- Diabetes



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DIABETES AND COELIAC DISEASE

Coeliac disease is more common in people with type 1 diabetes, and while not associated with type 2 diabetes, it can still develop in some people living with type 2. DL Magazine dietitian and diabetes educator, Dr Kate Marsh, explains what coeliac disease is, why it is more common in those with type 1, and how it can be managed alongside diabetes.

What is coeliac disease?

Coeliac disease is a lifelong autoimmune condition. It occurs when the immune system reacts abnormally to gluten, causing damage to the lining of the small intestine. Gluten is the protein found in grains including wheat, rye, barley, triticale and oats (although some people may still be able to eat oats). When the intestinal lining is damaged, this prevents nutrients from being properly absorbed, which can cause nutrient deficiencies, digestive symptoms, weight loss and fatigue.

What is the link between coeliac disease and type 1 diabetes?

Coeliac disease and type 1 diabetes are both autoimmune conditions, and have similar genetic profiles. For this reason, coeliac disease occurs more commonly in individuals with type 1 compared to the general population. Research shows that around 4.5% of individuals with type 1 diabetes have coeliac disease, compared to 0.5-1.0% of the general population. Those diagnosed with diabetes before 5 years of age have the greatest chance of developing coeliac disease.

Because of this increased risk, it is recommended that children and adolescents with type 1 diabetes are screened for coeliac disease within the first year of being diagnosed with diabetes, and then every 2-5-years. However, if they develop symptoms or have a first-degree relative with coeliac disease, they need to be screened earlier. For adults, Australian guidelines recommend screening at diagnosis (or later if they haven't previously been screened) and if they develop signs or symptoms suggestive of coeliac disease.

What are the symptoms of COELIAC DISEASE?

The symptoms of coeliac disease vary widely and while some people have all or many of these symptoms, others may only have a few or none at all.

Typical symptoms include:

- digestive symptoms including wind, bloating, stomach pain or cramps, nausea, vomiting, diarrhoea and constipation
- fatigue, weakness and lethargy
- deficiencies in certain nutrients, including iron, vitamin B12 and vitamin D
- weight loss
- poor weight gain, delayed growth and delayed puberty in children
- recurrent mouth ulcers
- bone and joint pains
- easy bruising of the skin
- irregular menstrual cycles, difficulties falling pregnant and recurrent miscarriage
- osteoporosis (low bone density)

People with diabetes may also experience unexplained high and low blood glucose levels and find it difficult to manage their glucose levels.

However, many people with type 1 diabetes don't have any symptoms and coeliac disease is only detected on routine screening. In fact, a systematic review of the research found that the 85% of individuals with type 1 diabetes didn't report any symptoms of coeliac disease at diagnosis.



How is coeliac disease diagnosed?

If you have symptoms of coeliac disease, it's important to see your doctor to be tested. Don't start a gluten-free diet, as this makes the tests used to diagnose coeliac unreliable.

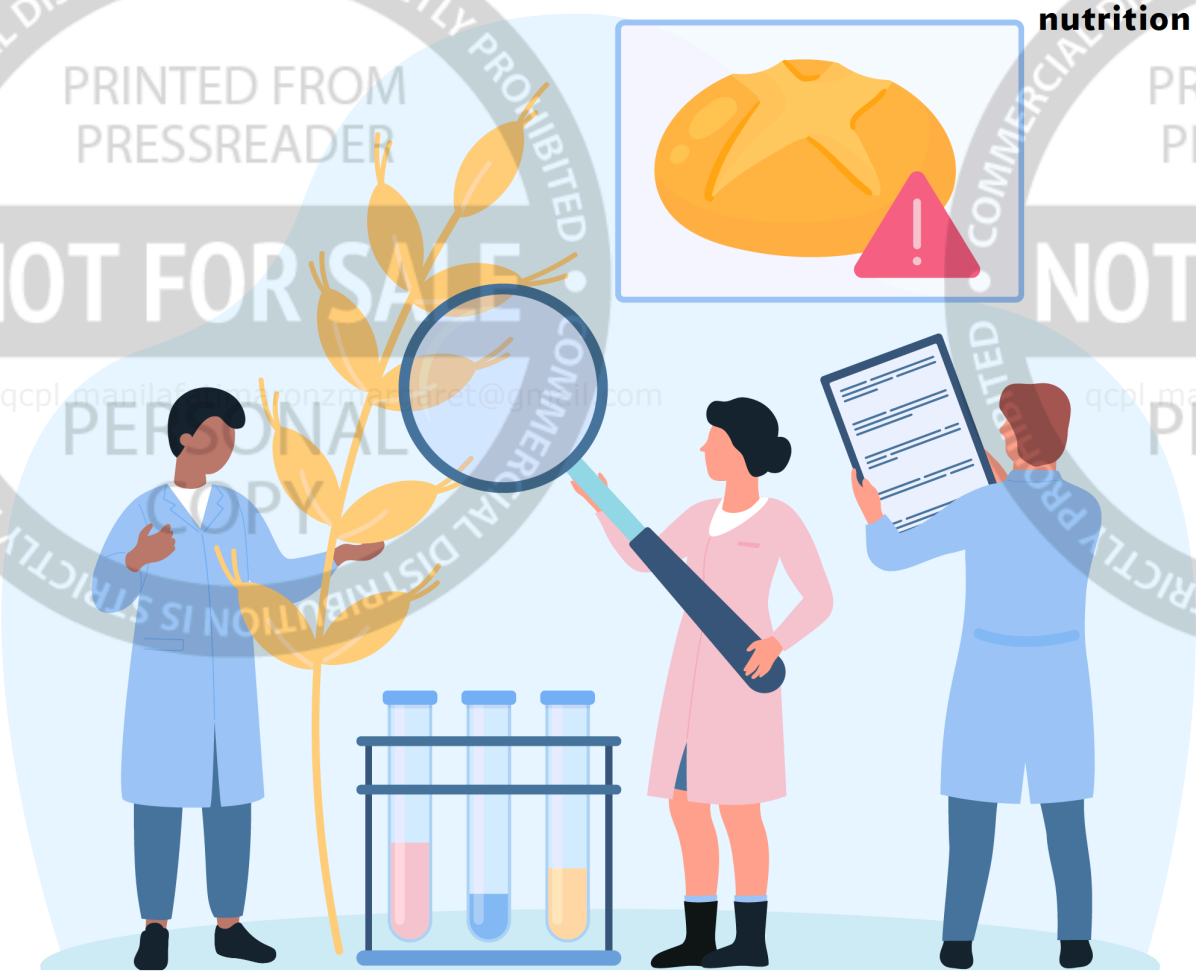
Initial screening involves a blood test to check for coeliac antibodies. If your antibody levels are above the normal range, this suggests you may have coeliac disease but can't be used alone to diagnose the condition.

If you are found to have positive antibodies, your doctor will refer you to a gastroenterologist (digestive system specialist) who will perform an endoscopy and small bowel biopsy. This is a day surgery procedure and you will be under light sedation. The specialist puts a thin flexible tube down your throat into your small intestine and collects small samples of tissue from your bowel wall. The tissue samples are then examined under a microscope to see whether the lining of the small intestine shows the typical damage seen in coeliac disease, known as villous atrophy (inflammation and flattening of the villi which line the surface of the small intestine).

How is coeliac disease managed?

Coeliac disease is managed with a lifelong, strictly gluten-free diet. When you remove gluten from your diet, the wall of your intestine can heal so that nutrients can be absorbed, symptoms improve and you avoid long-term health problems associated with continued gluten consumption.

A gluten-free diet involves cutting out all foods made from wheat, rye, barley, triticale and oats (although some people may still be able to eat uncontaminated/



gluten-free oats). This includes most regular bread, breakfast cereals, biscuits, crackers, pasta and noodles as well as a range of processed foods which contain small amounts of gluten. These foods can be replaced with gluten-free alternatives and foods naturally free of gluten.

Some people find maintaining a strict gluten-free diet challenging, particularly if they don't have symptoms, but avoiding all gluten, even tiny amounts, is important to allow the bowel wall to heal.

What can I eat on a gluten-free diet?

Fortunately, there are still plenty of foods to choose from on a gluten-free diet.

- **Foods which are naturally gluten-free.** This includes fresh fruit and vegetables, legumes, nuts and seeds, plain dairy foods, fats and oils, eggs and fresh meat, poultry, fish and seafood. There are also a number of grains that are gluten-free, including rice, quinoa, buckwheat, millet, amaranth, sorghum and teff.
- **Foods labelled 'gluten-free' and those carrying the Coeliac Australia Endorsement Logo.** These products contain no detectable gluten.
- **Foods which are gluten-free by ingredient.** Some products are not labelled gluten-free but don't contain any ingredients that contain gluten. If any ingredient in a product is derived from gluten-containing grains, this needs to be declared in the ingredient list. So, if a product hasn't been labelled gluten-free, you can check the list of ingredients to work out if it is suitable or not. Coeliac Australia produces an ingredient list booklet (free with membership) and a smartphone app (available from the AppStore or Google Play) to make this easier. Products with a 'may contain gluten' statement are best avoided, due to possible cross-contamination.





MANAGING HYPOS ON A GLUTEN-FREE DIET

It is important that anyone living with type 1 diabetes and coeliac disease always has access to a suitable gluten-free treatment for hypoglycaemia (low blood glucose levels). Options include glucose tablets, fruit juice, honey, brown rice/rice malt syrup and gluten-free confectionary. However, if they experience a hypo and only gluten containing foods are available, they shouldn't hesitate to eat these. The risks of a hypo outweigh the immediate risks associated with consuming gluten.

The gluten-free diet and diabetes

Combining a gluten-free diet with a healthy eating plan to manage your diabetes is not always easy. A gluten-free diet cuts out many of the recommended carbohydrate choices for people with diabetes, for example, wholegrains such as oats, barley, dense wholegrain breads and wholegrain crackers. And many gluten-free alternatives have a high glycaemic index (GI) including most types of rice, potato, and most brands of gluten-free pasta, bread, cereal and crackers. High GI foods are more quickly digested and absorbed, resulting in a faster rise in blood glucose levels after eating.

This can make managing blood glucose levels more difficult. A small Australian study found that young people with type 1 diabetes and coeliac disease had higher post-meal blood glucose levels than in those without coeliac disease. They also weren't meeting all of their nutritional needs.

Fortunately, there are still plenty of nutritious foods that are free from gluten, including some which have a lower GI, making it possible to keep healthy and stay gluten free.

Recommended gluten-free carbohydrate options for people with diabetes include:

- Fresh fruit, frozen fruit and most canned fruits in natural juice
- Legumes including lentils, chickpeas and dried or canned beans
- Lower GI varieties of rice such as basmati and Doongara, brown rice and wild rice
- Asian rice noodles, buckwheat (soba) noodles and bean thread (mung bean) noodles
- Starchy vegetables including corn, taro and yam, Carisma potato and orange sweet potato
- Grains such as quinoa and buckwheat (in their wholegrain form), teff and amaranth
- Gluten-free muesli, rice bran and porridge made from brown rice, quinoa or buckwheat groats
- Wholemeal or wholegrain gluten-free breads
- Gluten-free pasta made from legumes, brown rice and buckwheat
- Most dairy products including plain milk and yoghurt
- Many soy milks, but these need to be checked for gluten
- Legume flours (e.g. chickpea/besan, lentil, soy or lupin) and almond meal or other nut flours can be used in baking, often combined with other gluten-free flours

A dietitian with expertise in coeliac disease and diabetes can provide individualised dietary advice to help you in adopting a gluten-free diet and ensuring that it is meeting all of your nutritional needs and supporting you in managing your diabetes.

You can search for an Accredited Practising Dietitian at: da.asn.au/find-an-apd/

Resources

For more information, download the free NDSS Fact Sheet: Coeliac Disease and Diabetes ndss.com.au/about-diabetes/resources/find-a-resource/coeliac-disease-fact-sheet/

Coeliac Australia (coeliac.org.au/) membership provides a range of useful resources and access to advice and support to help in following a gluten-free diet.

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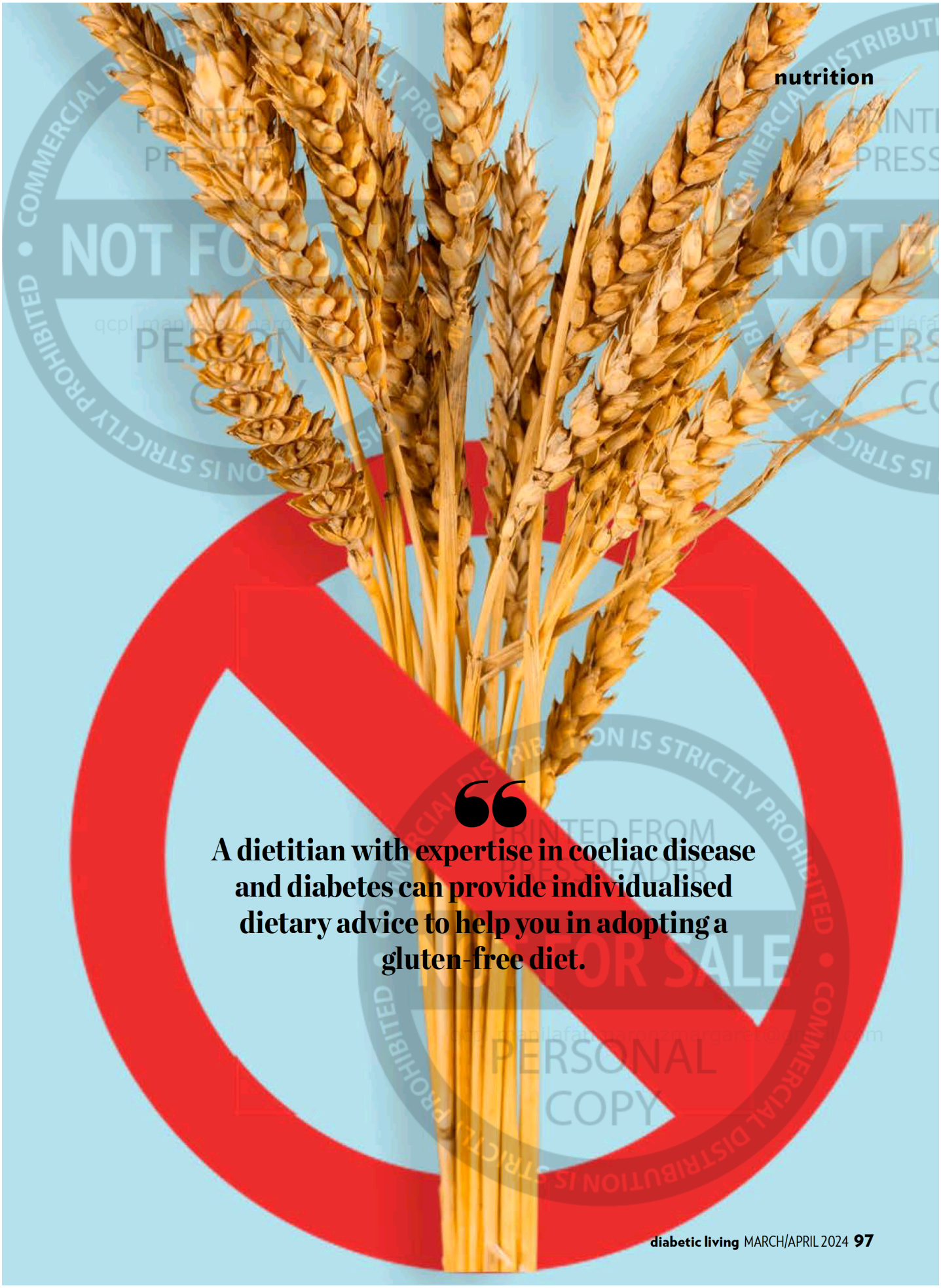

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