# Go Wild With Green Bananas

Study demonstrates the benefits of green banana resistant starch in patients with insulin resistance

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Green bananas, commonly known as plantains, are a great source of fiber and resistant starch, as well as vitamins A, C, B6, potassium, magnesium, phosphorus, and zinc. With a growing body of evidence extolling a variety of health benefits from resistant starch-- increased insulin sensitivity, weight management, better lipid profiles and improvement in regularity-- plantains have been enjoying a new (or renewed) appreciation by those plugged into the latest health and nutrition news.

Dr. W reminds us that the term “plantain” is loosely applied to any banana cultivar that is usually cooked before it is eaten but that there is no botanical distinction between bananas and plantains. Cooking is also a matter of custom, and ripe plantains can be eaten raw-- cooking merely a matter of custom.

In a new review published in Nutrients, researchers investigated the potential benefits of green banana consumption and found improvements in gastrointestinal health, dysglycemia, weight loss, and complications secondary to diabetes. As a result, studies demonstrated an improvement of both diarrhea and constipation. In individuals with type 2 diabetes, there was a reduction in body weight and an increase in insulin sensitivity. In addition, body weight, body composition, and lipid and inflammatory bio-markers all improved in overweight individuals.

A high fiber diet leads to the production of short chain fatty acids (SCFAs) in the gastrointestinal tract. These play an essential role in T regulatory cell activation, which regulates the intestinal immune system.

Resistant starch includes all starch and starch degradation products that bypass digestion in the small intestine because they are physically inaccessible in the food matrix ($RS_1$), within starch granules ($RS_2$) or because they are present as retrograded starch ($RS_3$), which is produced during food manufacturing and preparation. Starch can also be chemically modified ($RS_4$) to make it resistant to enzymatic digestion.

Green banana is considered $RS_2$, as it is indigestible due to the high amylose content in its raw form. This plays an important role as a pre-biotic and is responsible for some of its physiological properties. Pre-biotics impair the uptake of dietary cholesterol and reduce bile acid re-absorption.

They also increase bacterial fermentation in the colon, which affects gut barrier function and cholesterol metabolism, regulates GLP-1, and reduces translocation of lipopolysaccharides.

Resistant starch should be considered for patients with obesity, insulin resistance, dyslipidemia, and metabolic syndrome. It can also be a great substitute to regular starch in baked goods, which lowers the caloric density and glycemic index of food products.

About Mike:  Michael Barr, DAOM, is a Functional Medicine intern, acupuncturist and herbalist in NYC. To learn more about Functional Medicine, to ask a question, or for an invitation to his supplement and herbal medicine dispensary, reach out to him at his new telemedicine platform at Root Resolution Health.

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