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One Meal to Good (or Bad) Health

by Laura Blue

(Time) Want to know how many cheeseburgers you'd have to eat before they start doing damage to your body? The answer, according to a review of new dietary research, is just one. Just one high-fat, high-sugar meal can trigger a biochemical cascade, causing inflammation of blood vessels and immediate, detrimental changes to the nervous system, according to the paper, published this week in the *Journal of the American College of Cardiology*. And just one healthy meal helps return your body to its optimal state. "Your health and vigor, at a very basic level, are as good as your last meal," says lead author James O'Keefe, head of preventive cardiology at the Mid America Heart Institute in Kansas City, Mo.



Here's how it works. When you eat, your body breaks down the food into a stream of nutrients, including glucose (sugar), lipids (fats), and amino acids (the building blocks of protein). If your meal happens to be junk food — say, a processed bun with a cheap beef patty, French fries and a Coke — the rush of sugar causes something called "post-prandial hyperglycemia": a big spike in blood-sugar levels. Poor diet in the long-term leads to hypertension and build-up of gunk in blood vessels that increases heart-attack risk. But there are short-term effects too. "People don't understand this, even most physicians," says O'Keefe. Tissue becomes inflamed, just as it does when infected. Blood vessels constrict. Free radicals, unstable molecules that cause cell damage and are thought to contribute to chronic disease and aging, are generated. The body's stress response has a bigger effect on blood pressure, raising it higher than normal. People may notice they feel crummy a few hours after eating junk food. And the sudden surge and drop in insulin — the hormone that spurs your body to store energy — also leaves them feeling hungry again soon after eating, despite having had plenty of calories.

The good news is that these blood-sugar spikes and crashes are easy to regulate. Blood sugar will rise and fall quickly if, for example, a person eats an easily digested meal of only white bread. Eat some vinegar with the bread, however, and the impact is dampened: The vinegar slows digestion, helping to keep blood-sugar levels more even. The same thing happens if a person takes his bread with nuts or with a glass of wine. (The dampening effect of alcohol reverses after more than a couple units, which may help to explain why moderate drinking, but not heavy drinking, is associated with long life.) The common denominator of all these slow-release foods, says O'Keefe, is a generally high nutritive value with low calories. The healthy foods are exactly the ones you would expect, all that stuff your mom (and your doctor) told you to eat: lots of fresh vegetables and fruits, lean proteins like fish and legumes, and high-fiber whole grains. All of them blunt the post-prandial spike. "To some degree it kind of highlights why some dietary components are healthy for you," says O'Keefe.

Regardless of its benefits, healthy food can leave you feeling unsatisfied if you're used to eating junk. Junk food distorts a person's hormonal profile, says O'Keefe. Note, for example, the previously mentioned drop in insulin that leaves a person hungry not long after eating a heavy meal. Studies suggest that fatty, sugary foods promote excretion of the stress hormone cortisol, which seems to further stimulate appetite for calorie-dense foods. And the big post-meal spikes in blood sugar are more likely in people who don't exercise or those who carry weight around their abdomen. All of it makes it tough for people to stop eating junk food once they're in the habit. "The more you eat it the more you crave it. It becomes a vicious cycle," says

O'Keefe. The solution? "I tell people they should get a home glucose monitor," he says. Then you can see immediately what your meals are doing to your body. It may help you stick to your plan to eat well, too. "You can improve your health, basically, from hour to hour," he says.