GLUTEN INTOLERANCE GROUP of East Central Wisconsin

GLUTEN-FREE NEWSLETTER

http://bit.ly/GIGECW_Newsletters

Educate / Motivate / Advocate

In This Issue

Meetings

When: Third Saturday of odd numbered months (Jan, Mar., May, July, Sept., Nov.)

9:30 am to 11:30 am

Where: Ripon Public Library in the Silver Creek or Nash Rooms.

Spouses and loved ones are also encouraged to attend.

Alan Klapperich - Branch Manager

Phone: 920-748-4877
GIG.EastCentralWisconsin@gluten.org
www.gigofecw.org
www.facebook.com/GIGofECW

Gluten-Free Thoughts

May is Celiac Disease Awareness Month. If you participate in any social media, your feeds will be blanketed with a variety of facts and figures surrounding celiac disease and the gluten-free lifestyle.

This type of sharing is a good starting point. It provides the public with some basic, general knowledge. What about a more personal approach to awareness-raising? How? By going about our daily lives, interacting with others and sharing our stories. While it may seem simple, it's a powerful tool we can use 365 days a year.

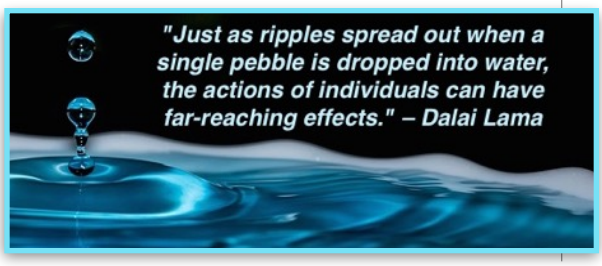
Every time we share our story with others, we connect with them, they get to know us, now it becomes personal. All of those facts, figures, and statistics are turned into living, breathing, flesh and blood before their very eyes.

I invite you to participate in Gluten Intolerance Group's 2019 celiac awareness campaign called *"Share Your Story."*

Click this link share your story: http://bit.ly/2L8yOji

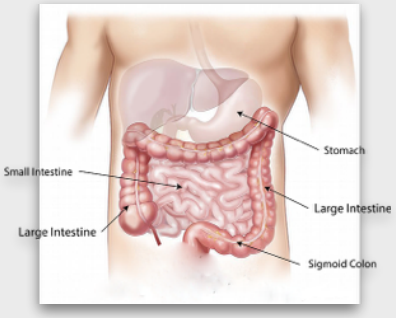
I feel that we are blessed *[yes, blessed]* with the responsibility of being gluten-free ambassadors. This isn't of our choosing, we didn't signup for this and we may not want the job, but if we don't who will? Who better to educate others than those who live it 24x7x365?

We transform ourselves through the knowledge acquired on this gluten-free journey. As our knowledge and actions ripple out to others around us, it increases awareness. We have the power to make an incredible impact.

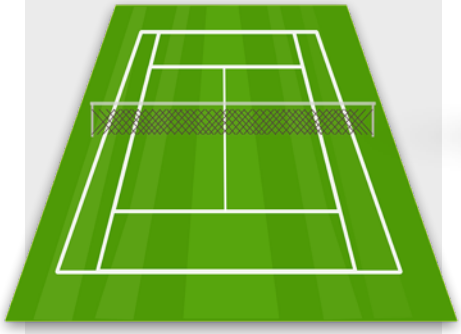


Keep up the great work!

Alan Klapperich
GIG of ECW Branch Manager



Responsible for nutrition absorption, the small intestine has the surface area of about 2,700 square feet. The size as a tennis court!



Each square inch of the small intestine contains about 20,000 villi.

Illustration Credit: Manu5. Shared using Creative Commons Attribution-Share Alike International License.

Nutritional Deficiencies and Celiac Disease

Alan Klapperich
GIG of ECW Branch Manager

So, you were diagnosed with celiac disease, and the doctor told you to avoid gluten. Yeah, that's it in a nutshell, but it goes much deeper and more complicated than that. Years and often times decades of untreated celiac disease can lead to complications that need to be addressed. This condition must be taken seriously. We don't think much about it now, but if we look back in history - before medicine knew how to treat this ancient condition - people, many of them children - died.

In 1888, Dr. Samuel Gee, physician and leading authority in pediatric diseases at the Hospital for Sick Children at Great Ormond Street, London wrote, *'The course of this disease is always slow, whatever be its end; whether the patients live or die, he lingers ill for months or years. Death is a common end."* Almost forty years later, Drs Lehndorff and Mautner report *"the prognosis was so hopeless that treatment was of little avail."* Dr. W.M. Dicke, a Dutch pediatrician, noticed children under his care flourished during the 1944/45 Nazi induced "Winter of Starvation." He saw the mortality rate drop from 35%-40% (pre-war) to zero. That's correct, roughly one-third of the

Inflammation is part of the body's defense mechanism. It is the process by which the immune system identifies and eliminates dangerous threats and initiates the healing process.

Chronic inflammation - slow, long-term inflammation lasting for extended periods of several months to years - can be dangerous.

Chronic Inflammation Permanently Alters Immune Cells in Celiac Patients

'Dr. Bana Jabri, study author from the University of Chicago, explained: "Chronic inflammation caused by gluten causes an immunological scar that results in the loss of intestinal resident immune (gamma delta T cell) subset that has an important role in tumor surveillance and fighting against infection."

*This means that the damage caused by gluten results in the **permanent** loss of these beneficial immune cells in celiac patients.'*

Learn more:
http://bit.ly/2IGK04E

Nutritional Deficiencies - Continued

children with celiac disease did not live. Thankfully, Dr. Dicke was the first to figure out that wheat was behind these deaths.

Celiac Disease is an autoimmune condition that can be triggered in genetically susceptible individuals [between 30% and 40% of the US population]. The immune system targets the proteins found in wheat, barley, and rye as a bad actor. These proteins are traditionally and generically known as "gluten." When it slips through the intestinal barrier, the immune system unleashes inflammation to neutralize it. In attacking the mistaken invader, the repeated deployment of this weapon damages the mucosal lining of the small intestine. Precisely injured are the finger-like projections called villi - think deep pile shag carpeting from the 60s and 70s. Villi damage causes malabsorption so the body cannot be adequately nourished.

Before we look at what malabsorption can do, let's take a quick peek at how and where our food is broken down and processed. Of course, chewing our food mixing it with saliva starts the entire process. The stomach brings powerful gastric juices to the digestion party, but the small intestine is where most of the magic happens. There are three different sections; from top to bottom we have the duodenum, the jejunum, and the ileum.

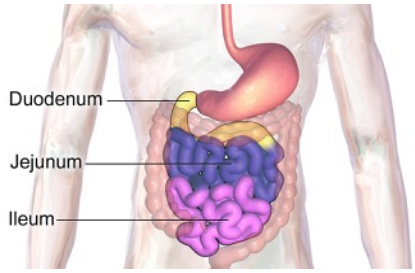


Illustration Credit: Blausen.com staff (2014) Shared using Creative Commons Attribution-Share Alike International License.

The duodenum continues the digestion process by mixing partially broken down food with enzymes from the stomach, liver, pancreas, and bile from the gallbladder. This is a prominent location for the absorption of iron.

The jejunum handles the majority of absorption of proteins, carbohydrates, amino acid, sugar, fatty acid particles, vitamins, minerals, electrolytes, and water. An essential site for the intake of folic acid. Fun Fact: The villi found here are longer

Celiac Disease Foundation's Adult & Pediatric Follow-Up Check Lists

"Patients with celiac disease who do not adhere to a strict, gluten-free diet have been found to have an increased mortality risk, and report poorer quality of life. They often have significant nutritional deficiencies and are at an increased risk for associated autoimmune disorders, other serious conditions, and cancers. Long-term follow-up care is needed to assure patient compliance and positive health outcomes. Children in particular struggle with strict adherence to the gluten-free diet, so long-term follow-up is especially important for them.

Celiac Disease Foundation's medical experts have developed a list of best practices to assure optimal care for your child diagnosed with celiac disease. This includes regular physician visits and counseling with a dietitian expert in celiac disease and the gluten-free diet. Unfortunately, most pediatricians and family practice doctors will not be familiar with the newly recommended post-diagnosis treatment protocol for a child diagnosed with celiac disease."

To register and download checklists:
http://bit.ly/2UUDwpn

Excellent resources for your medical team!

These checklists contain information about WHAT to look at and WHY it needs investigation.

Nutritional Deficiencies - Continued

than either the duodenum or ileum.

The ileum, specifically the terminal ileum (the section closest to the large intestine) absorbs bile acids and vitamin B12. Ileum also performs the vital task of breaking down carbohydrates into simpler sugars and lipids into fatty acids and glycerol.

Ideally, your doctor will do an initial nutrition assessment at diagnosis and follow up testing to keep an eye on any deficiencies, but sadly it's not always done.

According to Melinda Dennis, RD, LDN, nutrition coordinator at the Celiac Center at Beth Israel Deaconess Medical Center in Boston, it's confusing and, no standard protocols exist. However, evidence-based guidelines have been established by the Celiac Disease Foundation (CDF) medical advisory board and the World Gastroenterology Organization.

CDF's medical advisory board reads like a Who's Who of celiac experts including Shelley M. Case, RD, Sheila Crowe, MD, Alessio Fasano, MD, Peter H. R. Green, MD, Stefano Guandalini, MD, Ivor D. Hill, MD, Daniel Leffler, MD, Ted Malahias, DDS, Joseph A. Murray, MD, Cynthia S. Rudert, MD, John J. Zone, MD. Their guideline recommends a celiac patient should be re-evaluated by a doctor and registered dietitian three to six months after the initial diagnosis, and every year after that to address any nutritional deficiencies.

Sheila Crowe, MD, governing member of the American Gastroenterological Association and CDF medical advisory board member, agrees on the three to six-month follow-up. However, she maintains it's not necessary for celiac patients to get nutritional testing throughout their lives.

[It has been estimated that as many as 30% of people with celiac disease cannot or do not attain intestinal healing in response to a gluten-free diet. What will happen to those patients without follow-up?]

When the intestine heals, absorption of iron, calcium, folate, Vitamin B12, and all of the fat-soluble vitamins (Vitamin A*,

Nutritional Deficiencies - Continued

Vitamin D, Vitamin E*, and Vitamin K*) improves, but the actual intake may remain a problem. In non-celiac gluten sensitivity, nutrient absorption is not compromised because the bowel is not damaged, but a concern for all gluten-related disorders are some foods may be low in nutrients.

**An increased risk of these deficiencies only occurs when there is fat malabsorption.*

Whole grains contain iron, thiamin, riboflavin, niacin, folate, and fiber. The refining process strips away the outer layer along with those nutrients, but it also removes much of the fiber. As a result, gluten grains are enriched or fortified after the fact; however, the fiber is not replaced. Currently, very few gluten-free grain products are enriched or fortified. Deficiencies in these vitamins and minerals can occur as a result if one does not make the proper adjustments. The good news is that other sources *[some might claim better options other than grains]* can be found to replace what was lost due to processing or lack of fortification.

Gluten-free and dairy-free food sources of these vitamins and minerals include:

Vitamins and Minerals	Food Sources
Thiamin	Sunflower seeds, black beans, tuna, green peas, lentils
Riboflavin	Mushrooms, cooked spinach, venison, soybeans
Niacin	Mushrooms, avocados, broccoli, tuna, salmon, chicken breast
Folate	Green leafy vegetables (spinach, romaine lettuce, turnip greens), asparagus, lentils, beets, broccoli
Iron	All types of meat, lentils, soybeans, tofu
Calcium	Green leafy vegetables (spinach, turnip greens, collard greens), sardines, almonds, sesame seeds, seaweed (nori, kelp)
Vitamin D*	Salmon, sardines, shrimp, cod
Magnesium	Green leafy vegetables (spinach, Swiss chard), pumpkin seeds, sunflower seeds, black beans

*There are only a few food sources of Vitamin D. If you live in a northern climate, a supplement may be needed.

Gluten-free and dairy-free food sources of the nutrients not listed above include:

Vitamins	Food Sources
Vitamin B12	All types of meat and fish, eggs
Vitamin A*	Green leafy vegetables (spinach, turnip greens), sweet potato, carrots, red bell peppers
Vitamin E*	Green leafy vegetables (spinach, mustard greens, turnip greens), sunflower seeds, almonds, hazelnuts
Vitamin K*	Green leafy vegetables (kale, spinach, Swiss chard, collard greens), broccoli, Brussels sprouts

*An increased risk of these deficiencies only occurs when there is fat malabsorption.

Some people with celiac disease also have lactose intolerance during the early stages of their treatment on a gluten-free diet so there may be low intake of many of the nutrients provided by dairy foods (such as calcium, magnesium, and Vitamin D). Again, we must look at other food sources to replace them.

To learn more about nutritional deficiencies, we'll be using the Gluten Intolerance Group's *"Gluten-Free Nutrition Guide"* (http://bit.ly/2IHlUXK), *"Nutrient Deficiencies and the Gluten-Free Diet"* (http://bit.ly/2PCogVz) and *"Gluten-Free & Vegetarian"* (http://bit.ly/2KYHom9) educational bulletins.

If you have concerns about your nutritional intake, it would be wise to seek out the professional services of registered dietitian well versed in gluten-related disorders and the gluten-free diet.

The Gluten-Free Nutrition Guide

Optimizing the Gluten-Free Diet

By Cynthia Kupper, RD
Chief Executive Officer

Factors affecting nutrition

- Economic status
- Disabilities
- Immediate social situation
  - Living alone/isolation
  - Number living in home
- Urban/rural living
- Depression
- Dependency
- Mental health
- Oral health
- Diet related diseases or conditions
- Multiple medication needs
- Minority status
- Age

Potential problems for persons following GF diet

Increased	Decreased	Continued

• Fat Intake
• Stress
	• Fiber, carbohydrate
	• Iron, Folate, Niacin
	• Vitamin B-12, D
	• Calcium, Phosphorus, Zinc
	• Quality of Life
	  • Cost of GF Living
	  • Availability of foods
	  • Social inconveniences
	  • Possible weight changes – gain or loss
		• Neurological and psychological symptoms
		• GI Symptoms

Nutritional Adequacy of Gluten-Free Diet

** All deficiencies may improve w/healing and good GFD*

Potential nutritional deficiencies of a GF Diet	Improvement after starting GF Diet	May be inadequate after starting GF diet (consult with RD)
Iron	X	X
Zinc	X	X
Folate	X	X
Carbohydrate		X
Fiber		X
Niacin		X
B12		X
Calcium	X	X
Phosphorus		X

Academy of Nutrition and Dietetics, Evidence Based Library, http://www.adaevidencelibrary.com/template.cfm?template=guide_summary&key=2012 , accessed on 8/15/2014

Nutritional Adequacy of GFD

- If a gluten-free diet does not provide an adequate supply of the nutrients at risk (iron, folate, niacin, vitamin B12, calcium, phosphorus and zinc), it may be wise for people with celiac disease to consume a daily gluten-free, age- and sex-specific multivitamin and mineral supplement.
- Whole-grain carbohydrates in the form of brown rice, wild rice, buckwheat, quinoa, amaranth, millet, sorghum, teff and certified GF oats can add healthy carbohydrates, fiber and vitamins & minerals to a GFD.

Academy of Nutrition and Dietetics, Evidence Based Library, http://www.adaevidencelibrary.com/template.cfm?template=guide_summary&key=2012 , accessed on 8/15/2014

Potentially problematic nutrients for mature adults

1 Low Protein

- Muscle wasting
- Weakened immune status
- Delayed wound healing

2 Low Vitamin D

- Lack of sun exposure
- Lack of dietary sources rich in vitamin D
- Some meds interfere w/metabolism

3 Low Fiber

- Regularity problems
- Risk of GI conditions
- Possible decreased satiety

4 High Saturated fat and trans-fat

- Increased risk for chronic heart disease

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Potentially problematic nutrients for mature adults

Low Vitamin B12 absorption

- Decreased mental function
- Personality Change
- Loss of physical coordination
- Diagnosis of dementia condition instead of low B12

Low dietary intake

- Vitamin E
- Folate
- Calcium
- Magnesium
- Zinc
- Iron

Part Two

Optimizing nutritional adequacy of the gluten-free diet

You might be Niacin deficient IF…

- Bad breath
- Canker sores/mouth pain
- Confusion, memory impairment
- Dermatitis, skin eruptions
- Diarrhea & abdominal discomfort and distension
- Emotional instability, irritability, depression
- Loss of appetite
- Muscle weakness
- Nausea
- Inflammation
- Fatigue

About Niacin (Vitamin B3)

- Important in DNA repair
- Role in producing steroid hormones
- Positive role in reversing atherosclerosis
- Possible role in reducing risk of Alzheimer's disease

RDA
8 mg – Kids 4-8
12 mg – Kids 9-13
14 mg – Women 14+
16 mg – Men 14+

Finding Niacin (Vitamin B3)

- Animal products
  - Liver, heart, kidney
  - Chicken, beef
  - Fish, tuna, salmon
  - Milk
  - Eggs
- Nuts and Legumes
- Whole Grains
- Fruits and Vegetables
  - Asparagus, Avocados
  - Broccoli, Carrots
  - Dates, Leafy vegetables
  - Mushrooms, Tomatoes
  - Sweet potatoes

RDA

8 mg – Kids 4-8

12 mg – Kids 9-13

14 mg – Women 14+

16 mg – Men 14+

About Folate

- Important in preventing birth defects
- Helps make new cells, including red blood cells to prevent folate-related anemia
- Important in DNA function (may impact cancer risk)
- Bone health

RDA

200 mcg – Kids 4-8

300 mcg – Kids 9-13

400 mcg – Women 14+

400 mcg – Men 14+

You might be Folate deficient IF…

- Anemia
- Apathy
- Diarrhea
- Fatigue, insomnia
- Headaches
- Loss of appetite
- Neural tube defects in fetus
- Paranoia
- Shortness of Breath
- Weakness

Finding Folate

- Leafy vegetables (spinach, asparagus, turnip greens, romaine)
- Other vegetables (beets, broccoli, corn, tomato or vegetable juices, Brussels spouts, bok choy)
- Dried or fresh beans and peas
- Fortified grain products (cereals, flour blends)
- Sunflower seeds
- Liver

RDA

200 mcg – Kids 4-8

300 mcg – Kids 9-13

400 mcg – Women 14+

400 mcg – Men 14+

- Fruits (orange, P/A and grapefruit juices, cantaloupe, honeydew melon, banana, raspberry, grapefruit, strawberry)

About Cobalamin (Vitamin B12)

- Role in blood formation
- Helps regulate folate metabolism
- Deficiency can lead to pernicious anemia
- Key role in normal function of brain and nervous system
- Role in normal cell activity, DNA, fatty acid synthesis and energy production
- Deficiencies can increase fatigue, depression, poor memory

RDA

1.2 mcg – Kids 4-8

1.8 mcg – Kids 9-13

2.4 mcg – Women 14+

2.4 mcg – Men 14+

You might be B12 deficient IF…

- Anemia
- Constipation
- Depression, irritability, mental disturbances, moodiness
- Dizziness
- Fatigue
- Intestinal disturbances, low stomach acid
- Headaches
- Decrease in vibration sense
- Mouth lesions
- Numbness
- Spinal cord degeneration

Finding Vitamin B12

Only found in foods of animal origen

- Fish, shellfish
- Meat (especially liver)
- Poultry, Eggs
- Milk, Milk Products
- GF Nutritional Yeast

RDA

1.2 mcg – Kids 4-8
1.8 mcg – Kids 9-13
2.4 mcg – Women 14+
2.4 mcg – Men 14+

About Calcium

- Major role in bone health – strength and density
- Role in muscle contraction and neurotransmitter release
- Electrical conduction system in the heart
- Deficiency can lead to poor blood clotting
- Vitamin D is needed to absorb calcium
- Excess can lead to impaired kidney function and decreased absorption of other minerals

RDA

1000 mg – Kids 4-8
1300 mg – Kids 9-18
1000 mg – Women 19-50
1200 mg – Women 50+
1000 mg – Men 19-70
1200 mg – Men 70+

You might be Calcium deficient IF…

- Osteoporosis
- Cramps
- Brittle nails
- Tooth decay
- Periodontal disease
- Depression, insomnia, irritability, delusions
- Palpitations

Finding Calcium

- Dairy foods (milk, yogurt and cheese)
- Seaweeds (kelp, wakame and hijiki)
- Nuts and seeds (almonds, sesame)
- Beans
- Whole GF grains (quinoa, teff, amaranth)
- Vegetables (collard greens, kale, okra, rutabaga, broccoli, dandelion greens)

RDA

1000 mg – Kids 4-8
1300 mg – Kids 9-18
1000 mg – Women 19-50
1200 mg – Women 50+
1000 mg – Men 19-70
1200 mg – Men 70+

- Calcium-set tofu
- Blackstrap molasses
- Fortified products (OJ and soy milk)

About Vitamin D

RDA
15 mcg - 1-70 years
20 mcg- 70+ years

- Important in bone health
- Essential for promoting calcium absorption
- Maintaining proper calcium/phosphorus levels
- Role in neuromuscular and immune functions
- Role in reducing inflammation and other conditions, including potentially cancer risk

You might be Vitamin D deficient IF…

- Elderly woman
- Osteomalacia, osteoporosis
- Burning sensation in mouth
- Diarrhea
- Insomnia
- Myopia
- Scalp sweating

Finding Vitamin D

- Very few foods contain Vitamin D
  - Flesh of fish (salmon, tuna and mackerel), fish liver oils
  - Beef liver, cheese, and egg yolks
  - Some mushrooms
- Fortified Foods
  - Milk, yogurt, margarine, ready-to-eat breakfast cereals, cereal flours (check label to confirm fortification)
  - Some OJ, Calcium-fortified fruit juices and drinks

RDA

15 mcg - 1-70 years

20 mcg - 70+ years

- Sunshine: Season, location, time of day, cloud cover, smog, skin melanin content, and sunscreen impact absorption
- 5-30 min. sun 2 times a week from 10 am – 3 pm should help the body produce adequate vitamin D.
  - http://fnic.nal.usda.gov

About Phosphorus

RDA

500 mg – Kids 4-8

1250 mg – Kids 9-18

700 mg – Adults 19-70+

- Important for energy production and storage
- Important in transmission of genetic information
- Major structural component of bone and cell membranes
- Activation of enzymes, hormones and cell-signaling
- Helps maintain normal acid-base balance (pH)
- Binds to hemoglobin in red blood cells and affects oxygen delivery to the tissues of the body

You might be Phosphorus deficient IF…

- Muscle weakness
- Loss of appetite
- Anemia
- Bone pain
- Osteomalacia
- Numbness/tingling in extremities

Finding Phosphorus

RDA
500 mg – Kids 4-8
1250 mg – Kids 9-18
700 mg – Adults 19-70+

- Meats: organ meats (liver, kidney, sweetbreads), poultry, beef, pork, lamb, seafood
- Eggs/yolk
- Nuts and seeds
- Beans (pinto, garbanzo, soy, black)
- Dairy: milk, cheeses, yogurt
- Grains: wild rice, buckwheat, millet, oats, oatmeal, brown rice, rice bran
- Other sources: lentils, popcorn, chocolate, yeast

About Iron

- Carries oxygen in the blood
- Prevents iron-def. anemia
- Not many GF products are fortified
- Some GF grains are good sources of iron – teff, amaranth quinoa, millet
- Take with Vitamin C source to improve uptake of non-heme (vegetable) sources of iron
- Do not take with calcium-rich foods

RDA

10 mg – Kids 4-8
8 mg – Kids 9-13
15 mg – Female 14-18
18 mg – Female 19-50
8 mg – Female 50-70+
11 mg – Male 14-18
8 mg – Male 19-70+

You might be Iron deficient IF…

- Anemia
- Brittle nails
- Confusion, depression
- Constipation
- Dizziness
- Fatigue
- Headaches
- Inflamed tongue
- Mouth lesions

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Finding Iron

- Heme iron
  - Red meats, fish and poultry
- Non-heme iron
  - Lentils and beans
  - Molasses
  - Tofu
  - Dark green vegetables
  - Enriched or fortified cereal/grain products
  - Teff, amaranth, quinoa, millet
  - Nuts

RDA

10 mg – Kids 4-8

8 mg – Kids 9-13

15 mg – Female 14-18

18 mg – Female 18-50

8 mg – Female 50-70+

11 mg – Male 14-18

8 mg – Male 19-70+

About Zinc

RDA

5 mg – Kids 4-8

8 mg – Kids 9-13

9 mg – Female 14-18

8 mg – Female 19-70+

11 mg – Male 14-70+

- Taste acuity
- Bone mineralization
- Essential for cell division, synthesis of DNA
- Blood clotting, cognitive functions, fetal growth
- Role in activity of enzymes assoc. with protein, carbs, fat and alcohol metabolism
- Critical to tissue growth, wound healing, connective tissue growth and maintenance
- Immune system function, proper thyroid function, sperm production
- Prostaglandin production for smooth muscle contractions, blood pressure, inflammation and body temp.

You might be Zinc deficient IF…

- Acne, eczema
- Apathy, depression, irritability, memory impairment, paranoia
- Brittle nails, white spots on nails
- Delayed sexual maturity, growth impairment
- Fatigue, lethargy
- Hair loss
- Immune impairment
- Impotence, male infertility
- Loss of appetite, loss of sense of taste, low stomach acid
- Night blindness
- Amnesia
- Wound healing impairment

Finding Zinc

- Oysters, crab, seafood
- Beef, liver, poultry
- Nuts and seeds, peanuts and peanut butter
- Legumes

RDA

5 mg – Kids 4-8

8 mg – Kids 9-13

9 mg – Female 14-18

8 mg – Female 19-70+

11 mg – Male 14-70+

- Whole grains
- Tofu, Milk

About Magnesium

- Muscle control and relaxation
- Assisting DNA and other enzymes that act as genetic building blocks
- Distribution and creation of human energy
- The production of protein
- Magnesium is essential for calcium to work properly in the body

RDA

240 mg – Kids 9-13
360 mg – Female 14-18
310 mg – Female 19-30
320 mg – Female 30-50+
410 mg – Male 14-18
400 mg – Male 19-30
420 mg – Male 30-50+

You might be Magnesium deficient IF…

- Loss of appetite
- Nausea, vomiting
- Fatigue
- Weakness
- Numbness/tingling

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Finding Magnesium

- Dark green, vegetables such as spinach and broccoli
- Fruits and vegetables (such as bananas, dried apricots and avocados)
- Nuts (almonds and cashews)
- Peas and beans (legumes), seeds
- Soy products (soy flour and tofu)
- Whole grains (brown rice, millet and teff)

RDA

240 mg – Kids 9-13
360 mg – Female 14-18
310 mg – Female 19-30
320 mg – Female 30-50+
410 mg – Male 14-18
400 mg – Male 19-30
420 mg – Male 30-50+

About Fiber

- Proper bowel function
- May reduce risk of some cancers
- May help reduce risk of coronary heart disease (BP, Chol, Lipids)
- May help with weight control (increased satiety, decreased intake)
- May help maintain healthy immune system

RDA

25 mg – Kids 4-8
26 mg – Female 9-18
25 mg – Female 19-50
21 mg – Female 50+
31 mg – Male 9-13
38 mg – Male 14-50
30 mg – Male 50+

Finding Fiber

- Vegetables & fruits
- Whole GF grains
- Beans, nuts, and seeds
- Fiber supplements and fiber-added foods/beverages

RDA

25 mg – Kids 4-8
26 mg – Female 9-18
25 mg – Female 19-50
21 mg – Female 50+
31 mg – Male 9-13
38 mg – Male 14-50
30 mg – Male 50+

GF Grains – High in Fiber & Nutrients

- **Teff:** calcium, magnesium, iron, zinc and B vitamins
- **Quinoa:** potassium, zinc, phosphorous, iron, B vitamins, magnesium and calcium
- **Amaranth:** calcium and iron
- **Buckwheat:** magnesium, phosphorous, potassium, vitamin B6 , iron, niacin, thiamin and zinc
- **Chia, flax:** omega 3 fatty acids
- **Sorghum (milo):** phosphorous, potassium, B vitamins, iron

3

Part 3

Easy, low cost, healthy
gluten-free meals

Tips for easy, healthy meals

- Eat colors – Eat fresh – Eat naturally GF
- Consume whole or enriched GF grains and products
- Eat minimally processed foods
- Choose products to make cooking easy
  - Frozen, canned, fresh
- Cook in volume and freeze
  - Cooking parties, fresh and ready meals
- Use GF specialty foods in moderation
- Exercise – WATER – Rest – Reduce stress
- Add nutritional supplement if necessary

Meals with a punch

- Yogurt with fresh fruit and granola or certified GF oats
- Whole grain pancakes or waffle breakfast sandwich
- GF Oatmeal, grits with dried fruit
- Semi-homemade soups with beans and grains
- Cornbread or corn cakes vs. GF breads
- Lean meat stews
- Steamed vegetables and salads with protein
- Sweet potatoes/yams vs. white potatoes

Gluten-Free Super Foods

Kefir

People with gluten-related disorders commonly experience issues with their digestive tract. The probiotic cultures in kefir can be beneficial to your digestive health. Dairy-free alternatives are available, such as coconut milk kefir and soy milk kefir. It makes a wonderful base for a smoothie. As it contains yeasts, kefir can be used to make a sourdough bread. It is also useful as a buttermilk substitute in baking.

Gluten-Free Super Foods

Flaxseed

This popular seed is high in omega-3 fatty acids. Studies have shown it has anti-inflammatory properties and has a mild estrogenic effect that may benefit people with chronic inflammation, skin and cardiovascular issues. It is rich in lignans that help soothe the intestinal tract. Flax (and chia) seeds can be used to provide structure in many GF baked goods in place xanthan gum or guar gum.

Gluten-Free Super Foods

Coconut

Coconut provides essential medium-chain fatty acids that protect and heal the body. Its meat is a densely packed source of fats and oils that have been studied for their anti-inflammatory and anti-pathogenic properties. Moreover, coconut meal can be ground into a flour that is excellent for gluten-free baking and cooking. The saturated oils are plant-based and do not have the same unhealthy effects that animal-based saturated fats do.

Gluten-Free Nutrition Guide

For more information about nutrition needs of persons with gluten-related disorders visit

www.gluten.org

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Nutrient Deficiencies and the Gluten-Free Diet

Updated July 2018

Nutritional Deficiencies in Celiac Disease and Non-Celiac Gluten Sensitivity
Nutritional deficiencies can occur in individuals with celiac disease because of both low intake and poor absorption. Once the intestine has had a chance to heal, nutrient absorption improves, but intake may remain a problem. In the case of non-celiac gluten sensitivity, nutrient absorption is not compromised, but again foods consumed may be low in nutrients. Nutrient deficiencies which are common in gluten-related disorders, and their gluten-free food sources are listed in the table below.

Low intake: Very few gluten-free grain products are enriched or fortified with the vitamins and minerals that gluten-containing grain products are. Deficiencies in these vitamins and minerals can occur as a result. Some people with celiac disease also have lactose intolerance during the early stages of their treatment on a gluten-free diet, so there may be low intake of many of the nutrients provided by dairy foods (such as calcium, magnesium, and Vitamin D).

Gluten-free and dairy-free food sources of these vitamins and minerals include:

Vitamins and Minerals	Food Sources
Thiamin	Sunflower seeds, black beans, tuna, green peas, lentils
Riboflavin	Mushrooms, cooked spinach, venison, soybeans
Niacin	Mushrooms, avocados, broccoli, tuna, salmon, chicken breast
Folate	Green leafy vegetables (spinach, romaine lettuce, turnip greens), asparagus, lentils, beets, broccoli
Iron	All types of meat, lentils, soybeans, tofu
Calcium	Green leafy vegetables (spinach, turnip greens, collard greens), sardines, almonds, sesame seeds, seaweed (nori, kelp)
Vitamin D*	Salmon, sardines, shrimp, cod
Magnesium	Green leafy vegetables (spinach, Swiss chard), pumpkin seeds, sunflower seeds, black beans

*There are only a few food sources of Vitamin D. If you live in a northern climate, a supplement may be needed.

Tips for Maintaining Adequate Nutrition

- Have a variety of foods
- Eat foods with color
- Eat whole grains
- Make calories count by choosing nutrient-dense foods.
- Use a vitamin/ mineral supplement if needed; consult with your personal healthcare team.
- See a dietitian at least once a year to review the adequacy of your diet.

Other Nutrition Tips

- Eat high fiber foods
- Eat low fat foods
- Limit salt
- Limit sugars
- Drink plenty of water

Poor absorption: When there is damage in the small intestine, the absorption of certain nutrients may be impaired. Vitamins and minerals which may be poorly absorbed include iron, calcium, folate, Vitamin B12, and all of the fat-soluble vitamins (Vitamin A*, Vitamin D, Vitamin E*, and Vitamin K*).

Gluten-free and dairy-free food sources of the nutrients not listed above include:

Vitamins	Food Sources
Vitamin B12	All types of meat and fish, eggs
Vitamin A*	Green leafy vegetables (spinach, turnip greens), sweet potato, carrots, red bell peppers
Vitamin E*	Green leafy vegetables (spinach, mustard greens, turnip greens), sunflower seeds, almonds, hazelnuts
Vitamin K*	Green leafy vegetables (kale, spinach, Swiss chard, collard greens), broccoli, Brussels sprouts

*An increased risk of these deficiencies only occurs when there is fat malabsorption.

Increasing Fiber on a Gluten-Free Diet

Eating enough fiber when following a gluten-free diet can sometimes be a challenge. However, there are many ways to increase your fiber intake because fiber is found in virtually all plant foods. Examples of gluten-free sources of fiber include:

- **Fruits:** apples, pears, oranges, figs, plums, prunes, berries
- **Gluten-Free Whole Grains:** amaranth, quinoa, buckwheat, quinoa, brown rice, teff, millet, corn
- **Legumes:** lentils, split peas, black beans, pinto beans, kidney beans, lima beans, garbanzo beans
- **Nuts & Seeds:** almonds, pistachios, pecans, flax seeds, sunflower seeds, chia seeds
- **Vegetables:** squash, broccoli, artichokes, peas, green leafy vegetables, carrots

Getting the Most Nutrients Out of Your Food

The nutrients in foods can vary a great deal. Here are some tips for making sure you're getting the most out of your food:

- **Eat Foods as "Whole" as Possible:** Whole, unprocessed foods have nutrients that processed foods no longer contain. Look for groceries around the perimeter of the store, because this is where most whole foods are located.

- **Cook Vegetables Lightly:** Nutrients are lost when a food is fried or boiled in water for an extended time. Lightly sauté, steam, or bake vegetables rather than frying them or boiling them in water.

- **Be Colorful:** Choose foods that are naturally bright in color. In general, each color represents a different nutrient. For example, while red tomatoes and pink watermelon have a nutrient called lycopene, orange sweet potatoes and pumpkin have a nutrient called beta-carotene. For a nutrient-rich and appetizing meal, try to include several different colors of fruits and vegetables.

This article has been assessed and approved by a Registered Dietitian Nutritionist.

Other helpful information is available at www.GLUTEN.org.

Advances in celiac disease are fast-paced. If this document is more than 2 years old, please visit our website for updated documents.

This information should not be used to diagnose or treat gluten-related disorders or other medical conditions. For questions about these conditions consult your healthcare team when considering this information.

Please consider your local GIG support group as another resource.

Gluten Intolerance Group (GIG)
31214 – 124th Ave. S.E.
Auburn, WA 98092-3667

Phone: 253-833-6655
Fax: 253-833-6675

www.GLUTEN.org
customerservice@GLUTEN.org

The Mission of the Gluten Intolerance Group is to empower the gluten-free community through consumer support, advocacy, and education.

To make a donation or become a volunteer to GIG, visit our website or call the office at 253-833-6655.

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Gluten-Free & Vegetarian

Updated April 2017

It can be challenging to be a vegetarian and follow a gluten-free lifestyle. However, it is absolutely possible. Depending on the degree of dietary restriction, as well as on varied individual food choices, some people who are both gluten-free and vegetarian may require the use of additional fortified foods or supplements to ensure adequate intakes of certain nutrients - especially vitamin B12, vitamin D, iron, and zinc. On the plus side, vegetarianism tends to naturally incorporate more vegetables and fruits into the diet, foods which most people need more of.

Restricted Foods (& Their Nutrients) in Vegetarian and Gluten-free Diets

TYPE OF DIET	RESTRICTED FOODS	NUTRIENTS OF CONCERN
Vegetarian (lacto-ovo)	Meat, poultry, fish/seafood	Iron, Zinc, Omega 3 fatty acids, Protein
Lacto-vegetarian	Meat, poultry, fish/seafood, eggs	Iron, Zinc, Omega 3 fatty acids, Protein
Ovo-vegetarian	Meat, poultry, fish/seafood, dairy products	Calcium, Iron, Zinc, Vitamin B12, Vitamin D, Omega 3 fatty acids, Protein
Vegan	All animal products including meat, poultry, fish/seafood, eggs, and dairy products	Calcium, Iron, Zinc, Vitamin B12, Vitamin D, Omega 3 fatty acids, Protein
Gluten-free	Wheat, rye, barley and their derivatives. Oats unless certified gluten-free.	B vitamins, Iron, Fiber

Did you know...?

- Many grains, including amaranth, buckwheat, millet, quinoa, sorghum, teff, and wild rice, contain higher levels of protein than wheat.
- Quinoa, specifically, is a complete protein that is a great whole grain to use.
- Gluten-free flours made from whole grains, seeds and beans, such as quinoa, teff, flaxmeal, almond, hazelnut, fava bean and garbanzo bean are highly nutritious and can be used to provide additional sources of iron, calcium, and B vitamins to a vegetarian diet.
- The soybean is a fabulous highly-versatile food that is naturally gluten-free and a high quality protein source.
- Processed soy products (and other “meat alternatives”) are often gluten-free, but read ingredient labels carefully to be sure.
- Malabsorption of vitamin D and calcium are common in advanced and untreated celiac disease, thus leading to bone disease (osteopenia, osteoporosis, osteomalacia). Vegans need to be especially careful to include sufficient levels of these nutrients.
- Non-dairy sources of calcium include: leafy greens (except spinach and swiss chard), calcium-set tofu, nuts, seeds, and the gluten-free grains teff and amaranth.
- A vegetarian, gluten-free diet eliminates many of the major sources of iron in a typical diet. For this reason, a supplement may be necessary.
- Zinc absorption is enhanced by animal proteins and therefore is often needed in supplemental form with vegetarians. This nutrient is also high in some vegetarian gluten-free foods like wild rice, teff, pumpkin/squash seeds, and navy beans.

Vegetarian Resources
Vegetarian Resource Group, www.vrg.org
Vegetarian Nutrition Dietetic Practice Group, www.vegetariannutrition.net

This article has been assessed and approved by a Registered Dietitian Nutritionist.

Other helpful information is available at www.GLUTEN.org.

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In 2014, Aldi was the first grocery store to offer their own private label line of gluten-free products with the liveGfree brand.

Almost 30 LiveGFree products can be found on their website including frozen products like: pizzas, chicken nuggets, stuffed sandwiches. Pantry items include: chocolate baking mix, pancake mix, yellow cake mix, macaroni and cheese, pasta, white bread. Snack items like: brown rice crisps, SnickerDoodle cookies, double chocolate brownie cookies

Take a look for yourself:
http://bit.ly/Aldi-liveGfree

Aldi Gears Up For Another Celiac Awareness Month

Beginning May 8th Aldi will be unveiling a number of new products in their private label liveGfree line.

According to an Aldi employee in the Milwaukee area, these new products are part of their "Aldi Finds" selection. Aldi Finds inventory can vary by location and are available for a limited time because new Finds are introduced each week. These items are stocked no earlier than the Sunday night prior to the Wednesday ad release. Aldi recommends checking with your store's handbills to know when selected items will be on sale. Popular items [cheesecake] will sell out quickly, so shop early.

I'm seeing a lot of hoarding-type behavior over these products. People swoop in and buy up a bunch of items, leaving little for others. Honestly, it's a bit troublesome to me.

I'm noticing several of this year's offerings also hold gluten-free certification from the Gluten-Free Certification Organization (GFCO).

New items to look for:

- Chocolate or glazed gluten-free donuts
- Spinach or cheese ravioli
- Chicken & broccoli Alfredo or chicken florentine skillet meals
- Gluten-free bites in PB&J, coconut, and dark chocolate coconut.
- Gluten-free linguini or fettuccine
- Seeds and grains bread
- Cinnamon raisin bread
- Hot dog or hamburger buns
- Supreme cheesecake sampler
- Butter garlic or seasoned croutons
- Empanadas available with beef, chicken or vegetable

What Oats Through Yonder Package Breaks?

Oats are complicated when it comes to their gluten-free status. They require some additional knowledge and investigation before determining if they are right for you.

To learn more about oats: http://bit.ly/GIGECW-PureOats

Oat Consumption by Celiac Disease Patients: Outcomes Range from Harmful to Beneficial, Depending on the Purity of the Oats

"So in summary, oats as part of a CD patient diet can provide benefit or cause harm. The outcome appears dependent on the purity of the oats consumed. It remains possible some CD patients are sensitive to the oat protein avenin, explaining inconsistent clinical trial outcomes, but increasingly the evidence appears on the side of CD patients simply getting 'glutened' by contaminated GF labeled oats. Regardless though, adding oats deemed GF by these new high standards to CD patient diets, may safely provide the benefit of broader dietary options, leading to improved GFD adherence and quality of life, while bolstering nutritional deficiencies and potentially aiding heart health. "

Read the entire 2019 PepsiCo study: http://bit.ly/2ZK8gbH

the sweet & salty pig

Recently, a Facebook friend shared this post from The Sweet & Salty Pig in Fond du Lac. *"Gluten-free options available"* piqued my curiosity, so I sent an email asking a few questions:

> *Can you tell me about the policies and procedures you have implemented to mitigate gluten cross-contact?*
>
> *Do you have a separate area to prepare foods for special diets?*
>
> *Do you have separate cutting boards, pots/pans, and utensils to prepare my meal?*
>
> *Do you use a shared grill and/or fryer for cooking regular meals and allergen-free meals?*
>
> *How will my meal be labeled and delivered - is it distinguishable from non-gluten-free items by allergen pick?*
>
> *Your Blueberry Peach Baked Oatmeal caught my eye. It sounds amazing. "Old fashioned" oats are described - are the oats labeled gluten-free, or certified gluten-free, or even better yet purity protocol gluten-free oats?*

Allison's response:

> *I looked at our oats container and it does not say gluten free. They are Kroger old fashioned oats.*
>
> *As far as preparation, when notified of an allergy, we make sure we use clean utensils, pans, a different cutting board and area to make the dish. We do have limited fryer space, so the oil is shared with gluten and non gluten items alike. We label allergy meals with a special pick so the expeditor knows it is special and not to contaminate it.*

Their response about food prep was exactly what I was looking for, however their knowledge of oats is not optimal. Not wanting to pass up an educational opportunity, I thanked them for their response and replied with additional information on oats and respectfully cautioned against the Kroger oats as they are not suitable for those following a gluten-free diet. They've not removed the Blueberry Peach Bake Oatmeal from their gluten-free menu. I did suggest they use GFCO certified, purity protocol GF Harvest Oats.

GLUTEN INTOLERANCE GROUP of East Central Wisconsin

CHOCOLATE CHIP COOKIES

Ingredients

7 TBSP butter

¼ cup white sugar

¼ cup light brown sugar

1 egg, large

2 tsp vanilla (Penzey's) *Double the vanilla of the original recipe

1½ cups Pamela's Baking & Pancake Mix

1 cup semi sweet chocolate chips (1½ cups chips for chocolate lovers) (Hershey's)

Optional: ½ cup chopped nuts

Recipe: Pamela's Products

Found on bag of Pamela's Baking & Pancake Mix

http://bit.ly/2V222jQ

If you are making this recipe for a gluten-free guest, please read our

Guide to Gluten Cross-Contact

http://bit.ly/GIGECW-Gluten-CC

Directions:

Preheat oven to 350°.

Cream butter and sugars together. Mix in egg and vanilla. Add Baking & Pancake Mix and combine. Mix in chocolate chips and nuts, if using. Place scoops of dough (1 TBSP sized) on parchment-lined or greased cookie sheet. Lightly flatten. Bake in the top third of the oven for approximately 12 to 16 minutes, depending on size. Let cookies cool slightly and use a spatula to remove from cookie sheet.

For pan cookies, bake in a greased 9"x12" pan for 20 to 25 minutes. Cut into bars after cooling.

Freeze for quick cookies: Use a small ice cream scooper or a tablespoon to form dough balls. Place on a greased cookie sheet, flatten and put in freezer. When frozen, remove from cookie sheet and store in a freezer bag. For hot, fresh cookies, remove from freezer, place dough on a greased cookie sheet and bake in a preheated 350° oven for 15 minutes.

Variations: Try white chocolate chips, milk chocolate chips, or butterscotch chips. Try pecans or macadamia nuts.

GLUTEN INTOLERANCE GROUP of East Central Wisconsin

OATMEAL SCOTCHIES

Ingredients

1 1/4 cups Gluten-Free All-purpose flour. (Krusteaz All Purpose Flour)

1 teaspoon baking soda

1/2 teaspoon salt

1/2 teaspoon ground cinnamon (Penzey's)

1 cup (2 sticks) butter, softened

3/4 cup granulated sugar

3/4 cup packed brown sugar

2 large eggs

2 teaspoon vanilla extract (Penzey's) or grated peel of 1 orange

3 cups Certified Gluten-Free Purity Protocol Oats (quick or old-fashioned). (GF Harvest Organic Old Fashioned Rolled Oats)

1 2/3 cups (11-oz. pkg.) (Hershey's Butterscotch Chips)

Oats Information

Most medical professionals say gluten-free oats can be tolerated in limited amounts [up to 1/2 cup per day for adults]. They also suggest restricting oats for one year for those newly diagnosed.

Some celiacs will react to the protein found in oats [avenin], just as they react to the proteins in wheat, barley, rye.

If you choose to add oats to your diet, please make sure they are gluten-free purity protocol oats.

To learn more, please read our oats article.

http://bit.ly/GIGECW-PureOats

Original Recipe: Nestle
http://bit.ly/2Vfpu1P
Gluten-Free Conversion by Peggy Klapperich

If you are making this recipe for a gluten-free guest, please read our

Guide to Gluten Cross-Contact
http://bit.ly/GIGECW-Gluten-CC

Preheat oven to 375° F.

Combine flour, baking soda, salt and cinnamon in small bowl. Beat butter, granulated sugar, brown sugar, eggs and vanilla extract in large mixer bowl. Gradually beat in flour mixture. Stir in oats and morsels. Drop by rounded tablespoon onto ungreased baking sheets.

Bake for 7 to 8 minutes for chewy cookies or 9 to 10 minutes for crisp cookies. Cool on baking sheets for 2 minutes; remove to wire racks to cool completely.

Pan Cookie:

Grease 15 x 10-inch jelly-roll pan. Prepare dough as above. Spread into prepared pan. Bake for 18 to 22 minutes or until light brown. Cool completely in pan on wire rack. Makes 4 dozen bars.