

# Powerful Protection for Women Against Tumors

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

September 01, 2022

## STORY AT-A-GLANCE

- › Research suggests time-restricted feeding (intermittent fasting) drastically reduces a woman's risk of breast cancer, in part by lowering insulin
- › Intermittent fasting releases ketones into your bloodstream, which help preserve brain function and protect against epileptic seizures, cognitive impairment and other neurodegenerative diseases
- › By improving your insulin sensitivity, intermittent fasting can both prevent and reverse Type 2 diabetes, which is rooted in insulin resistance
- › When intermittently fasting, it's critical to avoid processed foods, particularly refined carbohydrates, sugar/fructose and grains. Focus on vegetable carbohydrates, healthy protein in moderate amounts and healthy fats such as butter, eggs, avocado, coconut oil, olive oil and raw nuts
- › My new book, "KetoFast," presents a modified form of water-only fasting (in combination with a cyclical ketogenic diet) that is easier to do, and provides greater benefits because you're able to do it more frequently

According to research<sup>1</sup> presented at the Endocrine Society's annual meeting, March 23, 2019, intermittent fasting, where you eat all your meals for the day within a narrow window of time – in this case eight hours – drastically reduces a woman's risk of breast cancer. According to Dr. Manasi Das, a postdoctoral fellow at the University of California, San Diego, who led the research team:<sup>2</sup>

*"Improving the metabolic health of postmenopausal women with obesity may mitigate their risk for breast cancer. Time-restricted eating may be more successful than calorie restriction in controlling the negative effects of obesity, due to the hunger and irritability that makes it more difficult to stick with long-term calorie restriction.*

*The results suggest the anti-tumor effect of time-restricted eating is at least partially due to lower levels of insulin, suggesting this intervention may be effective in breast cancer prevention and therapy.*

*Exploring the ability of time-restricted eating to prevent breast cancer could provide an inexpensive but effective strategy to prevent cancer impacting a wide range of patients and represents a groundbreaking advance in breast cancer research."*

## **Link Between Insulin Resistance and Cancer Strengthens**

The team conducted three separate experiments on mice whose ovaries had been removed to simulate a postmenopausal state. In the first, the mice were first fattened up with a high-fat diet, after which they were divided into two groups: One had access to food around the clock, while the other had eight-hour access to chow at night (the time of highest physical activity).

The control group consisted of lean mice given access to a low-fat diet 24 hours a day. Three weeks into the experiment, all of the animals were injected with breast cancer cells. Results showed time-restricted feeding, also known as intermittent fasting, reduced tumor growth in the obese mice to levels similar to those in the lean mice.

In the second experiment, they used mice that were genetically modified to develop breast cancer. As before, half of them had round-the-clock access to a high-fat diet while the other had access to food for eight hours. Here, they also assessed the impact of insulin by artificially raising insulin in some mice using an insulin pump, while lowering it in others using the drug diazoxide.

In the third experiment, mice fed a low-fat diet were either given insulin via an insulin pump or saline as a control, while mice on a high-fat diet were either given diazoxide to lower their insulin levels, or no drug as the control. As you'd suspect, higher insulin levels fueled tumor development, while lower levels inhibited cancer growth. As reported by the New York Post:<sup>3</sup>

*"The results add to a growing body of evidence that indicates obesity and metabolic syndrome, a collection of risk factors that increase the chance of developing heart disease stroke and diabetes, are also risk factors for cancer, particularly postmenopausal breast cancer."*

Indeed, other studies have found intermittent fasting is a powerful anticancer strategy, and researchers are even working on getting it approved by the U.S. Food and Drug Administration as an adjunct to cancer treatment to improve long-term survival rates.

## **Benefits of Intermittent Fasting**

**Intermittent fasting**, i.e., following a meal-timing schedule where you're fasting for at least 16 hours every day and eating all of your meals within eight consecutive hours, has a long list of confirmed health benefits.

There are also other intermittent fasting plans where you dramatically cut back on your calories for a certain number of days each week, while eating normally during the remainder. The 5-to-2 intermittent fasting plan is one such example. The fasting mimicking diet, developed to match the effects of water-only fasting, is another.

Most if not all of these plans have similar benefits, which include the following.<sup>4,5,6,7</sup> For a rundown of the science behind some of these benefits, see Chris Kresser's article "Intermittent Fasting: The Science Behind the Trend."<sup>8</sup>

Releasing ketones into your bloodstream, which help preserve brain function and protect against epileptic seizures, cognitive impairment<sup>9</sup> and other neurodegenerative diseases

---

Boosting production of brain-derived neurotrophic factor, which stimulates creation of new brain cells and triggers brain chemicals that protect against brain changes associated with Alzheimer's and Parkinson's disease<sup>10</sup>

---

Increasing growth hormone by as much as 1,300 percent in women and 2,000 percent in men,<sup>11</sup> thereby promoting muscle development and vitality

---

Lowering insulin and improving your insulin sensitivity; studies have shown intermittent fasting can both prevent and reverse Type 2 diabetes, which is rooted in insulin resistance<sup>12,13,14,15</sup>

---

Increasing levels of the neurotransmitter norepinephrine, which helps your body break down fat to be used as fuel and benefits your metabolism<sup>16,17,18</sup>

---

Upregulating autophagy and mitophagy,<sup>19</sup> which will help protect against most disease, including cancer<sup>20</sup> and neurodegeneration<sup>21</sup>

---

Shifting stem cells from a dormant state to a state of self-renewal

---

Boosting mitochondrial energy efficiency and biosynthesis

---

Lowering oxidative stress and inflammation<sup>22</sup>

---

Improving circulating glucose<sup>23</sup> and lipid levels

---

Reducing blood pressure

---

Improving metabolic efficiency and body composition, modulating levels of dangerous visceral fat and significantly reducing body weight in obese individuals

---

Reproducing some of the cardiovascular benefits associated with exercise

---

Regenerating the pancreas<sup>24</sup> and improve pancreatic function

---

Protecting against cardiovascular disease

---

Reducing low-density lipoprotein and total cholesterol

---

Improving immune function<sup>25</sup>

---

Synchronizing your body's biological clocks<sup>26</sup>

---

Eliminating sugar cravings as your body adapts to burning fat instead of sugar

---

Increase longevity – There are a number of mechanisms contributing to this effect. Normalizing insulin sensitivity is a major one, but fasting also inhibits the mTOR pathway, which plays an important part in driving the aging process

---

## Intermittent Fasting Considerations

While intermittent fasting is likely to be beneficial for most people, here are some points to consider:

- **Intermittent fasting does not have to be a form of calorie restriction** – It's a practice that should make you feel good. If your fasting strategy is making you feel weak and lethargic, re-evaluate your approach.
- **Sugar cravings are temporary** – Your hunger and craving for sugar will slowly dissipate as your body starts burning fat as its primary fuel. Once your body has successfully shifted into fat burning mode, it will be easier for you to fast for as long as 18 hours and still feel satiated.
- **When intermittent fasting, it's important to eat real food** – While intermittent fasting may sound like a panacea against ill health and excess weight, it alone may not provide you with all of these benefits. The quality of your diet plays an important role if you're looking for more than mere weight loss.

It's critical to avoid processed foods, particularly refined carbohydrates, sugar/fructose and grains. Focus your diet on vegetable carbohydrates, healthy protein in moderate amounts, and healthy fats such as butter, eggs, avocado, coconut oil, olive oil and raw nuts.

## What Is KetoFast?

My book, "[KetoFast](#)," is the follow-up to my best-selling book "[Fat for Fuel](#)." As I mention in the Q&A video above, you really need to implement the strategies laid out in "Fat for Fuel" first (which include daily intermittent fasting and cyclical nutritional ketosis), before you move on to "KetoFast."

I wrote "KetoFast" because I strongly believe multiday water-only fasting is a profoundly effective intervention. However, while extended water fasts have been used for centuries, modern day life presents us with toxic exposures that can actually make water fasting problematic, as fasting very effectively releases toxins. Most people today are severely toxic, and the sudden release of those toxins could potentially be harmful.

So, "KetoFast" essentially presents a modified form of water fasting (in combination with a cyclical ketogenic diet) that is easier to do, and provides greater benefits because you're able to do it more frequently. As mentioned though, it's best to have implemented a month of six- to eight-hour daily intermittent fasting and nutritional ketosis as laid out in "Fat for Fuel" first before you get into this longer type of fasting.

Once you're metabolically flexible and can burn fat for fuel, the combination of cyclical nutritional ketosis and cyclical fasting is phenomenal for weight loss and optimizing your health and longevity. As I've discussed in previous articles, I've done several five-day water-only fasts in the past, but with this modified strategy, I likely won't do a longer water fast like that again, as I don't believe it's necessary.

In summary, the modified fasting method I describe in "KetoFast" involves daily intermittent fasting for 16 to 18 hours five to six days a week. Then, once or twice a week, you have a single 300- to 500-calorie meal that day, followed by a 24-hour water-

only fast. In essence, that means you're only eating 300- to 500 calories in 42 hours. In the book, I also make dietary recommendations to ensure you're getting the nutrients your body needs to support your detox pathways.

In the video above, I answer a wide variety of fasting related questions from readers, covering specific nutrients and more general timing recommendations, as well as some questions about cyclical ketosis.

## **How to Implement Cyclical Keto and Fasting**

Fasting and nutritional ketosis provide many of the same benefits, and both work best when implemented in a pulsed fashion. Together, I believe cyclical keto and intermittent fasting is a near-unbeatable combination capable of really maximizing the health benefits of both. Here is a quick summary of how to implement these two strategies as a cohesive program:

- 1. Implement an intermittent fasting schedule** — Eat all of your meals — either breakfast and lunch, or lunch and dinner — within a six- to eight-hour window each day. Fast for the remaining 16 to 18 hours. If all of this is new to you and the idea of making changes to your diet and eating habits seems too daunting, simply start out by eating your regular diet on this timed schedule.

Once this has become routine, move on to implement the ketogenic diet (step 2), followed by the cyclical component (step 3). You can take comfort in knowing that once you reach step 3, you will be able to cycle in some of your favorite healthy carbs once again on a weekly basis.

- 2. Switch to a ketogenic diet until you can create measurable ketones** — The three-part key is to 1) restrict net carbohydrates (total carbs minus fiber) to 20 to 50 grams per day, 2) replace the lost carbs with healthy fats so that you're getting anywhere from 50 to 85 percent of your daily calories from fat, and 3) limit protein to one-half gram of protein per pound of lean body mass.

(To determine your lean body mass, subtract your body fat percentage from 100, then multiply that percentage by your current weight.)

Vegetables, which are loaded with fiber, can be eaten without restrictions. The primary carb sources that need to be cut out are grains and all forms of sugar, including high-fructose fruits. (Healthy net carbs will be cycled back in once you've entered ketosis.)

Examples of healthy fat sources include avocados, coconut oil, animal-based omega-3 from fatty fish, butter, raw nuts (macadamia and pecans are ideal as they're high in healthy fat while being low in protein), seeds, olives and olive oil, grass fed animal products, MCT oil, raw cacao butter and organic pastured egg yolks.

Avoid all trans fats and highly refined polyunsaturated vegetable oils. Adding these harmful fats<sup>27</sup> can cause more damage than excess carbs, so just because an item is "high in fat" does not mean you should eat it.

Maintain these ratios of net carbs, fat and protein until you've achieved ketosis and your body is burning fat for fuel. Keto testing strips can be used to confirm that you're in ketosis, defined as having blood ketones in the range of 0.5 to 3.0 mmol/L. Keep in mind it can take anywhere from a couple of weeks to a few months before your body is able to effectively burn fat again.

Also remember that precision is important when it comes to these nutrient ratios. Too many net carbs will effectively prevent ketosis as your body will use any available glucose first, since it's a much faster-burning fuel, so make sure you have some basic measuring and tracking tools on hand.

This includes a kitchen scale, measuring cups and a nutrient tracker ([www.cronometer.com/mercola](http://www.cronometer.com/mercola) is a free, accurate nutrient tracker that is already set up for nutritional ketosis).



**3. Once you've confirmed that you're in ketosis, begin cycling in and out of keto by eating higher amounts of net carbs once or twice a week. As a general recommendation, triple the amount of net carbs on these high-carb days. Cycling in and out of nutritional ketosis will maximize the biological benefits of cellular regeneration and renewal, while minimizing the potential drawbacks of continuous keto.**

While higher net carb amounts are allowed once or twice a week at this stage, I would advise you to still be mindful of what's healthy and what's not. Ideally, you'd forgo potato chips and bagels, and focus on adding in healthier alternatives such as digestive-resistant starches.

High net-carb foods such as potatoes, rice, bread and pasta all become more digestive-resistant when they're cooked, cooled and then reheated, and this is one way of making such indulgences a bit healthier.

**4. At this point, you're ready to move on to the modified water-only fasting regimen described in "KetoFast" – Again, this involves daily intermittent fasting for 16 to 18 hours on days you are not KetoFasting. Then, once or twice a week, you have a single 300- to 500-calorie meal that day, followed by fasting until your next normal meal. For a six-hour eating window this means you'd only eat 300 to 500 calories in a 42-hour period.**

## Sources and References

---

- <sup>1</sup> Endocrine Society Press Release March 25, 2019
- <sup>2, 3</sup> New York Post March 26, 2019
- <sup>4</sup> American Journal of Clinical Nutrition July 2007: 86(1); 7-13
- <sup>5</sup> Cell Metabolism December 2, 2014: 20(6); 991-1005
- <sup>6</sup> Cell Metabolism June 18, 2015 DOI: [dx.doi.org/10.1016/j.cmet.2015.05.012](https://doi.org/10.1016/j.cmet.2015.05.012)
- <sup>7</sup> British Journal of Diabetes & Vascular Disease March/April 2013: 13(2); 68-72
- <sup>8</sup> Chris Kresser March 27, 2019
- <sup>9</sup> Neurobiol Aging. 2012 Feb; 33(2): 425.e19–425.e27
- <sup>10</sup> Washington Post December 31, 2012
- <sup>11</sup> EurekaAlert! April 3, 2011
- <sup>12</sup> Annual Review of Nutrition August 2017; 37: 371-393

- <sup>13, 26</sup> Ageing Res Rev. 2017 Oct; 39: 46–58
- <sup>14</sup> Cell Metabolism June 5, 2018; 27(6): 1212-1221.e3
- <sup>15</sup> Am J Clin Nutr. 2005 Jan;81(1):69-73
- <sup>16</sup> Am J Clin Nutr. 2000 Jun;71(6):1511-5
- <sup>17</sup> J Clin Endocrinol Metab. 2002 Jul;87(7):3373-7
- <sup>18</sup> Endocrinology 2016 Feb; 157(2): 679–691
- <sup>19</sup> Am J Physiol Cell Physiol. 2011 Feb;300(2):C308-17
- <sup>20</sup> Cell 2009 Jun 12;137(6):1062-75
- <sup>21</sup> Autophagy 2010 Aug 16; 6(6): 702–710
- <sup>22</sup> Free Radic Biol Med. 2007 Mar 1;42(5):665-74
- <sup>23</sup> Journal of Applied Physiology July 28, 2005: 99(6); 2128-2136
- <sup>24</sup> Cell February 23, 2017; 168(5): 775-788
- <sup>25</sup> Cell Stem Cell June 5, 2014
- <sup>27</sup> Shanahan C., Deep Nutrition. Flatiron Books, 2018