Olestra is a fat substitute that has the properties of a fat in flavor and texture, but is indigestible - hence a fake fat. It does not add any calories as a normal fat would.

Olestra is part fatty acids from cottonseed or soybean oils and part sucrose rather than glycerol in triglycerides. The six to eight fatty acids are bonded to the hydroxyl or alcohol groups on the sucrose using an ester synthesis reaction. This makes for a rather large molecule that looks like an octopus with many arms. Olestra can not be digested by enzymes which hydrolysis the sucrose or the triglycerides. Since the enzymes can not break down the olestra, it travels through the intestines undigested and unabsorbed.

In 1996, the FDA approved the use of olestra in potato chips, tortilla chips, crackers and fried snacks, as it is the only heat stable fat substitute for fried foods. There have been some reports of adverse reactions in the intestines including diarrhea and cramps, indicating that it may act as a laxative in some people.

Since olestra is such a large nonpolar molecule, it may dissolve or combine with some of the fat soluble vitamins such as A, D, E, and K, and carotenoids. As a result, the FDA now these vitamins must be added to any products containing olestra.

### Simplesse

Simplesse was the first FDA approved fat substitute. It is made by making proteins from egg whites and milk into tiny microparticles. So although these are not fats or lipids, they create the sensation of smoothness and creaminess on the tongue just as a normal fat would do. Simplesse can not be cooked, so therefore finds usefulness in ice cream, other dairy products, oil based products such as salad dressings. It contains 1.3 Cal/g rather than 9 Cal/g of a normal fat.
Contributors

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