

Celiac Disease, Gluten and T1D Connections

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Outline

Celiac Disease Overview

Gluten

Helpful Tips for starting on a Gluten Free Diet

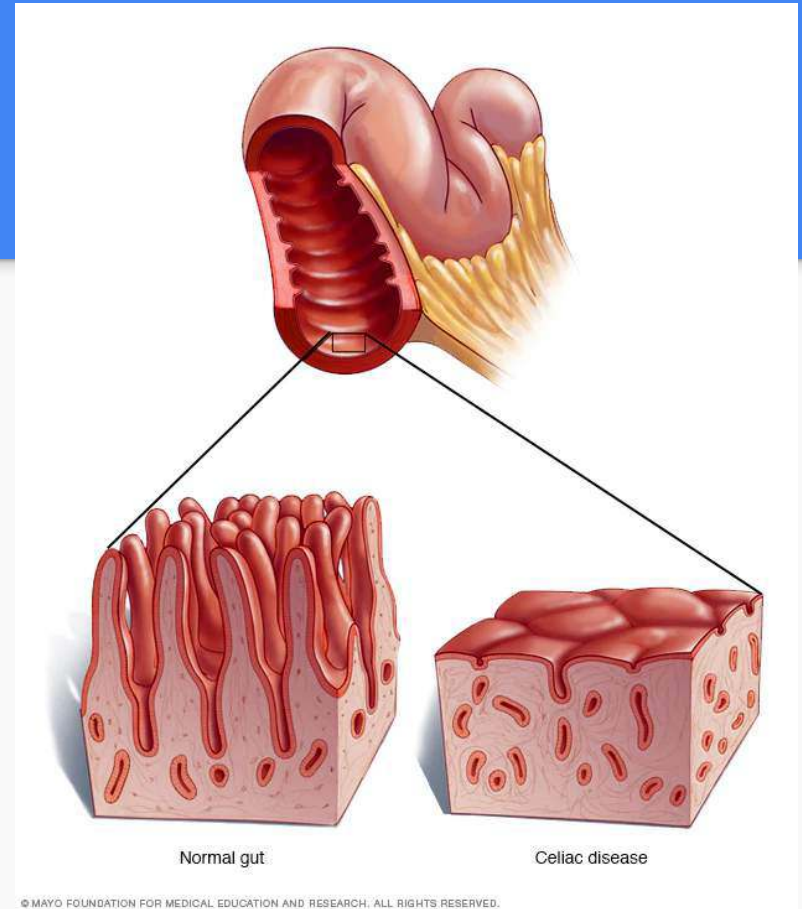
Changes to blood sugars

Resources

Celiac Disease

- Is an auto immune disease not an allergy
- People who have Type 1 Diabetes are at higher risk for developing
- 1 in 100 overall population
- Approximately 1 in 20 for those with Type 1 Diabetes
- Can not be prevented

- Exposure to gluten causes the immune system to attack the villi in the intestines. Over time this causes foods to not be digested/absorbed properly



Classic Symptoms

Type 1 Diabetes

Gas	No symptoms
Bloating	Unexplained hypoglycemia
Diarrhea or constipation	Changes to mood
Anemia	Could experience classic symptoms as well
Poor growth	
Headaches	
Fatigue	

Diagnosis - Celiac Screen Blood Test

IgA – taken to ensure there is enough of this antibody to ensure the tTg is accurate

tTg IgA (Tissue Transglutaminase): will be positive in 98% of those with the disease on a gluten containing diet

There is also a slight risk of a false positive test result, especially for people with associated autoimmune disorders like type 1 diabetes, autoimmune liver disease, Hashimoto's thyroiditis, psoriatic or rheumatoid arthritis, who do not have celiac disease.

Diagnosis

An intestinal (duodenal) biopsy is considered the “gold standard” for diagnosis because it will tell you

(1) if you have celiac disease

(2) if your symptoms improve on a gluten-free diet due to a placebo effect (you feel better because you think you should)

(3) if you have a different gastrointestinal disorder or sensitivity which responds to change in your diet.

- Must be on a gluten containing diet for the biopsy to be accurate
- Remission generally takes up to 2 years but can take up to 5 years for complete recovery
- Yearly serology and twice in first year recommended by many gastroenterologists
- Recommend repeat endoscopy to show improvement after a few years

Classic Symptoms Case

- 5 year old previously healthy and growing well. (75th/95th %ile for weight and height)
- Developed persistent diarrhea after a fall illness.
- Persisted for months, fell to 10th %ile on growth curve
- Tested for infections, parasites
- Celiac Screen completed tTg >1200
- Biopsy performed diagnosing celiac disease



Riley is diagnosed with celiac disease...she is very brave.

Case Example

10 year old diagnosed with Type 1 diabetes in December 2018

Normal bowel habits, growing well

Started experiencing severe hypoglycemic events on minimal/no insulin in July 2019, seizure at night on 0.5

Admitted to hospital for multiple tests

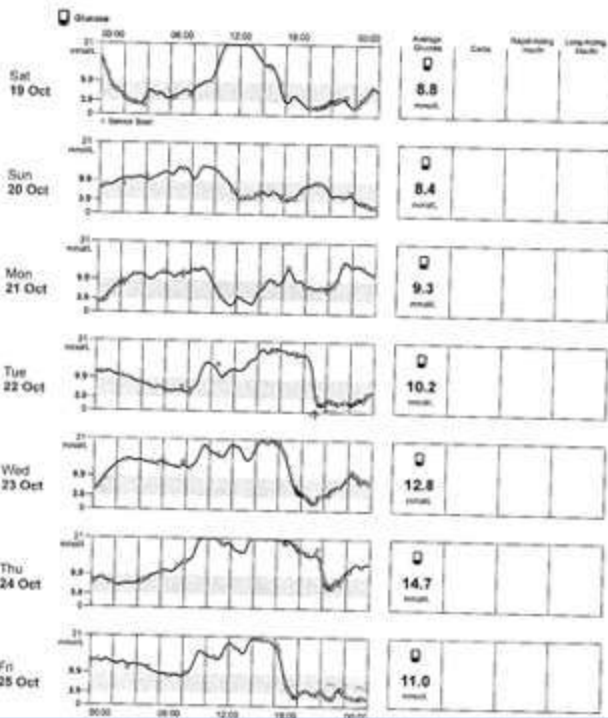
Celiac screen showed tTg elevated at 195 (<12 u/ml)

Seen by Gastroenterologist – recommended gluten free diet

Weekly Summary

19 October 2019 - 1 November 2019 (14 days)

FreeStyle Libre 





**KNOW THE LESS OBVIOUS
SYMPTOMS OF CELIAC DISEASE**

#GoBeyondTheGut

Treatment

Once diagnosed with celiac the only treatment at this time is following a gluten free diet



Going Gluten Free

- It is important to see a Registered Dietitian that has experience teaching a gluten free diet
- To find a list of qualified Dietitians you can visit
- www.dietitians.ca



Gluten

Protein found in wheat, rye and barley

Oats do not contain gluten but in Canada are highly contaminated with wheat residue. Only certified gluten free oats should be taken.

It provides structure and elasticity to dough

Common sources include bread, pasta and baked goods

Shopping

- Look for products that contain the logos/allergy info of “gluten Free”
- There are guidelines from Health Canada
 - No ingredients that contain any gluten proteins have been deliberately added
 - No ingredients that contain modified or hydrolyzed proteins from gluten containing grains have been added
 - Gluten levels from accidental cross contamination are less than 20 parts per million
 - Good manufacturing processes have been used
 - Any ingredients made from gluten grain have been processed to remove gluten (i.e wheat glucose syrup and wheat maltodextrin)

Labels



Label Reading

- Need to check the Warning Sections and you also may need to check the ingredient list
- **CONTAINS:** identifies the main 10 allergens, greater than 10 ppm the product. If gluten containing grains not listed it is safe
- **MAY CONTAIN:** May have been exposed to cross contamination. Will need to read the ingredients to look for sources of gluten.

Obvious

- Wheat
- Oats
- Wheat flour
- Barley
- Modified Wheat Starch
- Bulgar Wheat
- Barley Malt

Less Obvious

- Atta
- Kamut
- Spelt
- Malt Vinegar
- Soy Sauce
- Triticale
- Brewers yeast

Label Reading Must Have

- The Canadian Celiac Association www.celiac.ca has a number of great resources including their Pocket Dictionary
- It is great to help decipher many of the obscure ingredients and whether they are allowed, not allowed or ? check
- If they have a ? check then best to call the manufacturer





- It is important to always read labels /ingredients for foods that do not have gluten free symbols as often ingredients can change and an item is no longer gluten free





The Gluten Free Fad

- A few years ago many celebrities started going gluten free and many fad diets appeared.
- Was thought to be healthier and promote weight loss
- This caused an increase in the amount of available products and more restaurants started offering gluten free options

Gluten Free Naturally

- Whole fruits and vegetables
- Unprocessed meats
- Most dairy products
- Legumes
- Starches: Rice, Corn and Potatoes
- Nuts and seeds



Cross Contamination

- Small amounts of gluten can cause damage to the small intestine
- As little as 50mg/day can cause inflammation - about the size of a dime sized piece of bread
- Cross contamination from gluten containing foods needs to be minimized



Minimizing cross contamination at home

- Separate workstations for preparing gluten and non gluten containing foods (glass vs wood or plastic cutting boards)
- Prepare gluten free items first
- Have a dedicated gluten free toaster
- Use squeeze bottles for condiments where possible
- Label tub items such as margarine, peanut butter, jam for the gluten free individual or use a spoon to remove portion - no double dipping

Eating Out

- Plan ahead: research local restaurants that offer gluten free
- www.findmeglutenfree.com
- Advise the staff/chef that there is a gluten allergy
- Ask surfaces/grill to be cleaned
- Ask for limited sauces, dressings and seasonings

Tips for cooking/baking

- Use cornstarch and water as a thickener in place of flour
- Can make your own gluten free flour blend or many pre made available
- Need to add xanthan gum to baking if not in flour mix to help keep items from falling apart
- Most baked goods will require more fluid than the original recipe
- Chill dough before baking to help cookies hold their shape

Considerations with blood sugars

- What do you think might happen to blood sugars after starting a gluten free diet?

- Gluten free baked goods are often higher in carbohydrate and are easily digested
- Can lead to more spikes after a bolus
- Try to add other sources of protein/fibre/fat to slow the digestion



Nutrition Facts Valeur nutritive

Per 2 slices (92 g) / pour 2 tranches (92 g)

Amount Teneur	% Daily Value % valeur quotidienne
Calories / Calories 250	
Fat / Lipides 8 g	12%
Saturated / saturés 1.5 g	8%
+ Trans / trans 0 g	
Polyunsaturated / polyinsaturés 4 g	
Omega-6 / oméga-6 3 g	
Omega-3 / oméga-3 1 g	
Monounsaturated / monoinsaturés 2.5 g	
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 380 mg	16%
Potassium / Potassium 150 mg	4%
Carbohydrate / Glucides 40 g	13%
Fibre / Fibres 6 g	24%
Sugars / Sucres 3 g	
Protein / Protéines 7 g	
Vitamin A / Vitamine A	0%
Vitamin C / Vitamine C	0%
Calcium / Calcium	8%
Iron / Fer	15%
Vitamin E / Vitamine E	20%
Thiamine / Thiamine	20%
Riboflavin / Riboflavine	15%
Niacin / Niacine	20%
Vitamin B6 / Vitamine B6	10%
Folate / Folate	40%
Pantothenate / Pantothénate	10%
Phosphorus / Phosphore	10%
Magnesium / Magnésium	20%
Zinc / Zinc	10%
Selenium / Sélénium	0%
Copper / Cuivre	10%
Manganese / Manganèse	40%
Molybdenum / Molybdène	25%



Nutrition Facts Valeur nutritive

Per 2 slices (71 g) / pour 2 tranches (71 g)

Amount Teneur	% Daily Value % valeur quotidienne
Calories / Calories 180	
Fat / Lipides 2.5 g	4%
Saturated / saturés 1 g	5%
+ Trans / trans 0 g	
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 230 mg	10%
Carbohydrate / Glucides 32 g	11%
Fibre / Fibres 4 g	16%
Sugars / Sucres 3 g	
Protein / Protéines 6 g	
Vitamin A / Vitamine A	0%
Vitamin C / Vitamine C	0%
Calcium / Calcium	6%
Iron / Fer	10%
Thiamine / Thiamine	15%
Riboflavin / Riboflavine	6%
Niacin / Niacine	8%
Vitamin B6 / Vitamine B6	6%
Folate / Folate	15%
Pantothenate / Pantothénate	6%
Phosphorus / Phosphore	10%
Magnesium / Magnésium	15%
Zinc / Zinc	10%
Manganese / Manganèse	50%

- As the intestines heal they can begin to absorb more nutrients - carb ratios may need to be adjusted
- Weight can increase or catch up if was delayed also increasing insulin requirements
- A1C may improve if was being elevated by chronic inflammation

Resources

- The Canadian Celiac Association
 - www.celiac.ca
- Diabetes Canada
 - <https://www.diabetes.ca/managing-my-diabetes/preventing-complications/celiac-disease>
- Gluten Free Diet, Shelley Case
 - www.glutenfreediet.ca
- Go Beyond Celiac (also an app)
 - <https://go.beyondceliac.org/>
- Celiac Disease Foundation (information of studies/trials)
 - <https://celiac.org/icureceliac/>

What has been the hardest part of starting a gluten free diet?

What is the best product you have found?

Words of wisdom for those just starting out on this
journey?

Questions?