

## Gluten, Coeliac Disease and the Coeliac Genes

### WHAT IS GLUTEN?

Gluten is a collective term for the series of hardy proteins that give strength and integrity to many cereal grains, namely:

- Wheat (including pasta, bread, crackers, pastries, semolina, cous cous)
- Rye
- Wheat hybrids such as spelt or kamut or freekeh
- Triticale (hybrid of rye and wheat)
- Barley
- Oats (via cross contamination however most people still react to the gliadin like molecule within it)

Gluten is the protein component in these grains that baker's love as it enables the dough to rise. Gluten, is actually made of 2 key components – gliadins and glutenins – which when combined create the inherently difficult to digest structure of gluten. Due to the fact that it is highly resistant to human digestion, gluten has been associated with numerous digestive and inflammatory complaints.

### GLUTEN FREE GRAINS

- Rice (and rice based products)
- Corn (and corn based products including polenta)
- Potato
- Buckwheat
- Quinoa
- Amaranth
- Millet
- Legume based flours such as chickpea (besan flour)
- All fruits, vegetables and legumes are all gluten free

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## COELIAC DISEASE

Coeliac disease is an autoimmune condition, whereby the intestinal mucosa is damaged by the consumption of (and subsequent reaction to) gluten in all forms.

So, Coeliac disease is a condition that affects some people whereby they cannot digest gluten (or its by- product alpha-gliadin).

Symptoms may include obvious digestive complaints such as diarrhoea, abdominal distension and failure to thrive, however some coeliacs can be relatively asymptomatic, or suffer from more chronic and less obvious signs including nutritional deficiencies, arthritis, discoloured dental enamel, additional autoimmune conditions, depression, premature degeneration of the nervous system, seizures etc. The most definitive diagnosis of coeliac disease is through biopsy of the small intestinal mucosa, however there are some blood tests available now that provide a reasonably accurate and less invasive diagnostic option.

## COELIAC GENE TESTING

The likelihood of coeliac disease manifesting has been linked to two particular genes:

- HLA DQ2
- HLA DQ8

Over 95% of people affected by coeliac disease have an expression of one or both of these genes. Therefore, a negative test for these genes will in effect rule out coeliac disease (but not other reactions to gluten). However, it is important to note that only 1 in 30 people who have HLA DQ2 or HLA DQ8 will actually develop coeliac disease.

Coeliac disease is one of the most under-diagnosed, yet most common chronic diseases and, if left undiagnosed, may lead to the possibility of severe consequences such as bowel cancer, anaemia and osteoporosis. It affects approximately 1 in 100 people in Australia but 75% people don't know they have it. Correlating evidence between underlying coeliac disease and other immune disorders cannot be refuted or ignored. Countless studies suggest that in the presence of autoimmune processes or immune derangements such as those found in chronic infection, are worsened and aggravated by undiagnosed or poorly addressed coeliac disease. The principle is that not only is nutritional deficiency a contributor for poor immune function, but that a hyper reactive immune system such as evident in a coeliac disease, perpetuates a hyper reactive immune system to other bodily functions and processes. As such, it is prudent to thoroughly assess all immune compromised or immune challenged patients for all coeliac process.

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## GLUTEN SENSITIVITY

In addition to coeliac disease, you can have adverse reactions to gluten mediated by IgG and IgA antibodies. This is known as gluten sensitivity, and can pose equally detrimental and distressing symptoms. Unlike coeliac disease, which is a permanent condition, gluten sensitivity can be reduced over time through an initial removal of all gluten, along with healing and supporting the gut mucosa.

Sufferers of gluten sensitivity may find that their symptoms wax and wane over time. This can be due to the cumulative effect of gluten exposure, or the different content and quality of gluten in the foods consumed. Times of immune deficiency or over-activity can also play a role in the severity of symptoms.

## WHEAT ALLERGY

Wheat allergy accounts for a small percentage of gluten reactivity, and is mediated by IgE antibodies. This is a true hypersensitivity or allergic reaction, and will usually manifest in symptoms such as hives, lip or throat swelling or at worst anaphylaxis immediately post exposure, or up to 4 hours delayed. Like coeliac disease, this is a permanent condition and requires the complete removal of wheat from the diet.

## WHAT DOES THAT MEAN FOR ME...

When someone who is coeliac, intolerant or sensitive consumes gluten, it damages the intestine wall causing reduced absorption of nutrients. Commonly, people present with fatigue, digestive disturbances and anaemia, and through thorough investigation, are able to be diagnosed appropriately. Interestingly, it is commonly diagnosed in women during their 30's as is believed that stress during this decade can tip them over. Whilst 1 in 15000 Australians are believed to be suffering from coeliac disease, thousands more are believed to be subclinical.

To repair the damaged digestive system important treatments include the amino acid glutamine, vitamins A, E, D, K, C; minerals Zinc and Iron especially; probiotics (acidophilus and bifidus species); slippery elm and aloe vera and herbal bitters to increase digestive enzymes. Obviously stress management is also key.

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## GLUTEN, HASHIMOTO'S AND THYROID HEALTH

Let's deep dive into the research around gluten and Hashimoto's as of 2020. Let's talk to the Scientists first.

A 2019 published study found removing gluten from women with Hashimoto's hypothyroidism, who did not have coeliac disease, reduced thyroid antibodies and improved thyroid hormone levels (1).

I want you to really absorb that... a scientific study, published last year, on women with Hashimoto's, improved their thyroid hormone levels and reduced their thyroid antibody levels, by just changing one thing...they stopped eating gluten. That's it!

No medication, no crazy diets, no sitting under a lotus leaf meditating for 12 hours straight... they all just cut out gluten.

Why is that interesting if you have hypothyroidism caused by Hashimoto's but you are medicated? Well, less thyroid antibodies mean less symptoms (2,3). That means the lower your antibody number the more energy you have, the easier it is to manage your weight and the better mood you enjoy!

Also, even more exciting I reckon is that a gluten-free diet may prevent the worsening of Hashimoto's and hypothyroid symptoms over time and the potential disease complications (4). A long healthy life from one dietary change? Yes, please!

In fact, researchers in the field of autoimmunity are finding a gluten-free diet may be a good idea when any autoimmunity is present regardless of the specific disease (5).

## WHAT IS IT ABOUT GLUTEN AND THE THYROID?

It appears gluten worsens inflammation, it causes the hyper-permeability of the gastrointestinal lining (leaky gut) and this has been implicated in the development of autoimmunity (1,6). So to be clear what is not being said is that you only exclude gluten if you have coeliac disease.

Rather what researchers are saying is if your thyroid disorder is caused by Hashimoto's thyroiditis you may experience a benefit in how you feel today and how your condition progresses into the future, if you choose to be gluten-free.

## BUT MY LOVED ONE SAYS BEING GLUTEN-FREE IS BS

Ahhhh this ol' chestnut... Well, we need to read some recent research. Non-coeliac gluten sensitivity (NCGS) is a medical condition recognised in the scientific literature with symptoms ranging from gut issues that appear like irritable bowel syndrome plus also non-gut symptoms. The non-gut symptoms are mainly but not exclusively neurological (7).

In fact, a research study into people with autoimmunity and non-coeliac gluten sensitivity (NCGS) found "there is a high prevalence of Hashimoto thyroiditis in patients with suspected NCGS" (7). A 2017 review of Hashimoto's hypothyroidism concluded a gluten-free diet may be of benefit for patients with Hashimoto's even if they did not have coeliac disease (8).

## CAN I SUBSTITUTE IN GLUTEN-FREE PROCESSED FOODS?

When I first heard about the research links between gluten and Hashimoto's around 15 years ago I simply swapped all my gluten-containing foods for similar processed gluten-free foods. Somehow I thought gluten-free processed foods were healthy. Oh my, talk about epic fail. Not only did I not feel any better for gluten-free cereal, gluten-free bread and gluten-free cakes and biscuits; I also stacked on the pounds quickly. It seems I am not alone. It's been reported in research when people substitute in gluten-free processed foods their weight increases substantially (9, 10).

I hear you.... Let's make this scientific discovery real. Swapping wheat bix for gluten-free wheat bix, a sandwich for gluten-free bread sandwich and pasta for gluten-free pasta on a daily basis is not recommended if you are concerned with weight. In my practice as a nutritionist and naturopath, and in my own body, I find gluten-free processed foods worsen energy levels, memory and cognition.

Could it be because gluten-free processed foods are so heavily processed and intensely sugared they may be inflammatory for those with autoimmune conditions like Hashimoto's?

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## DOES THIS MEAN I NEVER HAVE GLUTEN-FREE PROCESSED FOODS ANYMORE?

Nope. I have a loaf of gluten-free bread in the freezer right now. But I leave these highly processed choices as my “sometimes foods” for special occasions like hosting a friend’s baby shower. Every delicate finger sandwich and fairy cake my BFF requested for her gender reveal is made from gluten-free bread or a gluten-free flour substitute.

Could the gluten-free processed foods you’re eating be implicated in excess weight or difficult weight loss for you?

Living life without gluten and not relying on gluten-free processed food alternatives means enjoying as many vegetables, nuts, seeds, legumes, red meat, white meat, poultry and healthy fats like avocado, olives, olive oil and coconut as you wish to consume.

Google your favourite recipes, for sure someone, has made them over gluten-free style. Buy a whole foods, gluten-free cookbook like those written for paleo or autoimmune paleo (AIP) diets, or, search my website for inspiration. Living gluten-free may give those of us with Hashimoto’s the gift of more energy and less brain fog - what’s not to love?

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## FOODS TO EAT FREELY...

### *Important points*

- This information does not necessarily correlate with your specific dietary requirements. Please read in conjunction with your other dietary needs.
- Prepare food in separate containers without contacting stuffing, dressing, sauces, gravies, steam cooking and frying fats. Study the labels of foods and determine if they contain gluten.
- Do not expect restaurants to be accurate, anticipate this when ordering.
- Generally gluten free means high soy or high sugar – please read labels carefully
- Common replacements are soy flour and skim milk powder to give a similar consistency

## PROTEIN

- Meat, fish, poultry and fish as your dietary requirements allow
- Legumes/pulses and their flours (besan [chickpea] flour is extremely versatile and helpful for gluten free diets)
- Organic eggs
- Nuts and their butters and milks
- Seeds and their butters and milks – chia pudding is a versatile breakfast!
- Dips (homemade is optimal and easy) or brands such as 'Organic Indulgence' for humous, tahini and beetroot dip

## BEVERAGES

- Basically anything and everything but watch for alcohol (beer and spirits!) and gluten content in drink mixes (coffee or hot chocolate mix), coffee substitutes (ecco or caro for example), soup packets etc
- Encourage optimal hydration with spring or filtered water, herbal teas, dandelion coffee and vegetable juices



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## MILKS

- Rice, quinoa, nut milks such as almond or pistachio
- Make sure that they are not sweetened with malt or sugar o Homemade are optimal and tastier

## BREADS

- Gluten free breads – often are made from a mixture of soy and corn flours. They are kept in the fridge section of the supermarket or health food store.
- Good brands to look out for include: Naturis, Common Ground, Dovedale, Crunch, Deeks and SolBread Cereals
- Homemade types made from puffed grains and rolled quinoa/amaranth or rice

## CRACKERS/CRISPBREADS

- Rice cakes or corn thins
- Buckwheat cakes or crispbreads
- Homemade flax crackers (or bought versions)

## PASTA

- Rice or bean vermicelli
- Pasta from rice, quinoa, amaranth, buckwheat
- Best brand available is Green olive grove organics – rice and amaranth or rice and quinoa

## SAUCES

- Most health food shops or health food sections at supermarkets have extensive ranges. Spiral foods brand offers great products such as Tamari (wheat free soy sauce) or Gluten free (and MSG free Hoisin or satay sauce)

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## FLOURS

- Flours from gluten free grains including buckwheat, quinoa, rice
- Legume based flours such as Besan (chickpea) or adzuki
- Nut based flours such as almond meal or coconut meal

## BAKING POWDER

- Gluten free (and aluminium free) baking powder is readily available from good health food shops

## PASTRY (PUFF AND FILO)

- Harris Farm (in freezer)

## WRAPS

- Woolworths own tortillas (corn), rice paper rolls, Old Time Bakery Gluten free wraps (does have soy flour), tacos

## FOODS TO EAT MODERATELY...

### DAIRY

Depending on the damage caused to the villi, some people may experience transient intolerance to dairy. Further, the protein in dairy (casein) is a molecule similar in form to gliadin and can cause some cross- reactivity. In these instances it may be necessary to eliminate dairy entirely (short term only). In other instances it may be necessary to limit intake only.

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## FOODS TO AVOID... (UNLESS LABELLED GLUTEN FREE)

Gluten is found in a wide variety of foods, especially those that are pre-packaged and heavily processed. It is important that you check ALL LABELS carefully so that you are aware there are no traces of gluten and gliadin. This can be difficult as some foods that don't contain gluten can be processed on the same production line as foods that do. While this may not seem significant, even traces of gluten can cause reactions in sensitive people.

Essentially all products such as crackers, breads, pasta, cakes, biscuits, flours, cereals, muesli, muesli bars, sauces, alcohol containing gluten.

Never assume something is gluten free – you need to check!

## SUGARS

- Artificial colourings & preservatives
- Artificial sweeteners
- Sugar

## PACKAGED FOODS

- Processed foods
- Processed flour products – especially from white flour products (wheat, cereals),
- Packaged/packet foods
- Processed meats, cold cuts, sausages
- Fast food
- Pasta (unless made from gluten free flour, corn or rice)

## BEVERAGES

- Alcohol – beer, gin, whiskey and any drink containing grain neutral spirits, i.e.: all alcoholic drinks except brandy, rum and wine
- Fruit drinks (including 100% fruit juices)
- Soft drinks
- Sugared drinks – Milo, Ovaltine, Horlicks, Malted Milk

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## BREADS/CEREALS

- All breads, crisp breads and crackers unless labelled gluten free or made from gluten free ingredients
- All packaged cereals

## PASTRIES AND DESSERTS

- Chocolate, lollies, confectionery, candy bars
- Ice cream & sorbet
- Custard (unless homemade from soy without added sugar)
- Glazed fruit, fruitcake or pudding, canned fruit
- Cakes, biscuits, muffins, cookies, doughnuts, pies, puddings

## SAUCES

- Honey or sugar condiments/sauces e.g.: sweet & sour, glazed or honeyed
- Sweet sauces – apple, brandy, plum, sweet chilli, soy sauce

## MISCELLANEOUS

- Cooked mixed meat dishes,
- Fats used for frying food rolled in flour,
- Fish or chicken rolled in flour
- Gravy
- Scones
- Ice cream cones
- Malt products or foods containing malt
- Meat rolled in crumbs
- Most cooked sausages and small goods
- Mayonnaise,
- Pancake mixtures
- Sauces, synthetic pepper, some yeasts, thickening in ice-creams
- Waffles
- Wheat cakes, wheat germ
- Bread and biscuit crumbs
- Dumplings, noodles, soups that are powdered or canned

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