

# Can Green Bananas Somehow Prevent Overeating?

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Green banana flour is a new social media sensation, yet traditional cultures have used it for centuries. When used raw it has a slight banana taste, but cooked it adds an earthy flavor that blends well with many dishes
- › It is a resistant starch that helps regulate appetite, keeps you feeling full longer, and is rich in prebiotics to feed your beneficial gut microbiome. Lab data suggest it feeds specific bacteria known to speed gut restoration
- › High fiber diets support your gut microbial health by feeding beneficial gut bacteria. Poor gut health is linked to obesity, diabetes, Parkinson's disease, learning disabilities and ADHD
- › Reheating high carbohydrate foods, such as potatoes, pasta and rice, can lower blood glucose spikes and increase resistant starch. Freezing, defrosting and toasting bread may achieve the same result

Green banana flour is wheat- and gluten-free, and promotes gut health. Dubbed the new Super Food,<sup>1</sup> it has become a new social media sensation. There also is growing evidence to suggest green banana flour may contribute to a healthy gut microbiome.

The growing popularity on social media began in July 2021 when the prime minister of India endorsed green banana flour on his radio program.<sup>2</sup> Overall, bananas are a mixed bag of nutrition and carbohydrates. One medium banana<sup>3</sup> (approximately 118 grams) contains 105 calories, 1.29 grams of protein, 26.9 grams of carbohydrates and 14.4 grams of natural sugar with just 3.07 grams of fiber.

The same banana is also a good source of vitamin B6, potassium, manganese and magnesium. Interestingly, while not commonly eaten in the Western World, banana peels are also packed with nutrients.<sup>4</sup> The peel is high in magnesium and potassium as well as vitamin B6 and B12.

If you choose to eat the peel, be sure you wash it first since it's also the area of the fruit exposed to pesticides and other toxins. Although not as sweet as the fleshy part, banana peels can be boiled, cooked or fried.

Bananas are one of the world's most popular fruits.<sup>5</sup> In 2009, the University of Florida extension program called the banana market “one of the world's most important crops grown by small- and large-scale producers.” Banana production goes on in more than 130 countries, with India being the largest producer of fresh bananas.<sup>6</sup>

The newest forecast<sup>7</sup> offers a projected growth of 4.5% through 2027. Lockdown restrictions, however, impacted production and closed markets that resulted in price drops in some markets and an increase in others. In 2020, the Asian Pacific Market produced 55% of bananas worldwide and the U.S. was the leading importer with a 16.7% share in 2019.

Currently, India produces 29.7 million tons of bananas per year, yet half a million tons may be lost when the fruit goes bad.<sup>8</sup> Green banana flour may help convert the surplus bananas and their peels into a usable product and thus offer farmers a source of income from fruit that may have otherwise been thrown away.

## **Health Benefits of Nutrient-Dense Green Banana Flour**

Green banana flour is produced by chopping, drying and then grinding unripe bananas.<sup>9</sup> As its popularity grew, so did the recipes that incorporate green banana flour, which range from Hawaiian pineapple chicken pizza to brownies.<sup>10</sup>

When raw flour is used, it has a slight banana taste, but once cooked it has an earthy flavor that blends well with many dishes.<sup>11</sup> Green banana flour that's made with the peel should be reserved for savory dishes as it has a much stronger flavor. The flour contains

little fat and is rich in fiber, potassium, magnesium and vitamins in much the same way that raw bananas are, but with a twist that could be enticing for those who want to cut back on how much they eat.

The flour also reportedly helps regulate appetite and prevents those using it from overeating. Urvashi Agarwal is an integrative health coach in the northern Indian state of Uttar Pradesh, who was interviewed by the South China Morning Post. Agarwal says:<sup>12</sup>

*“The [green banana] flour’s high fiber content not only smoothes the digestion process, but also keeps you full for longer, aiding in weight control. The flour promotes digestion and enhances gut bacteria. It is easy to consume and for those who are short on time, it can be mixed in smoothies and beverages to make a healthy, on-the-go drink.”*

Agarwal also says the flour is rich in prebiotic fiber and resistant starch, both of which help support beneficial bacteria in the gut microbiome. She adds:<sup>13</sup> “Rich in minerals, the flour is also great during pregnancy and post-pregnancy, and for treating conditions such as diabetes and obesity.”

Aarti Mukherji, from the Max Super Specialty Hospital in New Delhi, explained that while green banana flour is new in the West, “People in West African, Southeast Asia, and South and Central American countries have used it for centuries.”<sup>14</sup>

One systematic review of 18 studies found that the benefits of green banana consumption relating to gastrointestinal systems and diseases, weight control, renal and liver complications and glycemic and insulin metabolism were confirmed by all but one study.<sup>15</sup>

Another paper<sup>16</sup> published in *Frontiers in Nutrition* evaluated the use of green banana flour as a prebiotic and the effect it might have on gut microbiota. The animal study was conducted for two weeks and revealed that mice on the interventional diet with green banana flour recovered gut permeability and intestinal barrier disruption much more quickly than mice who were allowed to recover naturally.

Evaluation of the microbiota found the animals treated with green banana flour had improvements in specific bacteria – Bacteroidales S24-7, Lachnospiraceae, Bacteroidaceae, and Porphyromonadaceae – that can speed gut restoration.

## High Fiber Supports Gut Microbial Health

Farmers are also touting the benefits of banana flour as “an eco-friendly product that promotes planet health”<sup>17</sup> – in addition to which, foods that support your gut microbiome help to prevent many different health conditions, including obesity,<sup>18</sup> diabetes,<sup>19</sup> Parkinson's disease,<sup>20</sup> learning disabilities and ADHD.<sup>21</sup>

One 2020 scientific review<sup>22</sup> went so far as to say that all inflammatory disease begins in the gut. The papers specifically addressed the role of zonulin-mediated gut permeability in the pathogenesis of chronic inflammatory diseases.

According to Dr. Alessio Fasano, pediatric gastroenterologist, researcher and director of the Center for Celiac Research and Treatment, exposure to environmental triggers has increased intestinal permeability and created a “hyper-belligerent” immune system. This is driven by the composition of gut microbiome and “its epigenetic influence on the host genomic expression.”<sup>23</sup>

You can have a positive impact on your beneficial gut bacteria by giving them the nutrients they need to thrive. These nutrients are called prebiotics which is found primarily in fiber-rich food. The following whole foods help add prebiotic fiber to your diet and improve the health of your microbiome, thus improving your overall health:<sup>24,25,26</sup>

Apples	Asparagus	Banana
Beetroot	Breast milk	Burdock root
Cashews	Chicory root	Couscous
Fennel bulb	Garlic	Grapefruit

Green peas	Jerusalem artichokes	Jicama
Konjac root	Leeks	Nectarines
Onion	Persimmon	Pistachios
Pomegranate	Savoy cabbage	Seaweed
Shallots	Snow peas	Tamarillo

## Reheating Certain Carbohydrates Results in Resistant Starch

Digestive resistant starches are also prebiotics as they ferment slowly in the large intestines where they nourish healthy bacteria and make you feel full without being bloated or gassy. Unlike other starchy foods, they do not cause sugar spikes. In this short video, 10 people take part in a three-day experiment to evaluate the glycemic changes triggered by eating cooked, cooled and reheated pasta.

Unripe tropical fruits, like papaya, mango and banana contain digestive-resistant starches. However, there are tricks you can use to prepare normally high net carbohydrate foods, so they have more digestive-resistant starches and thus do not spike your glucose and insulin as high as when they are freshly cooked. These high net carb foods include potatoes, rice, bread and pasta.

Although this is an interesting insight into the preparation of high-carbohydrate foods, it is my belief that most people still need to avoid most carbohydrate-rich, processed foods because of the impact they have on insulin resistance.

Additionally, most of these products are made with wheat, which has lectins and is contaminated with glyphosate that impairs tight junctions in the gut. If you're craving potatoes and you are metabolically flexible, healthier choices are sweet and purple varieties.

In an interview with BBC, nutritional physiology professor Denise Robertson revealed the results of a small trial, in which she noted that the blood sugar of all 10 participants had the same reaction – eating reheated pasta caused a spike in blood sugar that was 50% lower than the spike caused by eating freshly cooked pasta. As the interviewer and Robertson point out, it is highly unusual for all participants to have the same reaction.

Similar results have been found when cooking and chilling potatoes and barley. One study demonstrated that cooking and cooling potatoes overnight increase the resistant starch by 280%.<sup>27</sup> Cooking and chilling barley, peas, lentils and beans also produces higher resistant starch content.<sup>28</sup>

According to another study<sup>29</sup> presented at a meeting of the American Chemical Society, when nonfortified rice was cooked with a teaspoon of coconut oil and then cooled for 12 hours, it increased the resistant starch tenfold and reduced calories by as much as 60%. Researchers found that it wasn't just cooling the rice but also the addition of coconut oil that appeared to be a key strategy.

Interestingly, you can create some of the same effects with bread. One study<sup>30</sup> engaged 10 healthy participants to test incremental blood sugar response after randomized feedings of fresh, frozen and defrosted, fresh toasted or frozen defrosted and then toasted bread.

They found that freezing and defrosting homemade bread could lower blood glucose values from an average of 259 mmol min/L to 179 mmol min/L. Toasting the bread lowered blood glucose from 259 mmol min/L to 193 mmol min/L. If the bread was toasted after freezing and defrosting, the blood glucose level was just 157 mmol min/L.

## **More High Fiber Choices You Can Make in Your Diet**

I often mention the value of fermented foods to help “heal and seal” your gut since they contain both probiotics and healthy fiber to feed the beneficial bacteria. Culturing vegetables at home is easy and inexpensive. You can also make your own homemade

yogurt, which is far healthier than yogurt you can purchase at the grocery store, much of which is loaded with added sugar.

Other examples of fermented foods are sauerkraut, kefir, kimchi and natto. Homemade fermented foods are cost-effective because they can contain up to 100 times the probiotics of the average supplement which you can make for a fraction of the cost at home.

They offer a natural variety of microflora and because up to 80% of your immune system is located in your gut, they play a crucial role in keeping your digestive tract operating smoothly.

## Sources and References

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- <sup>4, 5</sup> [Livescience, December 14, 2021](#)
- <sup>6</sup> [University of Florida, Banana Market](#)
- <sup>7</sup> [Mordor Intelligence, Banana Market - Growth, Trends, COVID-19 Impact, and Forecasts \(2022-2027\)](#)
- <sup>8</sup> [South China Morning Post, April 17, 2022 Para 3 from bottom](#)
- <sup>10</sup> [Pinterest, Green Banana Flour Recipes](#)
- <sup>12</sup> [South China Morning Post, April 17, 2022 Para 10, 12](#)
- <sup>13</sup> [South China Morning Post, April 17, 2022 Para 1 under her picture holding a drink and powder](#)
- <sup>14</sup> [South China Morning Post, April 17, 2022 Para 2 under the video](#)
- <sup>15</sup> [Nutrients, 2019; 11 \(6\)](#)
- <sup>16</sup> [Frontiers in Nutrition, March 14, 2022](#)
- <sup>17</sup> [South China Morning Post, April 17, 2022 Para4 from bottom](#)
- <sup>18</sup> [Nutrition Today, 2016;51\(4\)](#)
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- <sup>26</sup> [Hindustan Times February 25, 2017](#)
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