

'Magical' apple affects body's metabolism

It's hard to reconcile all the advice you get when young. "Look before you leap" contradicts "He who hesitates is lost." But some adages, like "An apple a day keeps the doctor away," have hung around for a good reason. It turns out that 6 ounces of daily prevention - notably in the form of a crisp apple - do yield a pound of cure. And more. At the core of the apple's impact on health is its ability to prevent metabolic syndrome and the cardiovascular dysregulation that accompanies it - blood-fat disorders such as high cholesterol and high triglyceride levels, plaque buildup in arteries, high blood pressure, insulin resistance or glucose intolerance and the risks of heart attack or stroke.

In about one out of three cases, it's possible to prevent metabolic syndrome, says nutritionist Victor Fulgoni of Nutrition Impact in Battle Creek, Mich. His research shows that regular consumption of whole-apple products - apples, applesauce, even apple juice - reduces risk factors associated with metabolic syndrome by up to 27 percent. And it really takes only an apple a day.

"In the study, the average apple product consumption was between 210 and 215 grams, which is about one medium-size apple," says Fulgoni. "While you can't ascribe all the results to eating apples, you can say that a diet that includes apples is associated with many health benefits." What makes apples so powerful against a disorder that afflicts an estimated 36 million Americans is their unique mix of fiber and phytochemicals, which interact in the body in ways not entirely clear.

Apples are rich in the soluble fiber pectin, which lowers cholesterol and other body fats via several mechanisms. And the array of phytochemical antioxidants adds further protection by keeping blood lipids from hardening. What's more, apple antioxidants have an anticancer effect by inhibiting cell proliferation.

The greatest concentration of antioxidants is in the peel. The peel also contains insoluble fiber, just as bran does. But the flesh is where the pectin is.

Neither the pectin alone nor the phytochemicals alone - or any one phytochemical - is as effective as the combination of fiber and antioxidants. Among fruits, apples have the second highest total concentration of the class of phytochemicals known as phenolics - but the most free phenolics, which are highly available.

Among these bioactive agents are flavonoids like quercetin, which prevents oxidative damage to cholesterol, reduces blood pressure, and bolsters immune defenses. Apples also contain other phytochemicals such as catechins, most often associated with tea. Apple varieties differ in their mix and concentration of antioxidants, but Red Delicious apples have the highest levels of phenolics.

The pectin in apples reduces cholesterol both in the blood and in the liver. It actually prevents the body from absorbing it in the first place. Other fruits lower cholesterol, but apples have the greatest effect, Fulgoni reports. According to nutritional scientist Rui Hai Liu, of Cornell University, the apple is a "magical fruit." But the benefits come from eating the whole fruit.

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