



The Benefits of Occasional Fasting

HOW INTERMITTENT FASTING BECAME THE HOTTEST WAY TO LOSE WEIGHT, GAIN DEFINITION, AND POSSIBLY LIVE LONGER.

by TYLER GRAHAM

By now, everyone's heard about the life-extending benefits of caloric restriction. Lab results show that drastically cutting food intake can nearly double longevity in rodents, worms, and flies, and a massive 20-year study on rhesus monkeys, a species closely related to humans, found that the benefits of the diet seem to be universal: a resistance to cancer, heart disease, and age-related cognitive decline. There's even a Calorie Restriction Society International, with thousands of members who live off roughly 30 percent fewer calories than the number recommended by conventional medicine. The downside, of course — and it's a big one — is, who wants to live a life of deprivation? But what if there were a shortcut? What if you could get the benefits of caloric restriction without the same degree of sacrifice? Many people now believe you can. The idea is called intermittent fasting (IF), and it's becoming the diet du jour of weightlifters, crossfitters, and the paleo set.

"When people hear the term *fasting*, they tend to think of a week of not eating," says

Brad Pilon, author of the book *Eat Stop Eat*. "Instead, I like to think of it as taking a break from eating."

IF is not what most people typically think of as fasting — going without food or sustenance for days. Instead, IFers believe you can reap all the benefits (and more) of chronic calorie restriction after as few as 12 hours without food. Which means that simply skipping breakfast and waiting until lunch to eat any food (most say it's OK to put a splash of cream in your coffee) counts as IF.

DIET

It seems counterintuitive, but skipping meals helps you feel more energized, recover better from exercise, blast fat, and retain lean muscle mass, and even protects your body from heart disease, cancer, diabetes, and cognitive decline — which is why NASA is interested in looking at fasting to improve the cognitive functioning of pilots and unmanned-aerial-vehicle operators.

How does skipping meals provide these types of benefits? Because we were once hunters and gatherers who sometimes went

days between meals, our bodies were designed to survive in times of feast and famine. Most Americans now live off a constant drip of processed food, which keeps blood sugars elevated and immune systems depressed.

Breaking off this continual drip of refined, high-sugar, high-carbohydrate food isn't as tricky as it might seem, say proponents of IF, who swear the diet's protocol is simple and easy to follow. "Once you get through the first couple of weeks, it's easy," says John Olson, former director of the Strategic Analysis and Integration Division in Human Exploration and Operations at NASA. "If you have a healthy diet going into it, it's not really that big of a deal," he adds. "If you have a junk diet, it's going to be hard. For me, it's been transformational. I would say, anecdotally, the cognitive improvements are noticeable almost immediately."

Weight loss and fitness gains

We learned in high school biology that the body's fuel source is glucose — blood sugar. We get it in abundance by eating sugar and refined carbohydrates like bread, pasta, and sports drinks. But our body can burn another type of fuel known as ketones. These molecules are created when your body runs out of glucose and starts to burn fat, which happens when you fast. Your system switches fuel sources from sugar to fat without breaking down muscle.

If you exercise during your fasted state, you can supercharge your body's fat-burning potential. Studies show that growth hormone, which has serious muscle-building properties, surges during fasts. The spike of this muscle-molding hormone proves that fasting is not simply about calories in and calories out. The human body appears to have adapted to thrive during short bouts of going without food.

That's not to say, though, that you should attempt a marathon during a fast. Most people do a short stretch — around 45 minutes — of moderate exercise like strength training or bike riding that can run through their blood glucose and turbocharge ketosis. "My clients find fasting not only increases fat burning, but they feel better and feel stronger as they get used to it," says Jon Haas, owner of functional fitness gym Warrior Fitness in Hainesport, New Jersey. Proponents also say the notion of not having to eat three square meals a day is freeing and makes you feel more in control of your body. "It provides another level of mental toughness," says Haas. "This is how your body was designed to function."

The downside of IF is that research shows people who fast are much more likely to reach for high-calorie, carbohydrate-rich foods when they eat again. These foods were never a problem, evolutionarily

speaking, until the advent of soda, hoagies, and all-you-can-eat pasta buffets. Still, the research makes sense: If you haven't eaten in 20 hours, why wouldn't your body go for the biggest bang for the caloric buck? But IFers go a step further and claim the science behind bingeing after a fast is faulty. "To my knowledge," says Mark Sisson, author of *The Primal Blueprint* and a proponent of IF, "these studies are not done on people adjusted to burning fat, so it's not surprising that someone on a moderate- to high-carbohydrate diet is going to go for the carbs when they start eating again — the brain of a sugar burner is always expecting sugar." Sisson's comments mirror the reports of the legions of people who claim there's an adaptation period as the body becomes more efficient at converting fat into ketones — or, as Sisson calls it, "becoming a fat-burning beast."

Cancer prevention

An extensive body of research conducted by institutions like the University of California at Berkeley, the University of Southern California, and Chicago's Mount Sinai now shows that IF may help prevent and treat cancer. During a fast, the cells in our bodies go into a protective mode, while cancerous cells continue their metastatic, robotic growth. But the fasted state is hostile to cancer cells in part because their fuel — glucose — disappears from the bloodstream. The same is true of precancerous cells — the type that lead to cancer — says Valter Longo, director of the University of Southern California Longevity Institute. "Imagine someone who has precancerous cells," says Longo. "The process of developing cancer could take years, but if that person fasted, those cells could be killed before they had a chance to spread." Longo, who has shown that the act of fasting itself can kill cancer cells, is now working with

What About the Juice Cleanse?

If you've ever done a juice fast — or the granddaddy of them all, the Master Cleanse — you know that it's a process of ups and downs. After downing a juice, there's an immediate blood-sugar rush — followed by the inevitable crash. Users report diarrhea, headaches, and vomiting. The reasons for this are varied, but, put simply, the juice fast is the opposite of an intermittent fast. Instead of depriving the body of blood sugar and turning on your body's fat-burning machinery (i.e., ketone production), juice fasts provide a continuous drip of sugar from fruit juice. As a result, you forgo the life-lengthening benefits of IF, though you may experience some weight loss (albeit temporarily). Bet you didn't know that the creator of the Master Cleanse, Stanley Burroughs, was convicted of manslaughter and practicing medicine without a license.

the Dr. Otto Buchinger Clinic in Germany, an institute that has promoted therapeutic fasting for almost a century, to develop more human studies to better understand why IF may be beneficial for treating and preventing cancer.

Longevity and neuroprotection

Fasting challenges your brain in a way that's similar to exercising muscle, says Mark Mattson, of the National Institute on Aging. "When the brain goes under energy restriction, we see neural activity that's associated with protection against degeneration from stroke and aging," says Mattson. "Fasting increases BDNF, a protein that's crucial for learning and protection against age-related cognitive decline." There's also evidence that ketone bodies converted from fat and used as fuel during fasting may protect against neurodegenerative diseases like epilepsy, moderate autism, and Alzheimer's.

Master the fast

When Brad Pilon, a major guru of the IF diet, dropped out of his job in the supplement industry to attend graduate school, his goal was to create the ultimate diet. He was astonished to learn the key to longevity was to regularly skip eating. He developed what's since become the main reference title of IF followers: *Eat Stop Eat*. It's updated annually, and it recommends two 24-hour fasts a week. But it's by no means the only protocol in the world of fasting. As you'll see below in "Fast Track to Fitness," most IF adherents have their own method for restricting food. The most popular, however, seems to be skipping breakfast, which allows you to include sleep in your fasting cycle. If you eat dinner by 9 PM, for example, all you need to do is skip breakfast and then resume eating at 1 PM for a solid 16-hour fast, or push it longer. "Fat loss starts happening at about 12 to 13 hours and plateaus around 18 hours," says Pilon, who also has a master's in human biology and nutritional science from the University of Guelph in Ontario.

Though we've been told for years to fuel up before working out, IF loyalists report that doing strength training midfast provides them with more energy than they would have had if they'd eaten breakfast. It does take some getting used to, however. You're essentially switching fuel sources from glucose to ketone molecules, and your body becomes more efficient at doing so over time — something IF advocates call being keto-adapted. It's like tapping into a tank of different fuel, and people report having greater concentration while burning ketones. As with so many things in the health sphere these days, what's old seems to be what's new. Many of the world's great religions call for fasting regimens; Socrates was a fanatical proponent; and Benjamin Franklin may have said it best: "To lengthen thy life, lessen thy meals." ■

Fast Track to Fitness

While nobody knows what the optimal fast is — and it may be different for different people — here's how the experts do it.

THE ALZHEIMER'S EXPERT Mark Mattson



"Monday through Friday, I don't eat breakfast or lunch. At lunchtime on Monday, Wednesday, and Friday, I do a hard workout, running or hitting the elliptical. On Tuesday and Thursday, I'll mountain bike or do core work. On the weekends, I eat lunch and dinner. If I exercise and don't eat lunch, I have more energy."

THE NASA GUY John Olson



"I follow a normal diet on all days except Tuesday and Wednesday. Then I limit myself to about 600 calories per day from high-quality protein — buffalo, venison, eggs, grass-fed beef, fish. I eat three meals on the other days. As important as we all know exercise is for the body, energy restriction is equally important for the mind."

THE CANCER EXPERT Valter Longo



"I don't eat lunch — that's how I keep my weight in place. My diet is mostly vegan with low protein. If I go up in weight and skipping lunch doesn't do it, I skip a dinner. Occasionally, I do a longer fast over a few days. The key is not to revolutionize the diet too much. If you don't mind missing breakfast, then skip it. In my case, I love breakfast."

THE INTERMITTENT-FASTING GURU Brad Pilon



"The way to make fasting work for the masses is to do 24-hour fasts. It's easy to remember: 'I stopped eating at 2 PM today, and I can start again at 2 PM tomorrow.' My program is composed of two 24-hour fasts a week — any two days. So if you plan to fast at 3 PM and your boss calls to say you got a promotion, you can move your fast."

THE PALEO GUY Mark Sisson



"Most days, I simply have a compressed eating window. I eat two meals a day, generally between 12 PM and 7 PM. Since I train at 9:30 most mornings, I train in a fasted state and don't eat for a few hours afterward. When I travel, I might use that excuse to fast a bit longer, maybe from 7 PM until 7 PM the next day."