This guide is intended for individuals with coeliac disease (CD), noncoeliac gluten sensitivity (NCGS) or dermatitis herpetiformis (DH).

## What is coeliac disease?

Coeliac disease is a permanent intestinal reaction to dietary gluten and occurs when gluten - a protein found in wheat, rye, barley and avenin in oats - causes inflammation and gut damage. Left undiagnosed, coeliac disease can cause serious long-term health problems. There is strong evidence that any exposure to gluten, irrespective of whether it causes symptoms or not, causes damage to the small intestine.

Gluten is a protein found in wheat, rye, and barley (including malt and malt extract). Oats in New Zealand may be contaminated with gluten, rye or barley making them unsuitable on a gluten free diet. One in five individuals with coeliac disease and NCGS may be sensitive to avenin, a protein similar to gluten found in oats. As such, avoidance of all oats including 'gluten free' oats is recommended.

## What are the symptoms?

Common symptoms include diarrhoea or chronic constipation, weight loss, nausea, flatulence, abdominal pain/discomfort, mood disorders and depression, mouth ulcers, joint pain, and osteopenia/ osteoporosis. Fatigue may also occur due to iron deficiency. Although some people with coeliac disease are asymptomatic and do not experience symptoms, gluten still damages their small intestine. Some people present with extra-intestinal symptoms such as a skin rash or neurological conditions.
In children, coeliac disease can cause delayed growth and development, irritability, and poor appetite in addition to gastrointestinal symptoms, anaemia, and poor calcification of teeth.

## Diagnosis

It is important to consume a gluten containing diet whilst testing for coeliac disease. A simple blood test (coeliac serology) is used to check for antibodies which can indicate coeliac disease. A positive antibody blood test is indicative of a positive diagnosis. In adults, diagnosis should be confirmed with an intestinal biopsy. Intestinal biopsy may not be necessary in children with a very high level of antibody and other diagnostic criteria. A non-biopsy diagnosis must be made by a paediatric gastroenterologist.

## Management: the importance of a gluten free diet.

The only way to manage CD, NCGS and DH is lifelong adherence to a gluten free diet. A strict gluten free diet with no detectable gluten is required. This will allow complete recovery of the small intestine and resolution of symptoms with time. It may take six months to five years for the gut to completely heal. Annual coeliac serology will give an indication of adherence to the gluten free diet.
Consuming small amounts of gluten can trigger the immune system and cause symptoms to return. Occasional inadvertent consumption will not cause long term damage although symptoms may present.
Left untreated, coeliac disease increases the chance of long-term complications including:

- Lymphoma and small bowel cancer
- Other autoimmune disorders such as thyroid disease, type 1 diabetes
- Fertility disorders
- Osteopenia and osteoporosis


## Dermatitis Herpetiformis

Dermatitis Herpetiformis (DH) is an inflammatory skin disease. Although less common than coeliac disease it is also triggered by gluten. It causes an itchy, blistering skin rash typically affecting the elbows, knees, and buttocks. Treatment is a gluten free diet and Dapsone, an oral medication.

## Lactose intolerance

In some cases, secondary lactose intolerance can occur when the small intestine is damaged by gluten due to reduced levels of the lactase enzyme which breaks down lactose (the sugar in milk and other dairy products). The reduced amount of lactase produced can contribute to gastrointestinal symptoms such as abdominal pain, bloating, flatulence, and loose stools. As the small intestine heals on a gluten free diet, levels of lactase increase and tolerance to lactose increases. A low lactose diet may be required in the short term whilst the small intestine heals. Although many gluten free commercial products are also dairy free, it is not necessary or desirable to follow a dairy free diet concurrent with the exclusion of gluten.

## Food Labelling

- Products manufactured in New Zealand/Australia can only be labelled as 'gluten free' if they contain no detectable gluten (less than 3 ppm or less than $0.0003 \%$ ), no oats or oat products or cereals containing gluten that have been malted.
- Coeliac NZ supports the "gluten-free" standard under the Australia New Zealand and Australia Food Standards Code which confirms products must,
o contain no detectable gluten; and
o contain neither: (i) oats or their products; nor (ii) cereals containing gluten that have been malted, or their products.
- Manufacturers that meet the standard can apply to Coeliac NZ to have their products accredited with the Crossed Grain Logo Trademark for food, agricultural and horticultural products, natural plants, beverages, and preparations for making beverages.
- Food Standards regulations in New Zealand and Australia require mandatory labelling of food allergens. If a product contains gluten, it may be listed as; wheat, rye, barley, oats, spelt, gluten, or cereals containing gluten (alcoholic beverages are exempt from these labelling regulations).
- Foods which are unpackaged natural, whole, or cut fresh, like fruit, vegetables, and meat in transparent packaging, ready-to-eat, sold at fundraising events, made, and packaged where sold do not require labelling.
Exceptions to the above: some ingredients derived from wheat are so highly processed that they are gluten free and are therefore safe to eat. These include:
- Caramel
- Corn syrup
- Dextrose
- Maltodextrin
- Glucose (including solids \& syrup)

If in doubt and a product is not labelled as gluten free or does not contain the crossed grain symbol avoid it or contact the manufacturer.

## Precautionary Statements

Food manufacturers may include precautionary statements on food packaging to indicate a potential risk of cross-contamination. Foods may become cross-contaminated when products are produced in shared factory sites, on shared equipment or storage facilities. These are voluntary statements that indicate possible cross contamination and are not regulated by legislation.
Some manufacturers use these as an alternative to allergen risk management, rather than communicating the actual risk of cross-contamination. Manufacturer websites may contain helpful information on whether or not products are gluten free.
The following terms are examples of precautionary statements.

## Foods to include \& avoid on a gluten free diet.

The following table provides a list of foods to avoid and foods that can be included in a gluten free diet.
Many foods are naturally gluten free, such as fresh meat, fish, chicken, cheese, eggs, milk, most yoghurt, fruit, vegetables, and rice. Manufacturers are not allowed to put a 'gluten free' label on products that do not naturally contain gluten such as rice or fresh whole produce. Always double check the label of processed foods to ensure no gluten containing ingredients have been added.
Do not buy loose unlabelled foods from bulk bins or the delicatessen section of supermarkets or food stores. (Unless there is an accredited endorsement like the Coeliac NZ Dining Out Programme, to ensure the stores are fully aware of the risks of cross contamination).

## Foods to Avoid/ Be Cautious of

## Breads, cereals \& flours:

- Wheat, wheat flour, wheat germ, wheat meal
- Rye flour \& grain
- Wheat based cornflour,
- Triticale (hybrid of wheat \& rye)
- Barley, malt \& malt extract
- Modified starch (if wheat based)
- Oats (including oat flakes, oat bran, oatmeal)
- Semolina
- Bran \& bran flakes
- Bulgur wheat, pasta, and noodles (containing wheat)
- Couscous
- All regular bread and breadcrumbs, buns, crumpets, croissants, pizza bases, muffins, biscuits, rolls, scones, cakes, and pastries.
- Wheat crackers, wheat crispbreads and some flavoured rice crackers (check label)
- Pita bread, naan bread, pumpernickel, chapattis/roti, oat crackers or biscuits
- Wheat based cereals: Weetbix, Puffed wheat, Honey puffs, All bran, Nutrigrain, Special K, Light ' $n$ Tasty
- Oat based cereals such as porridge and muesli
- Fresh, dried, or canned wheat pasta or noodles
- Poppadums, corn tortillas (check label)
- Macaroons (check label)

| May contain... |
| :---: |
| Packed in an environment <br> where ... may be present |
| Produced in a factory which <br> handles... |


| Made on the same production |
| :---: |
| line as... |

No nuts in ingredients, but cannot guarantee to be nut-free

Due to methods used in the manufacture of this product, it may occasionally contain...

May contain traces of...
Made in a facility that also processes...
Produced on shared equipement which also processes...
Made in a production area that also uses...

Not suitable for ... allergy sufferers

May be present: ... (used by VITAL ${ }^{\text {m }} 2.0$ )

## Fruit:

- Commercial thickened fruit pie filling/mincemeat (check label)
- Fruit crumble, sponge, or fritters


## Vegetables:

- Canned or frozen in sauce, commercially prepared vegetable, and potato salad (unless checked)
- Battered/crumbed vegetables products or dusted in flour e.g., onion rings, spring rolls, tempura, samosas.
- Potato products in batter, breadcrumbs or coated with flour (hash


## Foods to Include (Gluten Free)

- Rice, rice flour, rice flakes and rice bran
- Arrowroot, lentil, millet, potato, pea, tapioca flour
- Amaranth grain/flour
- Buckwheat groats and flour
- Cornmeal and polenta
- Pure cornflour (maize)
- Soy flour and flakes
- Gluten-free baking powder
- Sago
- Puffed corn and gluten free cornflakes
- Rice vermicelli noodles
- Gluten free pasta
- Quinoa
- Sorghum
- Gluten free breakfast cereals
- Gluten free bread, biscuits, rolls, wraps and pizza bases, rice cakes, some rice crackers (check label)
- Fresh, frozen, or canned fruit without sauces
- Dehydrated fruit
- Fruit juices
- Fresh, frozen, or canned without sauce
- Dehydrated vegetables
- Vegetable juices
- Potato products: chips, wedges, waffles, instant mash (check label)


## Foods to Avoid

Meat, fish, poultry:

- Meats prepared or thickened with flour, battered, or crumbed, some marinated meats
- Processed meats e.g., sausages, burgers, saveloy, chicken nuggets, fish fingers, luncheon sausage, ham, corned silverside, meat pies, and meat/fish pastes (check label)
- Rotisserie chickens from the supermarket often contain gluten or can be contaminated with gluten
- Scotch eggs


## Vegetarian Alternatives

- Some Quorn products, marinated tofu, vegetarian burgers, sausages, and ready meals (check label)
- Dried soya mince


## Dairy Products:

- Processed cheese mixtures/dips/spreads (check label)
- Cheese dishes with sauces made from wheat flour
- Some pre-grated cheeses (check label)
- Ice cream with cone, biscuit or crumbs Commercial milkshakes, milk with added fibre (e.g., Up and Go)
- Some dairy food yoghurts, flavoured yoghurts or fromage frais containing muesli or cereal


## Legumes, nuts:

- Processed legumes if thickened e.g., baked beans, Textured vegetable protein products (check label), some dry roasted nuts
- Some dips and hummus (check label)
- Some nut butters


## Beverages:

- Some coffee substitutes
- Malted drinks e.g., Ovaltine, Milo, Horlicks and Bournvita
- Some herbal teas
- Cordials containing barley
- Some rice/soy milks (check label)
- Soft drinks such as some gingerbeer
- Oat milk
- Most packet soups and stocks
- Soups with barley, broth mix, noodles, or croutons
- Beer, lager, Ale, and Stout


## Snacks/sweets

- Some packet chips
- Pretzels
- Some sweets, filled chocolates, liquorice, chewing gum
- Many frozen desserts
- Wafers and ice cream cones
- Ice cream toppings, mousse, custard, dessert mix, panna cotta (check label)
- Sprinkles (check label)
- Muesli bars (check label)
- Semolina, sponges, pies, parts, flans, crumbles with wheat flour or oats
- Cheesecake
- Some canned desserts (e.g., creamed rice)


## Miscellaneous

- Malt and Malt vinegar
- Soy sauce containing wheat
- Chinese soy sauce
- Baking powder
- Icing sugar containing wheat starch
- Ready to use icing, cake decorations, marzipan (check label)
- Some mixed seasonings, dried herbs \& spices, some curry powders (check labels)
- Marmite and Vegemite
- Some Lemon curds (check label)
- Many commercial sauces, gravy mixes, pickles, relishes, ketchup, chutney, cook in sauces, Worcestershire sauce and salad dressings (check label)
- Some mayonnaise, aioli, cream dressings, mustard products (check label)
- Suet, Some low-fat table spreads (check label)


## Foods to Include

- Fresh meats, fish (fresh/canned), gluten-free sausages, eggs, shellfish.
- Smoked meat, cured pure meat, plain cooked meat.
- Smoked, kippered, or dried fish.
- Plain tofu and tempeh
- Block or processed cheese, cream, or cottage cheese
- Fresh/UHT milk, evaporated milk and condensed milk, buttermilk, dried milk powder
- Fresh or canned cream
- Yoghurt
- Most plain or flavoured ice cream (without biscuits/crumbs)
- Dried or fresh beans
- Plain and salted nuts and seeds
- Peanut and other nut butters
- Gluten-free canned baked beans
- Pulse pasta (check the label)
- Water, soda water, mineral water
- Tea and coffee
- Cocoa, drinking chocolate (check label)
- Soft drinks and most cordials are gluten free
- Fruit and vegetable juices
- Wine and distilled alcoholic beverages are usually considered gluten free e.g., vodka, malt whiskey, gin, rum, brandy, cider, sherry, port, liqueurs
- Gluten free beer
- Plain chocolate (check label)
- Popcorn
- Jelly, milk pudding
- GF crumbles, pies, and tarts
- Meringue, pavlova
- Gluten-free corn chips and potato chips
- Plain rice cakes and rice crackers
- Gluten free bliss balls and muesli bars
- Tomato sauce, tomato puree
- Garlic puree
- White and balsamic vinegar
- Honey, jam, peanut butter
- Gelatine
- Gluten-free baking powder, cream of tartar
- Gluten free custard powder
- Fresh and dried yeast
- Beef or chicken extract
- Artificial sweeteners
- Gluten free soy sauce
- Sugar, golden syrup, maple syrup
- Cooking oil, butter, margarine, low fat spread, lard, ghee


## Medications:

Medication falls under different labelling legislation. Some medications and supplements contain gluten. Always check medications with your pharmacist.
A folic acid supplement is recommended in the early part of pregnancy. The low dose folic acid supplement ( 0.8 mg Multichem folate) contains wheat as an excipient. The Mylan brand of 5 mg folate (Folic acid Viatris) is gluten free and suitable for those with coeliac disease. Always check what you have been prescribed and dispensed.

## Cross-contamination:

It is important to avoid/prevent cross-contamination as even traces of gluten (e.g., breadcrumbs) can damage your small intestine.
To prevent cross-contamination:

- Prepare gluten free foods first.
- Wash hands after preparing any gluten containing foods.
- Use separate chopping boards for gluten containing and gluten free foods.
- Use clean utensils for preparing/serving gluten free food.
- Use a separate toaster/ toasted sandwich maker or purchase 'toaster bags' from Coeliac NZ or Spotlight.
- Use separate margarine/butter and spreads to avoid crumb contamination.
- Wash all cutlery, utensils, and cooking equipment thoroughly.
- Wipe benches thoroughly to ensure there is no residual gluten after preparing gluten containing foods or dedicate a workspace within your kitchen for preparing gluten free foods/meals.
- Avoid foods that 'may contain traces of gluten' or are 'made on the same line as gluten containing foods' unless you have contacted the manufacturer and are satisfied they have adequate systems in place to prevent cross contamination.
- When having a $B B Q$, ensure the $B B Q$ is cleaned before use or use a $B B Q$ tray/mat. Ensure gluten free meats are cooked away from gluten-containing meats (e.g., sausages, crumbed meat or meats marinated in regular soy sauce) and use separate utensils.
- Don't share lip gloss/lip stick and ensure anything you put on your lips is gluten free.
- Don't share toothbrushes and ensure toothpaste is gluten free.
- Store gluten free foods in separate containers and label them.
- Consider a separate bread maker for gluten free products.


## Considerations when eating out with coeliac disease:

- Always advise serving/waiting staff that you have coeliac disease. Use the word 'coeliac' rather than 'gluten free'.
- Don't assume that a menu item noted as gluten free is safe for people with coeliac disease - ask more questions.
- Ask about cross contamination precautions e.g., is there a separate gluten free fryer for deep fried foods? Is there a separate preparation area in the kitchen?
- Check the ingredients of seasonings, sauces and dressings.
- Check if a separate toaster is used, if not ask for gluten free toast to be toasted in the frying pan or oven.
- For counter food, are gluten free options stored separately to nongluten free options and are separate utensils used to serve?
- Avoid buying gluten free products made in bakeries that also use wheat flour.
- Avoid buying food from bulk bins. Purchase foods sealed in plastic to protect from gluten exposure.
- Book in advance and let the restaurant know about your dietary needs so they can offer safe food choices for you. Speak to the chef/cook before you arrive to help them prepare for your visit and prevent any confusion when you arrive. All caterers must be able to provide you with information of any allergens in all the dishes they serve, including cereals containing gluten. When uncertain or in doubt, ask.
- Check whether gluten free products are cooked in the same deep fryers as gluten-containing foods.
- If travelling with a group, tell the travel company and your accommodation you need gluten-free meals. Finding gluten-free products varies from country to country. Take gluten-free snacks with
you to make eating easier when in an unfamiliar place. Dietary cards listing foods you can have in various languages can be found at www. dietarycard.com.


## Gluten free baking

Normal recipes can be adapted by using gluten-free alternatives.

- Recipes that use less flour are easier to adapt.
- You can make your own flour mixes using a blend of different glutenfree flours, or you can choose from a range of pre-prepared mixes available at supermarkets.
- Using gluten free ingredients may require more moisture, so experiment to get the recipes to work for you. Adding an extra egg can help bind products and add moisture.
- To help products rise, include additional protein sources e.g., milk, milk powder, egg or cottage cheese when using gluten free flours.
- Chill gluten free biscuit dough for 30 minutes before cutting and baking.
- Do not chill gluten free pastry before working with it.
- Xanthan gum often helps improve the texture of gluten free products. Since gluten keeps dough flexible and holds ingredients together during cooking, you may find that gluten free products have a different texture and colour.


## Visit https://coeliac.org.nz/shopping-guide/ for a current list of certified gluten free licensed products.

## Some suppliers of gluten free products:

Pavillion
Vernerdi
Bakeworks
Vogels
Orgran
Healtheries
Freedom Foods
Yette Moosh
Gluten Free Shop
www.pavillionfoods.co.nz
www.vernerdi.co.nz
www.bakeworks.co.nz
www.vogels.co.nz/bread
www.orgran.com
www.healtheries.co.nz
(GF alternative to Vegemite/Marmite)
www.yettemoosh.co.nz
www.glutenfreeshop.co.nz

## Useful resources:

- Coeliac New Zealand recipes https://coeliac.org.nz/productcategory/recipes/
- Coeliac disease Facebook page 'Coeliac Disease New Zealand’
- The Healthy Food Guide includes gluten free recipes under recipes then 'Special Diet' www.healthyfood.co.nz
- A Little Bit Yummy www.alittlebityummy.com
- Youtube webinars https://youtu.be/GDMJhP--wJk label reading webinar link
- Countdown supermarket - type gluten free


## Coeliac New Zealand

Coeliac New Zealand is a registered charitable organisation that assists and supports people with coeliac disease by offering a variety of resources and tools. These include a range of toolkits, a comprehensive website, videos and webinars on YouTube and a twice yearly published Coeliac Link Magazine, and monthly member newsletters. The website offers information, support, recipes, resources, tips and tricks, local gluten free restaurants and other information. The organisation also runs kids' clubs in some regions around Aotearoa.
To become a member, please visit our website - https://coeliac.org.nz/ product-category/memberships/

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