

# Olestra: Too Good To Be True?

## Researchers flush out health risks of fake fat

By KATHLEEN FACKELMANN

**T**he dream of a guiltfree potato chip may be crumbling. Olestra, the fat substitute that tastes like the rich stuff but has zero calories, has been known to cause diarrhea, cramping, and other nasty side effects in some people. Now, scientists have added more serious health risks to that list.

Olestra is the brainchild of Procter & Gamble, the Cincinnati-based company that holds the patent on this artificial fat, which it calls Olean. But Procter & Gamble needs the Food and Drug Administration's approval before it can market a line of olestra-containing snacks such as potato chips, tortilla chips, and crackers.

In November, olestra passed muster with two panels assigned by FDA to review the scientific evidence. At press time, the decision rested with FDA Commissioner David Kessler.

Ordinarily, a product that sails through two levels of FDA review would almost certainly win Kessler's stamp of approval. However, the growing chorus of opposition to olestra may change the situation.

The beauty of olestra, a synthetic mixture of sugar and vegetable oil, is that it passes through the body without being digested or absorbed. Potato chips that contain the no-cal olestra end up having less than half the calories and none of the fat contained in regular chips. Olestra's ability to pass through the body intact poses a danger, however. Researchers say olestra binds and helps flush away certain key nutrients believed to protect against chronic diseases.

"The public needs to know more about olestra," says Walter C. Willett, an epidemiologist at the Harvard School of Public Health in Boston. Willett helped organize a scientific meeting on olestra held there last week. "The public is being asked by Procter & Gamble and the FDA advisory committee to participate in a vast, uncontrolled national experiment," Willett says. He adds that olestra products, if approved, would be consumed by many people, including children, without adequate safety studies.

Procter & Gamble agrees that olestra helps carry away fat-soluble vitamins such as A, D, E, and K. Indeed, the firm plans to add those vitamins to snack foods containing olestra.

But the fake fat would also sweep out of the body nutrients called carotenoids, the yellow, orange, or red pigments found in many fruits and vegetables. There are about 500 nutrients in the carotenoid family—too many to add back to a bag of chips. Yet some carotenoids are thought to shield people against a wide range of diseases, including an eye condition and prostate cancer.

**F**rom data generated by Procter & Gamble, epidemiologist Meir J. Stampfer estimated that people who ate just three small olestra-containing snacks per week could expect at least a 10 percent drop in concentrations of carotenoids in their blood. He described the potential impact of such carotenoid reduction at the Boston meeting.

Stampfer, also at the Harvard School of Public Health, turned his attention first to age-related macular degeneration, a disorder that causes blurry vision and blindness. In 1994, a Boston team provided compelling evidence that two carotenoids, lutein and zeaxanthin, help prevent this devastating disorder (SN: 11/12/94, p. 310).

A 10 percent drop in concentrations of lutein and zeaxanthin would result in 390 to 800 additional cases of macular degeneration per year in the United States, Stampfer estimates.

Prostate cancer may also be prevented with a diet rich in certain carotenoids. At last week's meeting, Edward Giovannucci of Harvard Medical School in Boston presented data showing that lycopene, a carotenoid found in tomato-based products, may help protect men from developing cancer of the prostate, the nut-sized gland surrounding the urethra.

Calculations by Stampfer showed that olestra snacking could lead to 2,400 to 9,800 additional cases of prostate cancer each year.

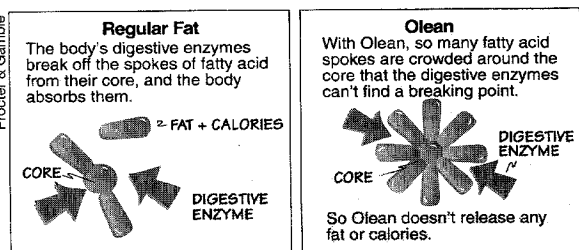
Evidence from dietary studies has linked fruits and vegetables containing carotenoids to protection from heart disease and cancer. The most recent studies on a particular carotenoid, beta carotene, taken in supplement form, did not report

such protection (see p. 55). If further studies strengthen the link, however, Stampfer calculates that a 10 percent drop in carotenoids could cause 32,000 extra deaths in the United States per year.

Stampfer is the first to admit that scientists have yet to prove conclusively that carotenoids protect against such diseases. But if olestra is approved and further research does confirm the tie, "we're in for some serious consequences."

**P**rocter & Gamble's Greg Allgood says the scientific evidence on carotenoids is not persuasive. He points to the two large studies that panned the ability of beta carotene to stave off cancer or heart disease.

Allgood says such results cast doubt on the entire lot of carotenoids, not just beta carotene. According to Procter & Gamble, "it is not possible to conclude that a



The chemistry of olestra, or Olean.

reduction in serum carotenoid concentration will present a public health concern."

Stampfer calls the company's focus on beta carotene alone a "smokescreen," adding that researchers have gathered proof that several other carotenoids protect human health. Future research may uncover still more with disease prevention prowess, he says.

The two FDA panels assigned to review olestra agreed with Procter & Gamble's favorable assessment. FDA spokesperson Brad Stone says that the majority of panel members were reasonably certain that no harm would result from approval.

One panel member who did object to the majority view said, "I don't think the advisory panel was objective from the beginning." Joan Gusso went on to tell SCIENCE NEWS that some of the experts who spoke before the panel were consultants to Procter & Gamble but did not clearly identify themselves as such.

Stampfer also disagreed with the FDA panel. He says that Procter & Gamble's own studies show the drop in carotenoids; therefore, olestra is likely to be harmful.

Whether Procter & Gamble wins FDA approval or not, many consumers may still want the fake fat chips, despite their gastrointestinal side effects and the risk of carotenoid depletion. The scientific opposition to olestra, however, is unlikely to melt away. □

## class assignment #2

**This assignment is due no later than 1:30 p.m. on Friday, 18 January. You may either e-mail the answers to me (102#2 Your Name) or WORD PROCESS them and turn them in at lecture or to my office by the deadline on Friday. *Hand-written responses will not be graded.***

Your answers must be well organized, concise, to the point, and complete. Remember that they are to be individual efforts. Do not cut and paste from web pages or others' works without giving full credit and references and use those only as supporting statements.

Olean is the Procter and Gamble registered name for olestra, an artificially manufactured, zero calorie fat substitute. It is made of sucrose (table sugar) to which 6 – 8 fatty acids are attached. These fatty acids are derived from natural sources such as soybean, corn, palm, coconut and cottonseed oils. As you ponder Olean (generic name is olestra), you may or may not find this website useful: <http://www.olean.com>. It is maintained by Procter and Gamble, the manufacturer of Olean. To get the other side of the controversy, you might visit <http://www.cspinet.org/olestra/>, a website maintained by the Center for Science in the Public Interest (CSPI). These folks clearly do not like olestra. And for a lighter view of the whole situation you might want to visit the Olé Olestra site at [www.zug.com/pranks/olestra](http://www.zug.com/pranks/olestra), though I doubt it will help you answer any of these questions.

Read the article, “Olestra: Too Good To Be True?” Keep in mind that the article is a bit dated and was written shortly before but published just days after final FDA approval of the use of Olestra in foods. Utilizing information from the article and other sources, answer the following questions. 12 points.

1. What is olestra made up of?
2. How does the composition of olestra differ from natural fats (triglycerides—think back to Bi 101)?
3. Tell why olestra *isn't digested* as it passes through the gastrointestinal tract.
4. Olean is composed of table sugar and fatty acids, both of which have lots of calories. Why, then, does nutritional information on packages of olestra-containing food report no calories for the Olean contained therein?
5. One of the potential health risks associated with olestra is a reduction in the absorption of fat-soluble substances, such as certain vitamins and carotenoids, when olestra is present in the gastrointestinal tract. Why does the presence of olestra in a meal cause a reduction in the absorption of these fat-soluble substances?
6. Another health risk of olestra that was identified several years before final FDA approval was gastric upset. Visit the Center for Science in the Public Interest website, [www.cspinet.org/olestra](http://www.cspinet.org/olestra). By 16 April 2002 (several years after FDA approval of the use of olestra in snack foods), how many people had filed complaints with the FDA about Olean-containing fast foods?
7. As part of the FDA approval for use of Olestra in snack foods, what was the text of the warning that was required on each package of chips?
8. Olean is currently marketed in a variety of chips, labeled with wording such as “Lay’s Light...,” “Doritos Light...,” “Ruffles Light...,” “Tostitos Light...,” and “Fat-free ... Pringles.” Have you ever tried olean-containing chips? If so, did you have any reaction to them?
9. The FDA dropped its requirement for the warning label on packages of olestra-containing chips in August 2003. What is your opinion on the dropping of the warning label requirement by the FDA? Explain the basis for your opinion.

Even though the CSPI website suggested in 2002 that olestra was a dead product, it is still available today in a variety of snack foods and also in bulk as other shortenings for use in the preparation of a variety of foods in commercial kitchens. The P&G website used to maintain a ticker, which suggested that almost 7 billion servings of Olean had been consumed up to a year ago (6,829,707,500 as of 5:00 p.m. on 4 January 2012). Bottoms up!