Study Explores How Fiber May Help Moderate Post-Meal Blood Sugar Spikes

New findings explore how fiber interacts with digestive enzymes and gut microbiota to influence post-meal glucose responses


Founder at iAM Health

SINGAPORE, SINGAPORE, March 31, 2026 /EINPresswire.com/ -- An exploratory in-house study conducted by iAM Health® highlights how dietary fiber may help support healthier post-meal blood sugar spikes by influencing carbohydrate digestion and gut microbial activity. The study used simulated digestive and microbial fermentation models to evaluate how fiber formulation interacts with key metabolic pathways.

The study found that the fiber formulation inhibited key carbohydrate-digesting enzymes while increasing the production of beneficial short-chain fatty acids (SCFAs), metabolites produced during gut microbial fermentation that have been associated with metabolic and digestive health. These findings contribute to growing scientific interest in how dietary fiber affects metabolic processes beyond digestion, particularly in relation to blood sugar regulation.

> “Our findings highlight how specific fiber formulations may interact with digestive enzymes and the gut microbiome. This may explain how fiber contributes to healthier post-meal glucose responses.”
>
> *Dr. Cheryl Yeo*

Supporting this broader research trend, a study published in Scientific Reports, found that elevated blood glucose levels one hour after eating were associated with metabolic risk markers. Researchers reported that post-meal glucose responses may provide important insights into metabolic health and disease risk.

“Blood sugar regulation is influenced by multiple factors, including dietary patterns and food

sequencing," said Dr Cheryl Yeo. "Our findings highlight how specific fiber formulations may interact with digestive enzymes and the gut microbiome. These mechanisms may help explain how fiber contributes to healthier post-meal glucose responses."

Why Post-Meal Blood Sugar Spikes Matter for Metabolic Health

Blood sugar levels naturally fluctuate throughout the day, particularly after meals. Traditionally, fasting blood glucose has been used as a primary marker of metabolic health. However, researchers increasingly recognise that post-meal blood sugar spikes, known as postprandial glucose responses may offer deeper insights into metabolic health and long-term disease risk.

The Study examined metabolic indicators linked to elevated one-hour glucose levels after food intake and identified associations with markers related to lipid metabolism and insulin resistance. These findings suggest that how the body responds to carbohydrates shortly after eating may reflect broader metabolic processes.

This growing body of research is particularly relevant for Asia, where metabolic disorders such as type 2 diabetes have risen significantly in recent decades. According to regional health authorities, Asia is home to more than half of the world's people living with diabetes, and the condition often develops at younger ages and lower body mass indexes compared with Western populations.

Dietary patterns are believed to be one of several contributing factors. Rapid urbanisation and changing eating habits have lead to increased consumption of refined carbohydrates and processed foods while reducing intake of fiber-rich foods such as whole grains, legumes and vegetables.

How Dietary Fiber Influences Carbohydrate Digestion and Glucose Absorption

Dietary fiber plays a unique role in digestion because it is not fully broken down by human digestive enzymes. Instead, fiber interacts with several processes that influence how carbohydrates are digested and absorbed. One of the most significant effects is slowing gastric emptying, which delays how quickly food moves from the stomach into the small intestine. This slower digestion process helps moderate the rate at which carbohydrates are broken down into glucose and absorbed into the bloodstream.

Fiber may also influence enzymes responsible for carbohydrate digestion. Enzymes such as alpha-amylase and alpha-glucosidase break down complex carbohydrates into glucose molecules that the body can absorb. When their activity is moderated, carbohydrate digestion can occur more gradually, helping reduce rapid spikes in blood sugar levels.

The iAM Health® in-house study explored this mechanism and observed inhibition of these key digestive enzymes alongside increased microbial fermentation activity.

How Gut Microbial Fermentation Influences Metabolism

Another important pathway linking gut microbiome and glucose regulation involves how fermentable fibers are metabolised by beneficial bacteria in the colon. The trillions of microorganisms living in the digestive tract help process nutrients, regulate immune responses and influence metabolic pathways throughout the body. When fermentable fibers reach the colon, beneficial gut bacteria metabolise them and produce compounds known as short-chain fatty acids (SCFAs), including acetate, propionate and butyrate.

Scientific research has linked these metabolites to several aspects of metabolic health, including improved insulin sensitivity, reduced inflammation and enhanced gut barrier function. In the iAM Health® study, researchers observed increased production of SCFAs during simulated colonic fermentation. This suggests that certain fiber combinations may stimulate microbial activity associated with metabolic and digestive processes.

“Fiber interacts with the body through multiple biological pathways,” Yeo added. “Beyond digestion, the gut microbiome plays an important role in how nutrients influence metabolism. Understanding these interactions helps shed light on how optimizing fiber intake can have a direct and meaningful impact on human health, translating scientific insights into practical dietary strategies that benefit the wider public.”

Fiber Intake, Diet Trends and Emerging Research on Metabolic Health

Despite growing recognition of fiber’s health benefits, many people still consume less fiber than recommended dietary guidelines suggest. Modern diets across many Asian cities increasingly rely on refined grains and highly processed foods, which often contain significantly lower amounts of dietary fiber than whole plant-based foods. As a result, nutrition researchers and public health experts have renewed interest in understanding how fiber intake may influence metabolic health. Whole grains, legumes, fruits and vegetables remain among the most accessible natural sources of dietary fiber and are widely recommended as part of balanced dietary patterns.

At the same time, scientific research continues to explore how dietary fiber interacts with digestive processes and the gut microbiome. Studies examining post-meal glucose responses, digestive enzyme activity and microbial fermentation are helping researchers better understand the biological mechanisms linking diet and metabolism.

Together, these findings contribute to a growing body of evidence highlighting the importance of

dietary fiber in metabolic health. As research continues to evolve, understanding the connection between dietary fiber and metabolism may help inform practical dietary strategies for supporting metabolic health.

About iAM Health®

iAM Health® is a Singapore-based wellness brand focused on education-led approaches to gut health, metabolism and everyday vitality. Founded by Dr. Cheryl Yeo, the brand aims to translate emerging scientific research into accessible insights that help individuals better understand their bodies and health signals.

Dr Cheryl Yeo
iAM Health PTE LTD.
+65 6750 4597
info@iamhealth.sg
Visit us on social media:
Instagram
Facebook
YouTube

This press release can be viewed online at: https://www.einpresswire.com/article/902688188

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.
© 1995-2026 Newsmatics Inc. All Right Reserved.