

What's the Story? Olestra

By ACSH Staff — December 1, 1996



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What Is Olestra?

Olestra—the first noncaloric fat replacer—is about to appear as an ingredient in some of America's favorite snack foods. A label that says 'Olean' will show that a product includes olestra.

Olestra, which has been approved by the Food and Drug Administration (FDA) for use in savory snack foods potato chips, cheese puffs, crackers, popcorn and the like—is basically made of table sugar and vegetable oil. But because the molecules in olestra are much larger than those in ordinary fats, it is not digested or absorbed by the body. Thus, it adds rich taste and smooth texture to food without adding calories.

Olestra could be used in many ways. Like fat replacers made of carbohydrate or protein, it is stable in frozen products, making it suitable for eventual use in foods such as ice cream. But olestra is different in that it—unlike carbohydrate- and protein-based fat replacers—is also stable at high temperatures. Thus it can be used in fried foods everyone's favorite munchies. With olestra, a one ounce serving of potato chips can be transformed from a snack with 10 grams of fat and 160 calories to one with zero grams of fat and 70 calories.

What Are the Benefits of Olestra?

Including olestra in savory snack foods could lead to a reduction in fat consumption by people who habitually consume these foods. There is no proof at this point that olestra will help people lose weight; but there is evidence that in both lean and obese people, replacing some dietary fat with olestra reduces the percentage of calories from fat in the diet-and fat calories appear to be more potent in promoting weight gain than other calories.

There is also evidence that obese people eating olestra-containing snacks don't completely compensate for the lower calories by eating more of other foods.[1] This fact could help dieters lose weight. Further down the line, if olestra is eventually approved for other uses, it potentially could replace a substantial portion of the fat in our diet fat that now makes up an average of 34 percent of the calories Americans consume daily.

One clear benefit is that olestra in foods will give consumers more choices and the opportunity to enjoy foods they might otherwise shun. This increased ability to enjoy lower-fat versions of favorite foods without sacrificing taste even while trying to lose weight could lessen the sense of deprivation many dieters find oppressive.

What Are the Charges Leveled Against Olestra?

The "usual suspects" who routinely condemn products of food technology have declared war on olestra and so have a few respected scientists. The scientists have cited two primary concerns:

- First, olestra may cause gastrointestinal distress.
- Second, it may prevent the absorption of essential fat-soluble vitamins and "carotenoids," a group of nutrients that includes beta-carotene, a dietary component that some people claim offers protection from cancer.

What Are the Facts?

In its original formulation, olestra was produced as a thin oil. When consumed, this thin olestra sometimes separated from food in the gastrointestinal tract, resulting in so-called "anal leakage". However, the manufacturer slightly changed the formulation of olestra by making it thicker so that it no longer has this tendency to separate from food. Olestra does add nonabsorbable bulk to the diet. If eaten in large enough amounts, it can have temporary gastrointestinal effects. In other words, high consumption can lead to softer or loose stools and flatulence in sensitive individuals. However, a 20-week study of over 3,000 people who ate either full fat or olestra-containing snacks, found that only a very small proportion of each group reported any gastrointestinal effects. In fact, the percentage of those reporting such symptoms was virtually identical in the two groups: 2.5 percent or less[2].

Some consumers who have tried chips cooked in olestra during test marketing of these products have reported gastrointestinal effects. When fifty-seven of such people were tested with olestra vs regular chips, there was no difference in the frequency or severity of GI symptoms when the subjects ate the different types of chips[3].

Another study was performed in which over 1,000 people were given large bags of either olestra or full-fat chips and allowed to eat as much as they wished for two hours (while watching a movie). They were contacted between 40 hours and one week after eating the chips and asked about any

digestive symptoms they had noticed. The frequency and severity of such symptoms were essentially the same in both groups of people, showing that olestra does not cause an increase in gastrointestinal disturbances[4].

Common sense would dictate that any consumers who think they have GI effects from olestra simply limit their consumption of the product. This will be easy to do since there will be an informational label on all olestra-containing foods.

The question of vitamin absorption has been addressed by requiring manufacturers of olestra-containing products to add all four fat-soluble vitamins vitamins A, D, E and K to olestra snack foods. Thus fortified, the olestra no longer has "room" to pick up additional fat-soluble vitamins from foods and there is no net loss of vitamins[5].

It is difficult to evaluate completely the potential health effects of the diminished absorption of beta-carotene. The only proven health role for beta-carotene or similar compounds is as a precursor to vitamin A-and the potential effect of olestra on vitamin A has been addressed. There are no recommended dietary allowances for beta-carotene or the other carotenoids.

Some scientists believe the carotenoids protect us from cancer and other diseases. But the researchers who argue that substantial ingestion of beta-carotene will decrease cancer risk are referring mostly to studies that do not link intake of beta-carotene per se with lower cancer risk; the studies actually link high intake of fruits and vegetables-with their vitamins, minerals, carotenes and other nutrients-with lower cancer risk. And a recent report from the National Cancer Institute concluded that high-dose beta-carotene supplementation not only failed to reduce cancer risk but actually boosted risk in some cancer-prone individuals.

Here are the pertinent facts in considering possible carotenoid loss:

- Foods interact with each other in complex ways. Nutrients may be routinely lost at one meal and regained at another. In a typical high-fiber meal, for example, the absorption of beta-carotene can be decreased by 50 percent or more. Similarly, drinking tea or coffee can decrease the amount of zinc that is absorbed from foods, while vitamin C can increase iron absorption from some foods.
- Confining olestra consumption to snack foods would replace just a small portion of the fat in a diet, thus allowing substantial absorption of carotenoids at meals that included regular fats.
- Olestra could only reduce carotenoid levels if olestra-containing snacks were eaten as part of the same meal as carotene-rich foods (potato chips with carrots, for example).

The Bottom Line

The FDA regulators accepted these realities and agreed that an advance in food technology should not be withheld from the majority because a minority might abuse or misuse it. To be sure that olestra is not widely misused, the FDA will re-evaluate its use after 30 months.

The FDA followed a common-sense scientific approach when it cleared olestra's first regulatory hurdle. The agency concluded that olestra is intrinsically safe. Now consumers can use their own judgment in deciding when and how often to incorporate olestra into a well-balanced, varied diet. While olestra, like all other foods and additives, is not perfect, its potential benefits should make it

a positive addition to the American diet.e meeting of the American Chemical Society, March 1994.

References

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3Zorich NL, et al. Randomized, double-blind, placebo-controlled, consumer rechallenge test of olestra salted snacks. Reg. Tox. Pharm.1997; 26:200-209.

4Cheskin, LJ et al. Gastrointestinal symptoms following consumption of olestra or regular tryglyceride potato chips: A controlled comparison. JAMA 1998; 279(2):150-152.

5Hassall, CD and Lawson, KD, op cit.

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