

# Burgers, fries, diet soda: Metabolic syndrome blue-plate special

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Otherwise-healthy adults who eat two or more servings of meat a day — the equivalent of two burger patties — increase their risk of developing metabolic syndrome by 25 percent compared with those who eat meat twice a week, according to research published in *Circulation: Journal of the American Heart Association*.

Metabolic syndrome is a cluster of cardiovascular disease and diabetes risk factors including elevated waist circumference, high blood pressure, elevated triglycerides, low levels of high-density lipoprotein (HDL or “good”) cholesterol and high fasting glucose levels. The presence of three or more of the factors increases a person’s risk of developing diabetes and cardiovascular disease.

But it’s not just meat that adds inches to the waist, increases blood pressure and lowers HDL — “it’s fried foods as well,” said Lyn M. Steffen, Ph.D., M.P.H., R.D., co-author of the study and an associate professor of epidemiology at the University of Minnesota.

Dairy products, by contrast, appeared to offer some protection against metabolic syndrome.

Steffen said that, “Fried foods are typically synonymous with commonly eaten fast foods, so I think it is safe to say that these findings support a link between fast-food consumption and an increase in metabolic risk factors.”

The findings emerged from an analysis of dietary intake by 9,514 participants in the Atherosclerosis Risk In Communities (ARIC) study. ARIC is a collaborative study funded by the National Heart, Lung, and Blood Institute.

Unlike other researchers who have investigated relationships between nutrients and cardiovascular risk, “we specifically studied food intake. When making recommendations about dietary intake it is easier to do so using the framework of real foods eaten by real people,” Steffen said.

Researchers assessed food intake using a 66-item food frequency questionnaire. From those responses, they categorized people by their dietary preferences into a Western-pattern diet or a prudent-pattern diet.

In general, the Western-pattern diet was heavy on refined grains, processed meat, fried foods, red meat, eggs and soda, and light on fish, fruit, vegetables and whole grain products.

Prudent diet eating patterns, by contrast, favored cruciferous vegetables (e.g., cabbage, radish and broccoli), carotenoid vegetables (e.g., carrots, pumpkins, red pepper, cabbage, broccoli and spinach), fruit, fish and seafood, poultry and whole grains, along with low-fat dairy.

Researchers also assessed associations with individual food items: fried foods, sweetened beverages (regular soda and fruit drinks), diet soda, nuts and coffee.

After nine years of follow-up, 3,782 (nearly 40 percent) of the participants had three or more of the risk factors for metabolic syndrome.

At baseline, participants were 45 to 64 years old — ages at which many people gain weight.

Steffen said that weight gain over the years of follow-up might explain some of the cases of metabolic syndrome. But “after adjusting for demographic factors, smoking, physical activity and energy intake, consumption of a ‘Western’ dietary pattern was adversely associated with metabolic syndrome,” she said.

“One surprising finding was while it didn’t increase the risk of metabolic syndrome, there was no evidence of a beneficial effect of consuming a prudent diet either. I had expected to find a beneficial effect because we have seen that in other studies.”

When Steffen and colleagues analyzed the results by specific foods, they found that meat, fried foods and diet soda were all significantly associated with increased risk of metabolic syndrome, but consumption of dairy products was beneficial.

The study did not address the mechanisms involved in the increased risk of metabolic syndrome seen with certain foods, but Steffen speculated that “it may be a fatty acid mechanism since saturated fats are a common link and certainly overweight and obesity are contributing to the development of metabolic syndrome.” She also said more research on the relationship between diet soda and its association to metabolic syndrome is needed.

The fact that 60.5 percent of the ARIC population had metabolic syndrome at the start of the study or developed it during nine years of follow-up is troubling, researchers said.

Steffen said the study’s results are clear: Too much meat, fried foods and diet soda, do not add up to a healthy life.

American Heart Association dietary guidelines for healthy Americans age 2 and older include:

- Limit saturated fat, trans fat, cholesterol and sodium in the diet.
- Minimize the intake of food and beverages with added sugars.
- Eat a diet rich in vegetables, fruits and whole-grain foods.
- Select fat-free and low-fat dairy.
- Eat fish at least twice per week.
- Emphasize physical activity and weight control.
- Avoid use of and exposure to tobacco products.
- Achieve and maintain healthy cholesterol, blood pressure and blood glucose levels.

Source: American Heart Association

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