

Response to Comment on "Obesity and the Environment: Where Do We Go from Here?"

We are pleased that our article (1) has stimulated Butte and Ellis (2) to ask the question, "How much change in energy balance would be required to prevent weight gain in children?" The primary point of our article was that we need to set more realistic and specific goals for combating obesity at a broad public health level, including setting specific targets for how much we need to modify energy balance in order to achieve these goals. We suggested the figure of 100 kcal/day as the energy gap that needs to be addressed for the majority of adult Americans. This estimation was based on analysis of adult population surveys, and assumed a very conservative value of 50% for the efficiency of excess energy storage. Our proposed 100 kcal/day energy gap did not include an analysis of weight gain data in children, and we would welcome application of similar reasoning to estimating an energy gap for children in general as well as special subgroups of children that may be at special risk for weight gain. For example, it was unclear from their comment whether the sample of Hispanic children studied by Butte and Ellis (2) is representative of Hispanic children in general or whether their subjects represent a special high-risk group. In either case, it would be useful to have a specific target for preventing excess body weight gain among different populations of children.

Butte and Ellis estimate that the energy gap that accounts for weight gain in 90% of their population would be 204 to 263 kcal/day (2). Surprisingly, they then go on to conclude that the energy gap in this group of Hispanic children (which may represent an

extreme at-risk group) cannot be achieved with small changes in diet and physical activity. Rather, they suggest the lofty goal of changing society instead. We would like to make several points about this conclusion.

First, we think that modifying energy balance by this amount is a very achievable challenge. For example, we are piloting an intervention in adults that aims to increase energy expenditure by 100 kcal/day (by more walking) and to reduce energy intake by 100 kcal/day, for a total of 200 kcal/day reduction in positive energy balance. This still seems to represent a relatively small and more achievable life-style change for people compared with the dramatic alterations in food intake and exercise patterns often recommended. It is possible to burn an extra 100 kcal a day by walking an extra 20 min and to reduce energy intake by 100 kcal by, for example, substituting one noncaloric beverage for a caloric one. These are small changes that should be achievable and sustainable, even in children.

Second, it seems inappropriate to dismiss our proposed strategy of making small lifestyle changes when current public health recommendations that endorse much larger changes have not been at all successful in stemming the increase in obesity among adults and children. Are Butte and Ellis saying that we shouldn't even try to make small changes because they won't be enough? Wouldn't children be better off with these small changes than where they are today? Wouldn't this likely prevent some weight gain for some children?

Third, the solution offered by the authors is to change society, but they offer no advice or specific details about how that might be

accomplished. In our article (1), we advocated the need to frame obesity as a societal issue, and we agree this should be pursued as a long-term goal. However, we have a long way to go to build widespread support for this strategy, and there is little agreement on how society should be changed. Advocating for changing society is admirable, but in the meantime, children and adults are gaining more excess weight each year. We need to do something now to prevent further weight gain. Having general strategies to eat less and exercise more have not worked. We believe that setting small, actionable goals is a promising way to start dealing with this epidemic now, while we continue to work together on a long-term vision for a future state in which weight management is easier for us all.

It is certainly possible that modifying energy balance by 200 kcal/day will not be enough to have a major impact on obesity in the United States. However, it seems a reasonable approach to try.

James O. Hill
Holly R. Wyatt

*Center for Human Nutrition
University of Colorado Health
Sciences Center
Denver, CO 80262, USA*

George W. Reed

*Division of Preventive and
Behavioral Medicine
Department of Medicine
University of Massachusetts Medical School
Worcester, MA 01655, USA*

John C. Peters

*Procter & Gamble Company
Cincinnati, OH 45252, USA*

References

1. J. O. Hill, H. R. Wyatt, G. W. Reed, J. C. Peters, *Science* **299**, 853 (2003).
2. N. F. Butte, K. J. Ellis, *Science* **301**, 598 (2003); www.sciencemag.org/cgi/content/full/301/5633/598b.

12 May 2003; accepted 20 June 2003

Response to Comment on "Obesity and the Environment: Where Do We Go from Here?"

James O. Hill, Holly R. Wyatt, George W. Reed and John C. Peters

Science **301** (5633), 598.

DOI: 10.1126/science.1086745

ARTICLE TOOLS

<http://science.sciencemag.org/content/301/5633/598.3>

RELATED CONTENT

<http://science.sciencemag.org/content/sci/299/5608/853.full>
<http://science.sciencemag.org/content/sci/301/5633/598.2.full>

REFERENCES

This article cites 1 articles, 1 of which you can access for free
<http://science.sciencemag.org/content/301/5633/598.3#BIBL>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)