A modest reduction in daily calorie consumption—the equivalent of an average-sized slice of cheese pizza, hold the pepperoni—improved a range of cardiometabolic risk factors in healthy young and middle-aged adults, according to findings recently published in *The Lancet Diabetes & Endocrinology*.

**Backstory**

Animal and observational human studies have suggested that cutting empty calories might protect against cardiovascular disease.

In one study, rhesus monkeys placed on a restricted-calorie diet at a young age had half the incidence of cardiovascular disease of rhesus monkeys that consumed a typical diet. The authors of that study have noted that the rhesus monkey, with a lifespan measured in decades, makes an excellent model of human aging.

And an observational study that compared people who chose to restrict their calorie intake for an average of 6 years to individuals who ate a typical US diet consisting of nearly twice as many calories found the former had more favorable cardiometabolic risk factors than the latter.

**The Design**

In this phase 2 trial, 218 healthy, nonobese adults aged 21 to 50 years were randomly assigned to a calorie-cutting group, whose goal was to reduce daily intake by 25%, or control group, instructed to eat what they liked. Researchers measured postintervention changes in weight and fat mass, as well as the following cardiometabolic risk factor values after 2 years:

- Systolic, diastolic, and mean blood pressure
- Plasma lipids
- High-sensitivity C-reactive protein (hs-CRP)
- Metabolic syndrome score
- Fasting insulin, glucose, insulin resistance

**Statistically Speaking**

- At baseline, all participants had cardiometabolic risk factor values in the normal range.
- The dropout rate was 18% in the calorie-restriction group and 5% in the control group.
- The calorie-cutting group managed to trim caloric intake about 12% on average, compared with about 1% in the control group. This corresponded to 279 fewer calories a day at the end of the first year and 216 fewer calories at the end of the second year.
- On average, the calorie-cutting group lost about 16.5 lb—10% of their body weight—by the end of the study, and 71% of it was fat mass. Meanwhile, the control group gained about a quarter of a pound.
- All cardiometabolic risk factor values improved in the calorie-restriction group but not in the control group.
- Even if everyone in the calorie-restriction group had been able to reduce their intake by 25%, it wouldn't have improved their cardiometabolic risk factors much more than cutting caloric intake by 12% did.

**Research** has shown that cardiovascular disease incidence and mortality continue to decline even when cardiometabolic risk factor values drop below what guidelines consider to be normal, suggesting that even healthy individuals can benefit from modest calorie restriction.

While skipping a slice of pizza or a couple of cans of sugary soda might not seem like much of a sacrifice, if everyone did it every day, the public health benefit would be huge, says William Kraus, MD, a Duke University preventive cardiologist who led the trial.

**Questions Without Answers**

- Would individuals who are older and have worse cardiometabolic values than Kraus's subjects receive similar benefits from eating 12% fewer calories each day?
  "I would [anticipate] folks starting off with worse numbers will get the same relative improvement or better," Kraus said. In other words, he said, it's probably never too late to try to improve cardiometabolic risk factors, especially considering that they tend to worsen with age.

- Will improvements seen in the calorie-cutting group persist and result in a lower risk of cardiovascular disease?
  "It's not hard to do. It just takes a little intention and discipline."

Only time will tell, but other research by Kraus and his collaborators suggests short-term interventions that improve cardiometabolic risk factors can have a "legacy effect." One of their previous trials found that an 8-month program of supervised exercise training improved cardiometabolic risk factors among previously sedentary overweight or obese adults. A recent follow-up study found that these benefits were still evident a decade later.

**The Take Away**

For people with normal baseline cardiometabolic risk status, 2 years of caloric restriction led to trimmer waistlines, higher high-density lipoprotein cholesterol, and lower blood pressure, among other improvements. These benefits could not be explained by their weight loss alone, the authors wrote.

**The Upshot**

When asked how to cut 300 or so calories a day, "95% of people will be able to do that if they just do not eat after dinner," Kraus said. "It’s not hard to do. It just takes a little intention and discipline."

**Note:** Source references are available through embedded hyperlinks in the article text online.