

# Low-fiber, high-fat diets adversely impact the gut

15 June 2021

	Control Chow diet	Control Low-fat diet	Obesogenic High-fat diet
<i>Glucose homeostasis</i>	Similar	Similar	≠
<i>Hepatic bile acid profile</i>	Similar	Similar	≠
<i>Mucus-associated microbiota</i>	Similar	Similar	≠
<i>Physiological parameters</i>	≠	Intermediary profile	≠
<i>Intestinal permeability</i>	≠	Intermediary profile	≠
<i>Hepatic triglycerides</i>	≠	Similar	Similar
<i>Fecal microbiota</i>	≠	Similar	Similar



"What we have shown is that by increasing the amount of fiber in your diet and lowering the amount of fat, you work on two very important components that will improve your health," said André Marette, Ph.D., of Laval University in Canada.

More than 34 million people in America have diabetes, and the overwhelming majority of these individuals have type 2 diabetes, according to the U.S. Centers for Disease Control and Prevention. Marette's team hopes to test the findings from the animal model in an upcoming clinical study with humans. The goal is to help define novel nutritional approaches to prevent unhealthy changes in [gut microbiome](#) and intestinal function to reduce the risk of metabolic diseases.

Read the full article, "Dietary fat and low fiber in purified diets differently impact the gut-liver axis to promote obesity-linked metabolic impairments." It is highlighted as one of this month's "best of the best" as part of the American Physiological Society's APSselect program. Read all of this month's selected research articles.

Abstract. Credit: *American Journal of Physiology—Gastrointestinal and Liver Physiology* (2021). DOI: 10.1152/ajpgi.00028.2021

Changes to the gut microbiome are known to affect metabolic health. Physiologists at Laval University in Canada have discovered that diets containing low fiber and high fat cause significant shifts in the composition of the gut microbiome—the collection of bacteria, viruses, fungi and other multicellular microorganisms that live in the gastrointestinal system. The study is published in the *American Journal of Physiology—Gastrointestinal and Liver Physiology*.

Researchers used a mouse model to determine the key dietary factors affecting the gut microbiome and how they contribute to obesity and other metabolic diseases such as type 2 diabetes. Mice were fed varying levels of low-fiber, high-fat diets, which changed their gut microbiome.

**More information:** Noémie Daniel et al, Dietary fat and low fiber in purified diets differently impact the gut-liver axis to promote obesity-linked metabolic impairments, *American Journal of Physiology—Gastrointestinal and Liver Physiology* (2021). DOI: [10.1152/ajpgi.00028.2021](https://doi.org/10.1152/ajpgi.00028.2021)

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