and preferred fluids in children >1 year of age with minimal dehydration.

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REFERENCES

1. Heyman MB, Abrams SA. Section on Gastroenterology, Hepatology, Nutrition; Committee on Nutrition. Fruit juice in infants, children, and adolescents: current recommendations. *Pediatrics*. 2017;139(6): e20170967
2. Duggan C, Fontaine O, Pierce NF, et al. Scientific rationale for a change in the composition of oral rehydration solution. *JAMA*. 2004;291(21):2628–2631
3. Freedman SB, Willan AR, Boutis K, Schuh S. Effect of dilute apple juice and preferred fluids vs electrolyte maintenance solution on treatment failure among children with mild gastroenteritis: a randomized clinical trial. *JAMA*. 2016;315(18):1966–1974
4. Kinlin LM, Freedman SB. Evaluation of a clinical dehydration scale in children requiring intravenous rehydration. *Pediatrics*. 2012;129(5). Available at: www.pediatrics.org/cgi/content/full/129/5/e1211
5. Freedman SB, Cho D, Boutis K, Stephens D, Schuh S. Assessing the palatability of oral rehydration solutions in school-aged children: a randomized crossover trial. *Arch Pediatr Adolesc Med*. 2010;164(8): 696–702

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Authors' Response

We appreciate these comments and recognize the value that may be present in some circumstances for using fruit juice in the medical management of patients with diarrhea or constipation. However, the recent recommendations¹ for specific fruit juice maximum intakes are based on and should be considered to apply only to healthy children, not those who have disease conditions such as these. This exclusion of existing disease conditions, including diarrheal diseases, is implicit in routine dietary recommendations including those of the Institute of Medicine (*Dietary Reference Intakes*) and the Dietary Guidelines for Americans.

In addition, the use of fruit juice in this circumstance needs careful evaluation in relation to the risk of a parent using fruit juice excessively or a child becoming used to consuming juice

after a minor illness and parents continuing to use it as a more significant part of the child's diet. Further studies are required to determine more clearly any routine role for fruit juice in the management of diarrhea.

Overall, medical advice on rehydration management should be done by pediatricians in a setting in which the child is evaluated fully and the risks and benefits

of specific interventions are considered.

We acknowledge that the recommendations in the statement may change as further investigations yield new information, but for now we consider it appropriate to leave the statement in its current form.

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REFERENCES

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