Gluten Challenge

FACT SHEET

Testing for coeliac disease is most accurate when a person is still consuming gluten. Starting a gluten free diet prior to testing can cause falsely negative and unreliable results. If gluten has been removed from the diet, a gluten challenge will be required to allow for a conclusive diagnosis. A HLA gene test (see below), if negative, can be used to exclude a diagnosis of coeliac disease. A positive HLA gene test result is not diagnostic and a gluten challenge followed by testing will still be required to establish the diagnosis.

What is a reasonable approach to the gluten challenge?

Coeliac Australia recognise there is limited consensus as to the amount of gluten required and length of time necessary for the challenge period to ensure an accurate diagnosis.*

Gluten challenge is discouraged in children under the age of 5 years and during the pubertal growth spurt because of potential negative effects on growth. Discussion with your doctor and paediatric gastroenterologist of alternate options is recommended.

Currently, Coeliac Australia recommend that if gluten has been removed from the diet, a normal diet rich in gluten is resumed for at least six weeks prior to testing (blood test or biopsy).

The daily dose should be discussed with your doctor. It is reasonable to aim for 10 grams of gluten daily (the dose can be halved for children i.e. 5 grams). Wheat-based gluten containing foods in some form should be consumed each day. Barley, rye or oats are not recommended for the gluten challenge. As symptoms can occur, consult with your doctor during the challenge.

What is 10 grams of gluten?

10 grams of gluten is contained in approximately four slices of wheat bread. The amount of gluten in a single slice of bread can range from approximately 2 grams to 4 grams.

1 slice of wheat- based bread containing 2 - 2.5 grams of gluten is equivalent to:

- ½ cup wheat-based cereal
- 1 Weet-bix
- ½ cup cooked wheat based pasta
- ½ English Muffin
- ½ large bread roll
- 4-5 crispbreads (e.g. Vita-Wheats, Salada)
- 8-10 crackers (e.g. Water Crackers, Jatz)
- 2 small sweet biscuits (i.e. Scotch Finger)

How can I improve the tolerability of the gluten challenge?

Initial symptoms caused by gluten challenge may be substantial but often reduce in severity within days. Starting the challenge with a low dose of gluten and slowly increasing over several days may improve tolerability.

For further information
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In many people, unpleasant symptoms caused by the challenge are due to fermentable carbohydrates in wheat (FODMAPs). Therefore, many people may tolerate low FODMAP bread or other low FODMAP foods that contain gluten better. People are advised to consult with their doctor to discuss available options if they are struggling to maintain the gluten challenge.

A coeliac gene test can help exclude coeliac disease if negative

Over 99% of people with coeliac disease have specific "HLA" genes. These are HLA-DQ2, HLA-DQ8, or parts of these genes. A negative test for these specific genes makes coeliac disease highly unlikely to be present. However, as these genes are commonly present in almost half the community, the presence of these genes is not sufficient to diagnose coeliac disease.

The coeliac HLA gene test can be useful in people who have already commenced a gluten free diet as the gene result is not dependent on gluten intake. If the gene test is positive, then a gluten challenge followed by testing is required to properly assess for coeliac disease. The gene test can be organised through a GP. A gluten free diet should only be started after medical confirmation of coeliac disease and never started on the basis of a positive gene test alone.

* There is great variability in how people with coeliac disease respond to gluten (Tye-Din et al, BMC Med 2020). For example, consuming 3 grams of gluten daily for 2 weeks causes diagnostic changes of coeliac disease in the small intestine or positive coeliac antibodies in under half of people with coeliac disease. Consumption of 10 grams of gluten daily is more likely to be associated with diagnostic changes of coeliac disease (Leffler et al, Gut 2013, Sarna et al, Gut 2017 and Leonard et al, Gastroenterology 2021).