

Nutrition for Children with Coeliac Disease



Coeliac Disease in Children

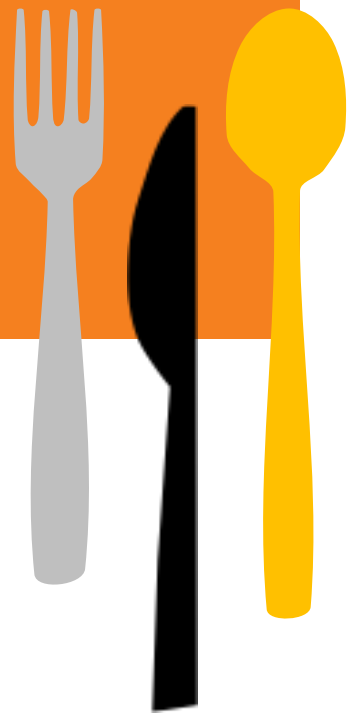
Coeliac disease is a permanent condition where the lining of the bowel becomes damaged and inflamed when gluten is eaten. Damage to the lining of the bowel can affect the absorption of nutrients important for growth and wellbeing such as protein, iron, calcium and vitamins.

If left untreated, coeliac disease can lead to poor growth, behaviour problems and other chronic health conditions later in life.

Gluten is a protein found in wheat, rye and barley as well as any food made from these grains. Most oats are mixed with these grains during production and processing. For this reason oats are not suitable for children with coeliac disease.

Symptoms of untreated coeliac disease may include:

- Abdominal pain
- Diarrhoea
- Weight loss
- Poor weight gain and/or height gain
- Bloating and wind
- Anaemia
- Nausea
- Vomiting
- Fatigue
- Constipation



Treatment

Lifelong avoidance of gluten-containing foods

Wheat, rye, barley and oats need to be completely eliminated to allow the small bowel to heal and prevent symptoms from recurring.

Food suitable for children with Coeliac Disease

Bread, biscuits and cakes



Safe foods (gluten free)

Gluten free bread or bake mix
Corn and rice crisp breads
Rice and corn cakes
Rice crackers
Corn tortillas
Gluten free crackers, muffins, cakes and pizza bases

Foods to exclude (contain gluten)

All commercial breads (except those labelled as gluten free)
Bread rolls
Crumpets, muffins
Biscuits
Cakes and cake mixes
Crispbread, rusks, wafers
Chapattis, naan
Pizza bases

Grains and flours



Safe foods (gluten free)

Arrowroot
Maize corn flour, cornmeal, polenta
Rice flour, potato flour, soya flour, pea flour, tapioca flour or buckwheat flour
Soya or rice flakes
Gluten free baking powder
Millet, buckwheat
Sago, tapioca
Split peas, lentils
Puffed corn
All rice
Gluten free, rice or quinoa pasta
Rice noodles

Foods to exclude (contain gluten)

Wheat, wheat flour
Rye, rye flour
Wheat based corn flour
Barley
Oats
Semolina, cous cous
Triticale
Spelt
Bran flakes
Pasta
Noodles

Breakfast cereals



Safe foods (gluten free)

Products labelled gluten free including millet porridge and rice porridge

Foods to exclude (contain gluten)

Muesli
Weetbix, vitabrits
Puffed wheat
Wheat germ
Sugar or honey puffs
All Bran

Milk and milk products



Safe foods (gluten free)

All milk**
Cream
Crème Fraiche
Butter milk**
Yoghurt
Cheese
** avoid if you have
temporary lactose
intolerance

Check

(may contain gluten)
Fruit/flavoured yoghurt
Soy desserts
Rice milk
Soy milk
Spreadable cheese

Foods to exclude (contain gluten)

Oat milk
Malted milk drink
Dairy food
Commercial milkshakes
Yoghurt with muesli or
wholegrains

Meat, poultry and fish



Safe foods (gluten free)

Lamb
Beef
Pork
Chicken
Fish
Smoked meats
Eggs
Gluten free sausages

Check

(may contain gluten)
Cured meats
Marinated meat
Meat in a sauce
Burgers
Pates

Foods to exclude (contain gluten)

Battered or coated
meat or poultry
Rissoles
Sausages
Processed meat
Saveloys
Hot dogs
Meat pies
Fish/meat pasties
Fish canned in sauces

Meat alternatives



Safe foods (gluten free)

Plain tofu

Check

(may contain gluten)
Marinated tofu
Soy mince
Falafel, vegetable and
bean burgers

Foods to exclude (contain gluten)

Fruit



Safe foods (gluten free)

All fresh, canned and frozen fruit
Dried fruit
Fruit juice
Most cordials

Check

(may contain gluten)
Fruit pie filling

Foods to exclude (contain gluten)

Fruit in batter, breadcrumbs or dusted with flour
Pastries
Fruit/barley cordials

Vegetables



Safe foods (gluten free)

All fresh and frozen vegetables
Canned if prepared in water or brine

Check

(may contain gluten)
Processed vegetable products
Baked beans

Foods to exclude (contain gluten)

Vegetables in breadcrumbs, batter or dusted with flour
Canned creamed vegetables

Nuts, seeds and pulses



Safe foods (gluten free)

Plain nuts and seeds
Peas
Beans
Legumes
Lentils

Check

(may contain gluten)
Dry roasted nuts
Baked beans

Foods to exclude (contain gluten)

Soups, Sauces, and Seasonings



Safe foods (gluten free)

Homemade soups made with gluten free ingredients
Vinegars
Garlic puree
Herb and spices
Salt

Check

(may contain gluten)

Blended seasonings
Curry powder
Dressings
Mayonnaise
Sauces and mixes
Mustard

Foods to exclude (contain gluten)

Canned or packet soups
Bistro powders
Gravy brownings
Chinese soy sauce
Stock and stock cubes

Fats and oils



Safe foods (gluten free)

Butter
Margarine
Cooking oils
Ghee
Lard
Low fat spreads

Check

(may contain gluten)

Foods to exclude (contain gluten)

Suet

Sweets and desserts



Safe foods (gluten free)

Ice cream
Ice cream toppings
Gluten free ice cream cones
Jelly
Boiled sweets

Check

(may contain gluten)

Chocolate
Mousse
Lollies
Tapioca pudding
Macaroons
Meringues

Foods to exclude (contain gluten)

Ice cream cones and wafers
Pies
Pastries
Sponges
Steamed or baked products
Wheaten custard powder
Liquorice
Filled chocolates

Spreads and preserves



Safe foods (gluten free)

Jams
Honey
Marmalade
Golden syrup
Treacle
Glucose syrup
Peanut butter
Yeast extract

Check

(may contain gluten)

Lemon curd
Mincemeat
Pickled vegetables

Foods to exclude (contain gluten)

Pickles, relishes or
chutney thickened with
flour

Drinks



Safe foods (gluten free)

Water
Soft drink
Cocoa
Ginger beer

Check

(may contain gluten)

Drinking chocolate

Foods to exclude (contain gluten)

Barley waters and
squash
Horlicks malted milk
Milo
Ovaltine
Bournvita
Commercial milkshakes
and thickshakes

Baking products



Safe Foods (gluten free)

Sugar
Artificial sweeteners
Food colouring
Bicarbonate of soda
Cream of tartar
Potato starch
Yeast
Ground almond meal
Guar gum
Xanthan gum

Check

(may contain gluten)

Baking powder
Premade icings
Marzipan
Cake decorations

Foods to exclude (contain gluten)

Batter mixes
Breadcrumbs
Stuffing mix
Icing sugar containing
wheat starch

Label reading

Food Standards Australia New Zealand (FSANZ) set food standard laws in New Zealand including food labelling.

Food labelled as gluten free must have:

- No detectable gluten
- No cereals containing gluten that have been malted, or their products
- No oats or their products

Food labels on packaged foods in New Zealand, including imported products, must list any gluten or ingredient containing gluten. Wheat, rye, barley and oats will be in **bold** writing on food labels if present in food products.



Crossed Grain logo

Food labels displaying this certified trademark are:

- **Tested to have gluten levels of less than 20 parts per million**
- **Considered suitable for a gluten free diet under the international CODEX standard for gluten free food**
- **Tested annually and at random by an accredited laboratory**
- **Approved and licensed by Coeliac New Zealand and Coeliac Australia**

Foods labelled with the Crossed Grain logo but not labelled as gluten free are still safe to eat; the difference is international vs local regulations

Warning: FSANZ labelling regulations allow foods containing no more than 200 parts per million to be labelled as low gluten; foods that are low gluten are **not suitable** for people with Coeliac disease, for example, don't use *NZB low gluten bread mix*.

Caution statements: Manufacturers voluntarily place statements on labels if there is a risk of gluten contamination. These products should be avoided.

Nutrition Information Panel Example

Serving size: 45g

Servings per package: 10

	Per serve	Per 100g
Energy (kJ)	743	1650
Protein (g)	3.8	8.5
Fat, total (g)	4.3	9.6
Saturated (g)	1.3	2.8
Carbohydrates (g)	29.2	64.8
Sugars (g)	8.7	19.3
Dietary Fibre (g)	2.7	6.1
Sodium (mg)	87	192
Vitamin E (mg)	2.5	5.6
Folate (ug)	50	111

Ingredients: Cereals, wholegrains (**oats, barley, wheat**), sugar, **spelt**, fruit, coconut, golden syrup, potato starch, maltodextrin, salt, **gluten (wheat), barley malt** extract, **thickener** (1400) (150a, 150b, 150c, 150d), vitamins (vitamin E, folate, thiamin), minerals (iron, calcium)

May contain gluten containing cereals and added sulphites.

Ingredients: Food ingredients are listed in descending order of weight, this includes food additives. The use of any ingredient containing wheat, rye, barley and oats must be stated under FSANZ regulations.

Check additive codes: Thickeners (modified starches) made from wheat and raising agents made with wheat starch are not gluten free.

Additive 1400, dextrin roasted starch, is made from wheat.

Other thickeners, 1401 to 1450, made from maize, tapioca or potato starch are gluten free.

Safe additives: Sweeteners such as caramel, dextrose, glucose, glucose syrup and maltodextrin are such highly processed and purified ingredients that the source of the starch does not matter. Even when made from wheat they are always gluten free due to extensive processing.

Gluten free baking

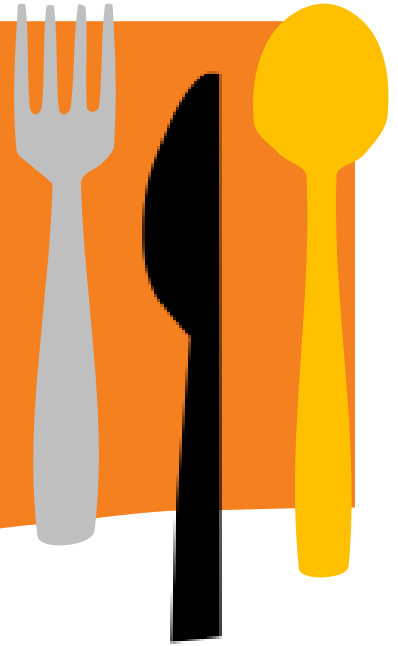
Gluten is the part of flour that provides structure and elasticity for dough, holding other ingredients together and trapping air during rising and baking.

Substitution of wheat flour with gluten free flour will result in a different textured product depending of the type of flour used.

Substitution of wheat flours when baking

Substitute 1 cup of wheat flour for:

- 1 cup of rice flour
- 1 cup of maize corn flour
- 1 cup fine cornmeal
- $\frac{3}{4}$ cup of coarse cornmeal
- $\frac{1}{2}$ cup soya flour + 1 cup rice flour
- $\frac{1}{2}$ cup rice flour + $\frac{1}{2}$ cup maize corn flour
- 1 cup maize corn flour + 1 Tablespoon ground millet



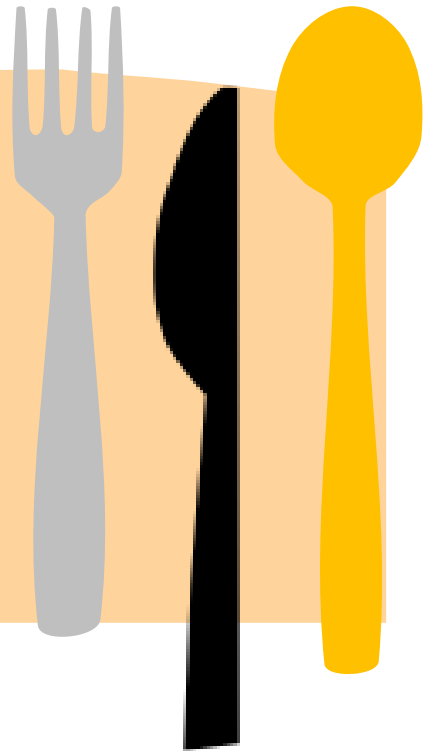
- Ensure measurements in recipes are as accurate as possible, use metric measuring cups and spoons
- Gluten free flours have no natural binder in them. Use vegetable gums such as Xanthan or Guar – $\frac{1}{2}$ tsp per cup of flour
- When using gluten free bread and baking mix do not add the raising agent in the recipe as these mixes already have raising agents
- Add protein or fat sources to a recipe with gluten free flours to add structure and assist with rising
- When using gluten free flours always replace sugar in a recipe with castor sugar
- Use baking paper, silicon sheets or patty pans to stop food sticking while cooking
- Freeze gluten free muffins, cakes and scones the day they are baked if not eaten, as these foods defrost well, but will go stale quickly if left out
- Make double batches every time you cook and freeze one, for use in lunchboxes or other on other occasions.



Substitution of wheat flours when thickening

Substitute 1 Tablespoon of wheat flour for:

- ½ Tablespoon maize corn flour
- ½ Tablespoon rice flour
- ½ Tablespoon arrowroot
- 2 teaspoons quick cooking tapioca



Avoid contamination

Regular exposure to gluten, even in tiny amounts without symptoms, can cause damage to the gut surface and increase the risk of long term complications of coeliac disease.

Reduce the risk by:

- Washing kitchen equipment, utensils and chopping boards after preparing foods containing gluten or use separate equipment
- Wiping surfaces after preparing foods containing gluten
- Keep wheat flours in a separate container or cupboard
- Using a washable silicon mat in cooking surfaces that may be contaminated with gluten e.g. barbeques
- Using toaster bags or a separate toaster for gluten free bread
- Having a separate container of butter/margarine, spreads and chutneys for those on a gluten free diet



PHARMAC part-subsidy on gluten free foods

The PHARMAC special authority for subsidy of gluten free foods pays part of the cost of listed gluten free flour, bread mixes, baking mixes or pasta, obtained on prescription.

It is available to:

- Patients diagnosed with coeliac disease by a biopsy
- Patients diagnosed with dermatitis herpetiformis

A lifetime special authority number, e.g. CHEM 12345678/LIFETIME, is required to receive the part-subsidy and can be applied for by your GP, specialist or dietitian.

A prescription can be written by any GP, specialist or dietitian for any product listed, for the quantity you require. A prescription is funded for a maximum of three months.

Collect a prescription whenever you see a health practitioner so you do not have to pay for a prescription alone.

Ensure you have a community services card if you are eligible.

PHARMAC manages the part-subsidy of gluten free foods but no longer lists new products or makes changes to the amount subsidised for the existing foods listed. This means that as manufacturers prices increase, using a prescription for these gluten free foods may in time become less cost effective.

Check with your pharmacist about minimising the costs of prescriptions and compare sale prices at your supermarket. A prescription may not be the best option.

SPECIAL FOODS – Gluten free foods listed by PHARMAC

GLUTEN FREE BAKING MIX – Healtheries Simple Baking Mix

GLUTEN FREE BREAD MIX – Bakels Gluten Free Health Bread Mix, Horleys Bread Mix

GLUTEN FREE FLOUR – Horleys Flour

GLUTEN FREE PASTA – Orgran brand; Buckwheat Spirals, Corn and Vegetable Shells, Corn and Vegetable Spirals, Rice and Corn Lasagna Sheets, Rice and Corn Macaroni, Rice and Corn Penne, Rice and Maize Pasta Spirals, Rice and Millet Spirals, Rice and Corn Spaghetti Noodles, Vegetable and Rice Spirals and Italian Long Style Spaghetti.

