

Have I been "glutened"?!!

Monitoring gluten exposure with the gluten immunogenic peptide (GIP) test

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For the approximately 9,000 Western Australians living with diagnosed coeliac disease, avoiding any dietary exposure to gluten is a lifelong and daily burden. For parents of children with coeliac disease, policing a strict gluten-free diet while balancing food preferences, nutritional needs for growth and a normal social life can be especially challenging.

Studies have shown that a proportion of people who believe they are strictly gluten-free are, in fact, exposed to gluten through cross-contamination, mislabelled products, or inadvertent consumption outside the home.

Furthermore, the tools currently available for monitoring the effectiveness of a gluten-free diet are imperfect. Dietary recall can be unreliable. Coeliac antibody levels fall at a variable rate and often incompletely, and silent mucosal damage can progress without symptoms.

Repeating duodenal biopsies are invasive and impractical for routine follow-up. The gluten immunogenic peptide (GIP) test is a new assay to detect gluten exposure in the diet, offering a direct and objective tool to assist in the long-term management of coeliac disease.

What the GIP test measures

After a gluten-containing meal, fragments known as GIPs survive digestion and are excreted largely unchanged in stool. These can then be measured directly by a simple laboratory test. The stool test can capture gluten intake from up to five days prior – therefore, it could be used to assess and guide conversations with newly diagnosed patients and their families in first implementing a gluten-free diet.

For anyone established on a gluten-free diet who suspects an unintentional gluten exposure, the test can provide evidence close to the point of ingestion, rather than indirect tests of immune damage. It has particular value in patients with non-responsive coeliac disease, where persistent symptoms or non-healing biopsies raise the question of whether the underlying cause is ongoing gluten exposure or a separate, refractory process. A negative test result across repeated testing lends support to investigating alternative explanations, while a positive result redirects attention towards dietary sources.

Evidence from a recent Australian trial

The strongest evidence yet for the role of GIP testing comes from a 2024 clinical trial run by the Royal Melbourne Hospital. Fifty-two adults with treated coeliac disease were randomised to consume a gluten-free cookie spiked with gluten in a range of doses, or a placebo cookie.

The stool test detected every exposure of 250 milligrams of gluten or more, and picked up most exposures at the lowest dose of only 50 milligrams. Strikingly, many participants believed they were strictly gluten-free, but still returned at least one positive stool sample before the gluten challenge began – underscoring how easily low-level, unintentional exposure goes undetected by conventional means.

Practical considerations

GIP testing is not a substitute for standard markers or medically supervised follow-up of coeliac disease, and interpretation should account for its detection thresholds and testing window. While a larger gluten exposure could be detected up to five days later, smaller amounts may not be detected after the first 36 hours. Repeated tests may be more sensitive if low-level, intermittent exposure is suspected.

However, when incorporated with standard care, it offers a more immediate insight into whether the diet followed by a person living with coeliac disease is achieving its intended goal. Clinipath Pathology has published a validation study – *GastroHep* (https://doi.org/10.1155/ygh2/3859529).

Clinical applications include:

- assessing effectiveness of a gluten-free diet in adults or children newly diagnosed with coeliac disease;
- detecting suspected inadvertent or intermittent gluten exposure;
- assessing patients with persistent symptoms despite reported dietary compliance;
- supporting the evaluation of refractory coeliac disease or complex diagnostic cases; and
- use in clinical trials assessing gluten exposure or therapeutic interventions. ■

The GIP test is now available through Clinipath Pathology, upon clinician request.
As it is currently ineligible for Medicare rebate, a private fee will apply.

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