

An apple a day could keep obesity away

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Golden Delicious, Gala, Granny Smith and Red Delicious apples. Credit: USDA ARS

Scientists at Washington State University have concluded that nondigestible compounds in apples – specifically, Granny Smith apples –

may help prevent disorders associated with obesity. The study, thought to be the first to assess these compounds in apple cultivars grown in the Pacific Northwest, appears in October's print edition of the journal *Food Chemistry*.

"We know that, in general, apples are a good source of these nondigestible compounds but there are differences in varieties," said food scientist Giuliana Noratto, the study's lead researcher. "Results from this study will help consumers to discriminate between apple varieties that can aid in the fight against obesity."

The tart green Granny Smith apples benefit the growth of friendly bacteria in the colon due to their high content of non-digestible compounds, including dietary fiber and polyphenols, and low content of available carbohydrates. Despite being subjected to chewing, stomach acid and digestive enzymes, these compounds remain intact when they reach the colon. Once there, they are fermented by bacteria in the colon, which benefits the growth of friendly bacteria in the gut.

The study showed that Granny Smith apples surpass Braeburn, Fuji, Gala, Golden Delicious, McIntosh and Red Delicious in the amount of nondigestible compounds they contain.

"The nondigestible [compounds](#) in the Granny Smith apples actually changed the proportions of [fecal bacteria](#) from [obese mice](#) to be similar to that of lean mice," Noratto said.

The discovery could help prevent some of the disorders associated with obesity such as low-grade, [chronic inflammation](#) that can lead to diabetes. The balance of bacterial communities in the colon of obese people is disturbed. This results in microbial byproducts that lead to inflammation and influence metabolic disorders associated with obesity, Noratto said.

"What determines the balance of bacteria in our colon is the food we consume," she said.

Re-establishing a healthy balance of bacteria in the colon stabilizes metabolic processes that influence inflammation and the sensation of feeling satisfied, or satiety, she said.

Provided by Washington State University

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