

# Fasting Prevents and Halts Diabetes

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › The prevention, treatment and reversal of Type 2 diabetes begins with improving your insulin sensitivity, which fasting accomplishes and which may be an important factor for those struggling with other obesity-related conditions
- › Data reveal working out before breakfast and putting off eating until lunch may reduce your overall caloric intake during the day and aid in weight loss and management
- › The study participants fasted from sunup to sunset; but eating just hours before going to sleep may result in other negative health effects as under the best circumstances your stomach takes hours to empty, increasing your risk of heartburn and reflux if you lie down too soon after meals
- › Eating within three hours of bedtime may be one of the worst things you can do, as it detrimentally affects the health of your mitochondria
- › Although beneficial, fasting should not be done if you are underweight, pregnant, breastfeeding or have an eating disorder, and while it supports your health, I recommend using a cyclical ketogenic diet with fasting for the greatest health benefits

Fasting has been practiced for centuries. In fact, science shows that, like animals, we have a fasting instinct that extends through the ages: Hippocrates prescribed and championed fasting while using apple cider vinegar.<sup>1</sup>

Religions around the world developed fasting independently as a practice and the Greeks not only prescribed it for illness, but required it in preparation for many rituals to

contact supernatural forces. Fasting has also been used as a means of political protest.

Gandhi fasted on at least 14 different occasions, three times for as long as 21 days. One of the longest recorded political fasts was by Terence McSweeney, past mayor of Cork, who for political reasons fasted 74 days until his death in 1920.<sup>2</sup> Fasting may seem daunting and a challenge, but can provide long-term benefits and helps your body remove toxins.

The detoxifying effects of fasting are in fact why I developed the partial fasting regimen detailed in my book, "[KetoFast](#)." KetoFasting combines a cyclical ketogenic diet and intermittent fasting with cyclical partial fasting to optimize health and longevity and support safe detoxification.

## **Fasting Improves Insulin Sensitivity**

Like other studies before it, recent research finds fasting may improve insulin sensitivity,<sup>3</sup> reverse diabetes<sup>4</sup> and supports your weight management efforts when combined with exercise.<sup>5</sup>

The research, presented at Digestive Disease Week 2019,<sup>6</sup> was based on the fasting prayer practices of Muslims during Ramadan. The pilot study enlisted 14 healthy individuals who routinely fasted for 15 hours a day from dawn to dusk over 30 days.

Researchers collected blood samples before the individuals began their religious fast and at the end of the fourth week of fasting. An additional blood panel was drawn one week post [fasting](#). The research work was partially supported by a National Institutes of Health Public Health Service grant.<sup>7</sup>

Fasting for 30 days raised the levels of tropomyosin (TPM) proteins that in turn improved insulin resistance and reduced the adverse effects of a diet rich in sugar. Higher levels of TPM 1, 3 and 4 were found in the blood samples of the participants.<sup>8</sup> TPM is a key factor in maintaining the health of cells important to insulin resistance.

TPM 3 plays an important role in improving sensitivity to insulin, which means better blood glucose control. The research team was led by Dr. Ayse Leyla Mindikoglu, associate professor of medicine and surgery at Baylor College of Medicine in Houston, Texas, who commented on the results:<sup>9</sup>

*"Feeding and fasting can significantly impact how the body makes and uses proteins that are critical to decreasing insulin resistance and maintaining a healthy body weight. Therefore, the timing of and duration between meals could be important factors to consider for people struggling with obesity-related conditions.*

*According to World Health Organization data, obesity affects over 650 million people worldwide, placing them at risk for any number of health conditions.*

*We are in the process of expanding our research to include individuals with metabolic syndrome and [nonalcoholic fatty liver disease] to determine whether the results are consistent with those of the healthy individuals.*

*Based on our initial research, we believe that dawn-to-sunset fasting may provide a cost-effective intervention for those struggling with obesity-related conditions."*

## **Fasting May Promote Pancreatic Beta-Cell Growth**

An editorial written in the BMJ<sup>10</sup> by noted research scientist James DiNicolantonio, PharmD.,<sup>11</sup> discusses the results of several studies that have found repeated episodes of fasting may induce cell growth of pancreatic beta cells in mouse models.

The growth is associated with an increased expression of Ngn3,<sup>12</sup> a protein involved in converting DNA into RNA critical for endocrine cells in the pancreatic islets of langerhans, the cells responsible for producing insulin.

The increase in islet beta cells induced through intermittent fasting was accompanied by a marked improvement in blood sugar control in the animal studies. These

observations were of greatest interest to individuals suffering from Type 1 diabetes, as they often experience near complete inflammatory destruction of the islet beta cells.

However, the same occurs in the later stages of severe Type 2 diabetes. DiNicolantonio believes these findings may be replicated clinically, opening the path to reversing Type 2 diabetes in those with "enough discipline and commitment to adopt a lifestyle that would have prevented diabetes in the first place."<sup>13</sup>

As a first step, he recommends you first practice a diabetes preventive lifestyle, eating a diet primarily of whole foods, complemented with regular exercise. This will help improve your insulin sensitivity and may prove sufficient for those with a recent diagnosis of diabetes to reverse their condition over time.

In those who fail to respond, he recommends an intermittent fasting protocol. Making the transition back to a health protective diet from fasting, supplemental measures may be implemented to shield the beta cells from toxicity so they retain functional capacity.

Reducing islet oxidative stress may be accomplished using spirulina, NAC and/or berberine.<sup>14</sup> The goal is to achieve normal blood sugar control without drugs and maintain compliance with a diabetic preventive diet and lifestyle.

## **Skipping Breakfast Before a Workout May Help**

Another recent study evaluating the effectiveness of omitting a meal before an early workout was published in the Journal of Nutrition.<sup>15</sup> The researchers wanted to see if skipping breakfast before working out would affect the relationship to food for the remainder of the day.

While exercise plays an important role in weight management and overall health, past studies have demonstrated people who begin a new exercise program often compensate for energy burned during exercise by eating more later in the day, or by moving less.

The researchers enrolled 12 healthy, physically active young men who all completed three stages in randomized order separated by over one week.<sup>16</sup> During the one stage, the participants ate a breakfast of oats and milk followed by rest. In another they had the same breakfast and then exercised for 60 minutes.

During another stage, the participants fasted overnight and then exercised in the morning before eating. The following 24 hours of caloric intake was monitored and calculated. The researchers found those who fasted and then exercised had a negative 400 calorie intake during the day as compared to those who ate and rested or who ate breakfast before exercising.

According to the researchers, these results have implications for those who want to include exercise in their weight control efforts.<sup>17</sup> Javier Gonzalez, Ph.D., from the University of Bath, oversaw the study and suggested working out on an empty stomach probably will not trigger overeating, but instead may lead to a calorie deficit.

The study was small and used fit young men. The researchers question if the results would be comparable in groups of older, overweight, out of shape or female participants. The study did not explain why the participants who had skipped eating before exercise did not continue to eat all day.<sup>18</sup> Gonzalez hopes to study these questions.

## **Obesity Rates Climbing, Affecting Multiple Health Conditions**

Diabetes is a condition in which your body develops a resistance to insulin and leptin signaling, which drives your blood glucose level high. Conventional medicine aims to treat the symptoms of diabetes, while the condition is in fact preventable and in most cases reversible simply by changing your diet and lifestyle habits.

One significant risk factor for insulin resistance is overeating carbohydrates and added sugar, as these spike your insulin level and gradually increase cellular resistance to insulin. Overeating carbohydrates and sugar is also a primary cause of obesity, a growing epidemic in the U.S.

The National Health and Nutrition Examination Survey<sup>19</sup> is an in-depth survey designed to assess health and nutritional status of Americans. In their most recent findings, published for 2015-2016,<sup>20</sup> data showed an increasing number of health conditions associated with obesity, including diabetes, high blood pressure, cardiovascular disease, arthritis and certain cancers.

The rate of adults with obesity from 2007-2008 to 2015-2016 increased from 33.7% to 39.6%.<sup>21</sup> A variety of reasons may be attributed to these rising numbers, including a sedentary lifestyle,<sup>22</sup> increased highly **processed food consumption**,<sup>23</sup> medications<sup>24</sup> and psychological triggers,<sup>25</sup> to name a few.

## **Additional Benefits to Fasting**

In addition to supporting your weight management efforts, fasting also offers several other benefits that are foundational to optimal health. This cycling of feeding and fasting mimics the eating habits of our ancestors and restores your body to a more natural state, allowing a host of biochemical benefits to take place.

When you eat throughout the day, your body becomes adapted to burning sugar and carbohydrates as a primary fuel, down-regulating enzymes involved in the use and burning of stored fat. This increases your insulin resistance and your risk of gaining weight.<sup>26</sup> It's important to realize that in order to lose body fat, your body must be able to burn fat.

Two powerful ways of shifting to a fat burning metabolism is fasting and eating a cyclical ketogenic diet. In addition to promoting insulin and leptin sensitivity, fasting also normalizes ghrelin levels,<sup>27</sup> known as the hunger hormone.

Human growth hormone (HGH) production is also affected by fasting, rising as much as 1,300% in women and 2,000% in men.<sup>28,29</sup> HGH plays a role in fitness, longevity and muscle growth, and boosts fat loss.<sup>30</sup>

Fasting also helps suppress inflammation and reduce oxidative damage,<sup>31</sup> improve immune function<sup>32</sup> and reduce your risk of heart disease.<sup>33</sup> One of the side effects of

rising ketone levels produced during fasting is an improvement in cognitive function<sup>34</sup> and a reduction in neurological diseases, such as dementia, [Alzheimer's disease](#) and [Parkinson's disease](#).<sup>35</sup>

Additionally, fasting helps reduce your cravings for sugar as your body adapts to burning fat,<sup>36</sup> thus boosting your weight loss efforts even further. According to research presented at the Endocrine Society's annual meeting,<sup>37</sup> intermittent fasting will also drastically reduce a woman's risk of breast cancer.

## **Avoid Eating at Least Three Hours Before Bed**

While the featured study demonstrated those who practice intermittent fasting from sunup to sunset experienced health benefits, eating too close to bedtime can have negative health repercussions. Adding to the problem, the late-night meal tends to be the largest meal of the day for most Americans, and often consists of heavily processed foods.

Under the best of circumstances, your stomach takes several hours to empty after you eat. As you age or if you experience acid reflux, the process takes even longer. When you recline for sleep, it's easier for acid to enter your esophagus, leading to acid reflux.<sup>38</sup>

You may have acid reflux even if you don't experience heartburn but have symptoms like hoarseness, chronic throat clearing and even asthma. Eating late at night also throws off your body's internal clock.

In short, it may be one of the worst things you can do, as it detrimentally affects your mitochondria.<sup>39</sup> A foundational cause of many degenerative diseases are your mitochondria, little powerhouses located in most of your body's cells.<sup>40</sup>

When they receive inappropriate amounts of proper fuel they may begin to deteriorate and malfunction. This dysfunction lays the groundwork for subsequent breakdowns of various bodily systems.

## **Take Control of Your Health With Fasting**

Millions suffer from Type 2 diabetes, but it is not an inevitable risk of life. Fasting is the most profoundly effective metabolic intervention I'm aware of. It's like getting a free stem cell transplant, and it massively upregulates autophagy and mitophagy.

It also stimulates mitochondrial biosynthesis during the refeeding phase, which allows your body to naturally regenerate. For these reasons, fasting not only is beneficial for Type 2 diabetes and obesity but also for health in general, and likely even longevity. There's even evidence to suggest fasting can help prevent or even reverse dementia, as it helps your body clean out toxic debris.

Other ailments that can benefit from fasting include polycystic ovaries, polycystic kidneys and fast growing cancer cells. The reason for this is because when autophagy increases, your body starts breaking down old protein, including fast growing cells.

Then, during the refeeding phase, growth hormone increases, boosting the rebuilding of new proteins and cells. In other words, it reactivates and speeds up your body's natural renewal cycle.

Gradually easing into longer fasts will naturally minimize most side effects associated with fasting, as will transitioning over to a high-fat, low-carb diet, to help your body to adjust to using fat as a primary fuel.

The so-called "keto flu" is often related to sodium deficiency, so it's recommended to take a high-quality unprocessed salt each day. I typically pour salt in my hand and lick it throughout the day when fasting, as I obviously can't put it on food. This will also help reduce the likelihood of intractable muscle cramps at night.

An alternative to eating salt straight, or putting it in water, is to add it to a bit of bone broth. Another important mineral is magnesium. It's particularly important if you are diabetic, as magnesium deficiency is very common among Type 2 diabetics. This is another possible culprit if you're getting muscle cramps.



It is also important to understand that when you're fasting, you're going to automatically liberate toxins from your fat stores. Using an infrared sauna and taking binders like chlorella, modified citrus pectin, cilantro or even activated charcoal can help eliminate these liberated toxins from your body and prevent their reabsorption.

As mentioned, my KetoFasting protocol addresses this and other important fasting concerns. Lastly, although it's highly beneficial for most, fasting is not for everyone. You should not do any type of extended fasting if you are underweight, pregnant, breastfeeding or have an eating disorder.

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