

Is the secret to olive oil in its scent?

By Anahad O'Connor, New York Times

Why is olive oil, the crown jewel of the Mediterranean diet, so good for your health?

Nutritionists point to its abundance of antioxidants and oleic acid, a monounsaturated fat that protects the heart. But new research suggests that some of the benefits of olive oil might be contained in its aroma.

The research found that compared to other oils and fats, extra virgin olive oil was more likely to increase a person's feelings of satiety after a meal. But another phase of the study showed that just imparting the scent of olive oil to food – by adding an aromatic extract – reduced the amount of calories people in the study consumed and improved their blood sugar response.



An olive oil tasting in Northern California.
Photo/LTN file

Smell and taste, it is well known, are two senses that are strongly tied together. Previous research has shown that manipulating the aroma of certain foods can influence the

amount of them that people choose to eat. Intensifying the smell and flavor of a dessert, for example, can prompt people to take smaller bites.

The goal of the new study was to take a closer look at the factors that make some foods more filling than others.

Many products in supermarkets nowadays attract consumers with labels saying "low-fat," but eating low-fat foods can cause people to compensate by overeating later on, said Dr. Malte Rubach, a nutritional scientist who helped carry out the research with colleagues at the German Research Center for Food Chemistry, a government-financed institute based outside of Munich that published the report.

"We wanted to see whether there was a way to reduce the fat content of food without losing its taste or aroma," Rubach said.

The researchers, who received no funding from producers of olive oil, began the study by comparing the effects of four different fats on feelings of satiety: lard, butter, olive oil and canola oil. Canola oil has less monounsaturated fat than olive oil, but less saturated fat as well, and is often recommended along with olive oil as a healthy alternative to other cooking oils.

The researchers recruited 120 people and randomly split them into five groups. The participants were told simply to eat 500 grams of yogurt every day for three months. In four of the groups, the yogurt was enriched with one of the four fats. The fifth group, which served as the control, ate plain, zero-fat yogurt.

The subjects were followed closely and regularly given blood tests. They were not told specifically what was in their daily yogurt, though for ethical reasons they were informed that it might be enriched with animal or plant-derived fats, Rubach said.

After eating their yogurt, the olive oil group showed the greatest increases in blood levels of serotonin, a hormone associated with satiety. They also reduced their normal caloric intake most days to compensate for the extra daily yogurt, which prevented them from gaining weight, a pattern that was also seen in the butter and control groups. The canola and lard groups, however, did gain weight during the study period. Instead of cutting back on other calories, they added the yogurt to what they were already eating on a regular basis.

“You could see that those who felt really satiated reduced their total energy intake,” Rubach said, “whereas the others didn’t reduce their energy intake and they gained some weight.”

The researchers were particularly surprised to see that weight and body fat increased in the group that was fed canola oil, despite its similar health properties to olive oil. So they designed the next phase of the study to see whether there was something other than the nutrients in the two oils that accounted for their different impacts.

This time, subjects were split into two groups that were given zero-fat yogurt. In one of the groups, the yogurt was mixed with an aroma extract that imparted the scent of olive oil without adding any fat.

Those who ate the plain yogurt showed a drop in serotonin levels and reported less satiation after eating it. They also did not cut back on other calories to compensate; instead, their intake increased an average of 176 calories a day.

The group eating the olive-oil flavored yogurt, meanwhile, reduced their calories from other foods and showed better responses when given glucose tolerance tests, which measure blood sugar control. Abrupt swings in blood sugar are part of what drives hunger and satiation.

The researchers attributed the impact of the olive oil scent to two aroma compounds that are particularly abundant in Italian olive oils, including hexanal, which is said to resemble the scent of freshly cut grass.

Rubach said that because the study was small, it would not be a good idea to draw any general recommendations from it. But the findings do suggest that consumers should be aware that the physiological impact of a meal is not limited to what they can see on the plate.

“This is the first time where we’ve really looked at the effects that things other than fatty acids, protein and carbohydrates have on satiety,” he said. “Everything that completes our impression of a meal can have an impact.”