

New, noninvasive test for bowel diseases

June 27 2019



Micrograph showing inflammation of the large bowel in a case of inflammatory bowel disease. Colonic biopsy. Credit: Wikipedia/CC BY-SA 3.0

Gut diseases such as inflammatory bowel disease (IBD) are increasingly prevalent worldwide, especially in industrialised countries. In 2015 alone, 250,000 people in the UK were diagnosed with IBD, and 3 million in the United States (1, 2). Symptoms can include pain and swelling of the stomach, bloody diarrhoea, weight loss and extreme tiredness.

A new study in *Experimental Physiology* proposes a novel, non-invasive test for assessing gut function that may help screen and monitor treatment of gut diseases using only a small sample (1 mL) of blood and stool. How well your gut functions is determined by the gut-blood barrier, a complex multi-layer system. This can be compared to a fine-tuned filter that precisely controls the passage of nutrients and prevents bacteria passing from inside the bowel into the bloodstream.

In those with IBD, and other [intestinal diseases](#), the gut-blood barrier is impaired. Here the [intestinal wall](#) is more like a ripped sieve, allowing more bacterial products to pass from the gut into the blood. This is commonly referred to as a [leaky gut](#).

This test measures the concentration of gut bacterial products (produced by bacteria during metabolism) in the patient's blood and stool. The authors believe that with further research this assessment of gut leakage will be very important in the diagnosis and treatment of IBD and other intestinal diseases.

The usual strategy for diagnosing and monitoring IBD is based on a

colonoscopy, which is invasive, often requires anaesthesia, and assesses structural lesions, rather than gut malfunction. Gut disorders can happen before there are visible structural changes, so diagnosing based on functional tests evaluating gut leakage could allow clinicians to detect the disease earlier. While there is no cure for IBD, it is controllable. Early diagnosis would enable patients to control symptoms before they became severe, improving their quality of life.

This new research provides a non-invasive, simple test that could not only be useful for diagnosing IBD, but also other gut disorders, such as celiac disease and food allergies. It's also helpful for detecting diseases that result in a leaky gut, such as [heart failure](#), [high blood pressure](#) and liver ailments.

Marcin Ufnal, senior author on the study said: "This may be a very important tool for diagnosis and treatment of gut and other diseases, using the leaky gut as a marker for disease, as well as a potential target for treatment. "

More information: Kinga Jaworska et al, Inflammatory bowel disease associates with increased gut-to-blood penetration of SCFA: A new, noninvasive marker of a functional intestinal lesion, *Experimental Physiology* (2019). [DOI: 10.1113/EP087773](https://doi.org/10.1113/EP087773)

Provided by The Physiological Society

Citation: New, noninvasive test for bowel diseases (2019, June 27) retrieved 2 May 2024 from <https://medicalxpress.com/news/2019-06-noninvasive-bowel-diseases.html>

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