

# Biotech Detractors Distort Science to Support Their Views

*By ACSH Staff — March 14, 2001*

Opponents of foods altered by bioengineering (often misnamed genetically modified or GM foods) cite a number of concerns ranging from human safety to environmental degradation to support their disapproval of the technology. A new twist has surfaced recently: opponents have stated that the new golden rice, enhanced by the addition of genes that allow it to make beta-carotene, will not be effective at treating the vitamin A deficiency that is a major cause of childhood blindness in the developing world. They back up this claim by citing a number of supposed scientific "facts" about beta-carotene, and misinterpreting their meaning.

Good examples of such arguments are displayed in an article in the March 4 New York Times Sunday Magazine. The essay, by Michael Pollan, makes several faulty assertions about beta-carotene and golden rice. First, Mr. Pollan asserts that "an 11-year-old would have to eat 15 pounds of cooked golden rice a day to satisfy his minimum daily requirement of vitamin A." The fault here is that his so-called "minimum daily requirement" has no real meaning. This is a food labeling term that has not been used for many years.

Perhaps Mr. Pollan really meant the current Recommended Dietary Allowance (RDA) for vitamin A. But no knowledgeable nutritionist would assert that one has to consume the RDA of a vitamin daily to avert a deficiency disease. The RDAs (set by the Food and Nutrition Board of the National Academy of Sciences) are designed to incorporate safety factors to take into account individual variability in nutritional needs. They certainly do not constitute minimum requirements. For example, one could ward off scurvy (vitamin C deficiency) by consuming as little as 10 milligrams of the nutrient per day. The RDA for vitamin C in adult males, however, has recently been set at 90 milligrams per day a substantial safety factor. These safety factors are included in all RDAs the size will vary from one nutrient to another. Thus stating or implying that an intake of a vitamin at less than RDA levels, especially for one like vitamin A that is stored in the body, would have no beneficial effect on a deficiency condition is either a misunderstanding or misrepresentation of the facts.

A second assertion in Mr. Pollan's article is that malnourished children wouldn't be able to use the beta-carotene from golden rice because the body needs both fat and protein to change this nutrient to vitamin A. This is a tricky one, because to a limited extent, it is accurate. But what is omitted here is also important that is, the body must also have fat and protein to absorb, store and use vitamin A. So if supplementation with beta-carotene would be ineffective because the children lacked fat and protein, it is likely that supplementation with vitamin A would be ineffective as well. Yet Mr. Pollan advocates "handing out vitamin-A supplements to children so severely malnourished their bodies can't metabolize beta-carotene."

In truth, a child who is deficient in vitamin A may well not be deficient in all nutrients, and vitamin A supplementation programs certainly can help. And so could additional intake of beta-carotene. Golden rice is not the only solution to the problem of vitamin A deficiency-blindness, but it certainly can be part of the solution.

There are many issues scientific, economic, cultural, and political that must be faced in order to deal with malnutrition of any type in the developing world. It is unlikely that any one approach will provide THE solution. We should not miss the chance to help fight one of the major causes of childhood blindness because of faulty "scientific" reasoning!

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