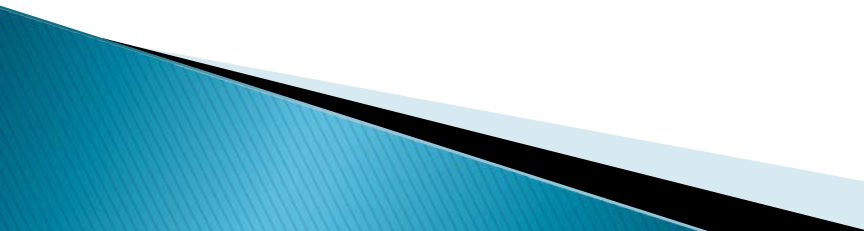


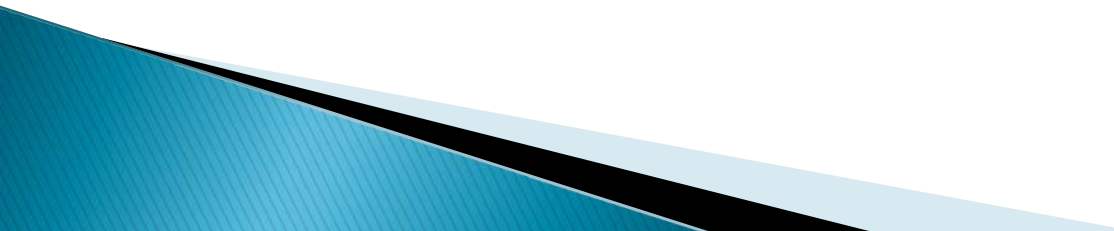
Celiac Disease

The Hidden Epidemic

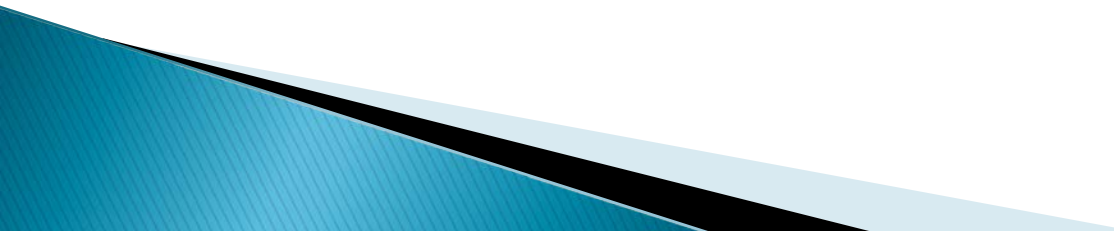
Goals and Objectives

- ▶ Define celiac disease
 - ▶ Understand the pathophysiology of celiac disease
 - ▶ Recognize the signs and symptoms, and complications of celiac disease
 - ▶ Discuss the diagnostic parameters of celiac disease
 - ▶ Assist patients with the management of celiac disease
- 

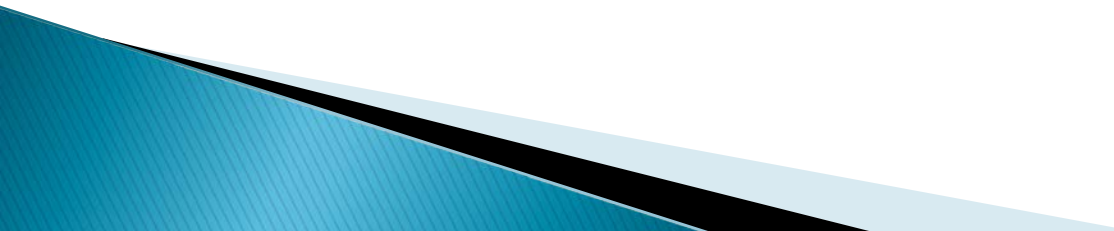
Historical Facts

- ▶ Ten thousand years ago, humans were not ingesting grains
 - ▶ The diets of hunter-gatherers consisted mainly of meats and vegetables
- 

Define Celiac Disease

- ▶ Sometimes called Celiac sprue, gluten-sensitive enteropathy
 - ▶ An autoimmune disease that will attack the body itself
 - ▶ The trigger for this destruction is gluten
- 

What is Gluten?

- ▶ Gluten is the term for the storage of wheat protein
 - ▶ This protein is found in wheat, barley ,rye, contaminated oats
 - ▶ It acts as the “glue” that holds foods together
 - ▶ It’s also used as an adhesive and in making seasonings, especially MSG
- 

Celiac disease is hereditary

- ▶ It's in your gene pool
- ▶ It's chronic
- ▶ It's autoimmune

The Gluten Fraction

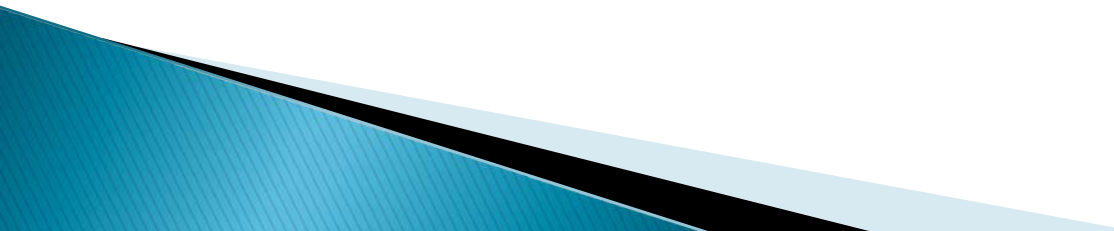
- ▶ Problem prolamins – the off-limits grains

1. Wheat
2. Rye
3. Barley

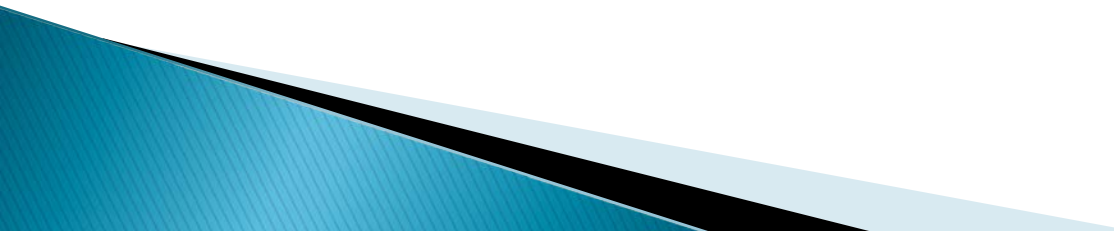
- ▶ “Safe” Prolamins

1. Corn
 2. Rice
 3. oats
- 

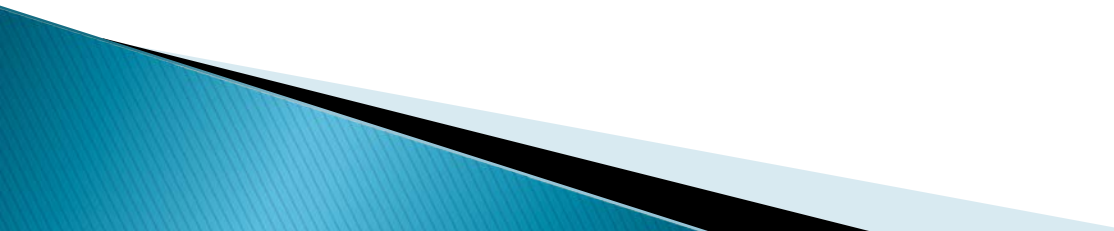
Pathophysiology

- ▶ Environmental factor
 - ▶ Genetic predisposition
 - ▶ Immunological
- 

Environmental

- ▶ Gluten
 - ▶ Rye (secalins)
 - ▶ Wheat (gliadins)
 - ▶ Barley (hordeins)
- 

Genetic predisposition

- ▶ Family history
 - ▶ First-degree relatives
 - ▶ Second-degree relatives
 - ▶ Human leukocyte Antigens
- 

Immunologic Factors

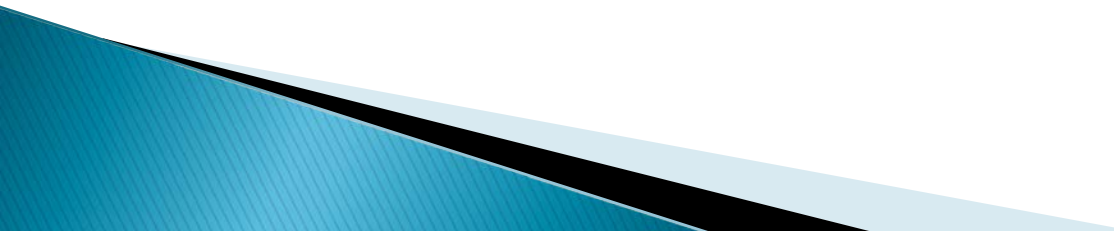
- ▶ Mediated inflammation of the intestine is present dealing with potentially toxic environment.

Inflammatory Response

- ▶ Villous atrophy (flattened villi)
- ▶ Crypt Hyperplasia
- ▶ Intense inflammatory reaction

Immunological Triggers

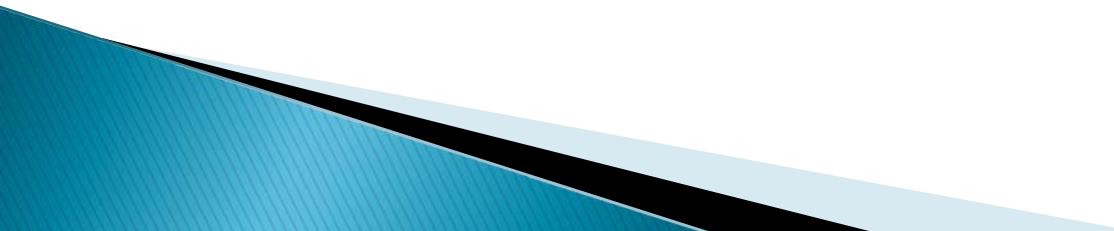
- ▶ Gluten
 - ▶ But what triggers celiac disease into action?

 - ▶ Gluten exposure in infancy
 - ▶ Loss of tolerance to gluten
 - ▶ A serious physical injury or emotional event?
 - ▶ A trauma to the body, like surgery, childbirth or could it be a viral infection
- 

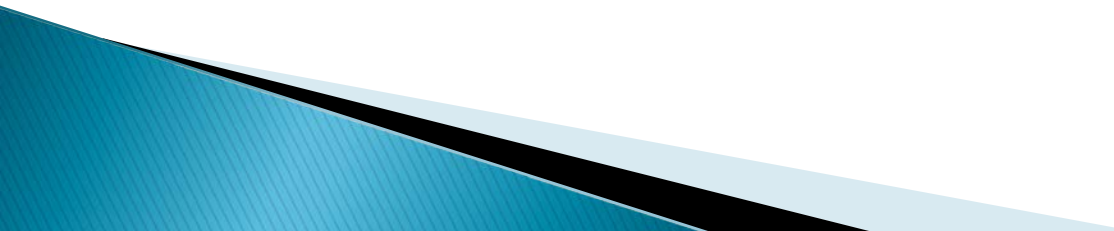
Clinical Presentation

- ▶ Varies with age
 - ▶ Primarily affects the small intestine
- 

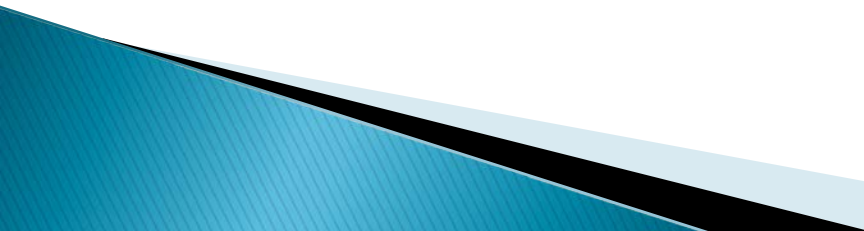
Classic Symptoms in Children

- ▶ Dental disorders
 - ▶ Poor muscle tone
 - ▶ Irritability
 - ▶ Listlessness
 - ▶ Nutritional deficiencies
 - ▶ Rickets or osteopenia
- 

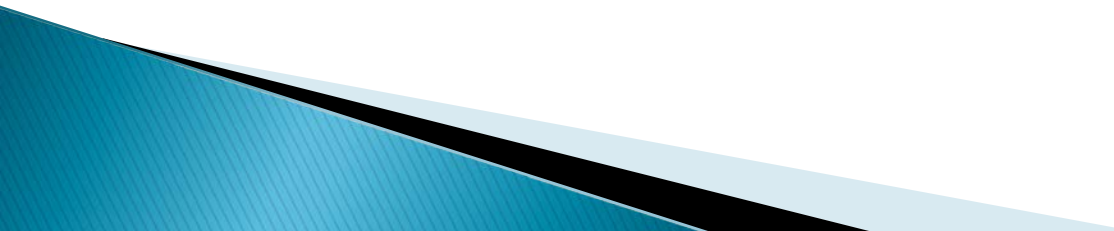
Classic Symptoms in Children

- ▶ Diarrhea
 - ▶ Abdominal distension
 - ▶ Failure to thrive
 - ▶ Onset in children prior to their 2nd birthday
 - ▶ During puberty
 - ▶ Adults in their late 40s and 50s
- 

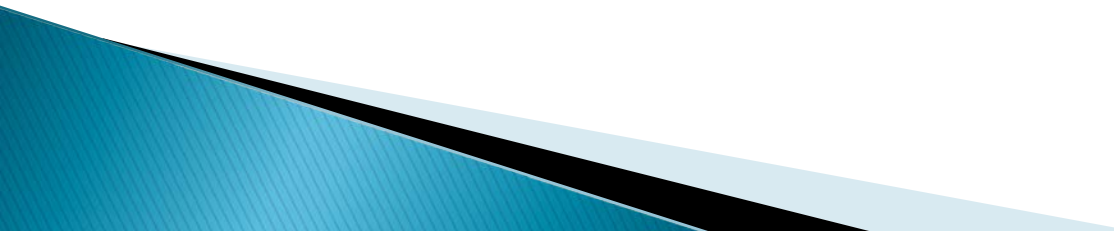
Classic Adult Symptoms:

- ▶ GI distress
 - ▶ Constipation
 - ▶ Steatorrhea
 - ▶ GERD
 - ▶ Dyspepsia
 - ▶ Anemia or nutritional deficiencies
 - ▶ Short stature
 - ▶ Weight loss/weight gain
 - ▶ Clubbing of fingers and toes
- 

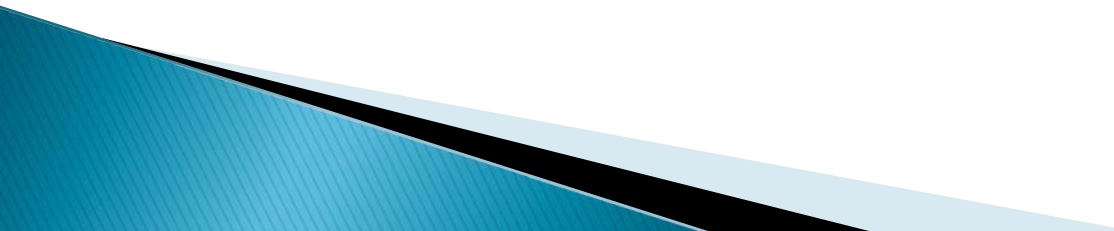
Other Adult Symptoms

- ▶ Selective IgA deficiency
 - ▶ Inflammatory Bowel Diseases; Crohn's and ulcerative colitis
 - ▶ Grave's disease, Hashimoto's thyroiditis
 - ▶ Systemic lupus
 - ▶ Autoimmune liver diseases like primary biliary cirrhosis; autoimmune hepatitis
- 

Atypical presentation of Celiac Disease

- ▶ Iron deficiency anemia
 - ▶ Reduced bone mineral density
 - ▶ Chronic fatigue
 - ▶ Irritable bowel
 - ▶ Dyspepsia
 - ▶ Infertility
 - ▶ Miscarriage
 - ▶ Pubertal delay
 - ▶ Aphthous stomatitis
- 

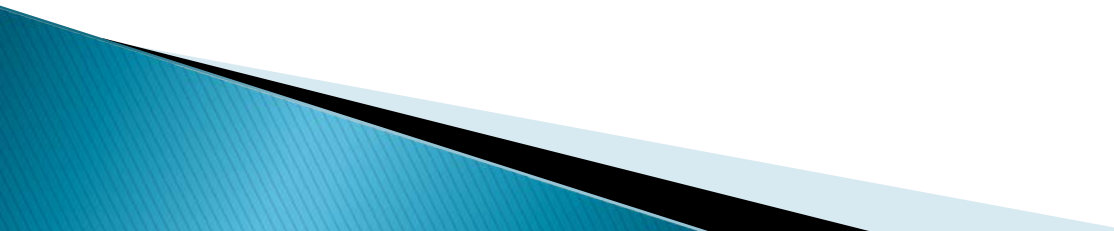
Associated Conditions: Possibly gluten-dependent

- ▶ Insulin dependent DM
 - ▶ Autoimmune thyroidites
 - ▶ Autoimmune hepatitis
 - ▶ Primary biliary cirrhosis
 - ▶ Sjogren syndrome
 - ▶ Addison's disease
 - ▶ Dilatative cardiomyopathy
 - ▶ Autoimmune atrophic gastritis
- 

A Unique Presentation of Celiac Disease

- ▶ Dermatitis Herpetiformis

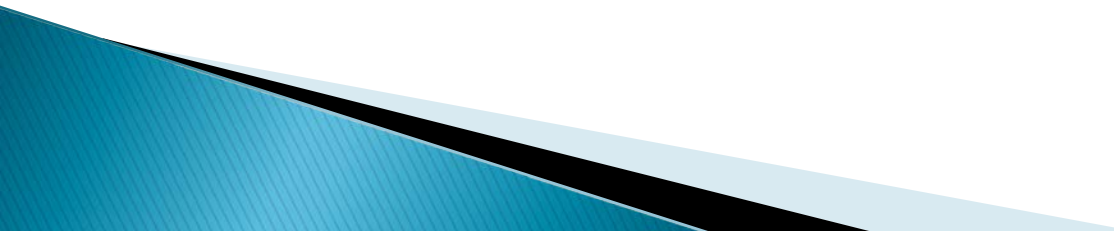
Other conditions resulting from untreated celiac disease

- ▶ Type I Diabetes
 - ▶ Fibromyalgia
 - ▶ Thyroid problems
 - ▶ Osteoporosis
 - ▶ Rheumatoid arthritis
 - ▶ Folate, potassium, and vit B12 deficiencies
 - ▶ Intestinal cancers
- 

Mood and Behavior Disorders

- ▶ ADHD
- ▶ Depression
- ▶ Bipolar disorder

Childhood Syndromes Associated with Celiac Disease

- ▶ Down's syndrome
 - ▶ Turner syndrome
 - ▶ Williams syndrome
- 

Underdiagnosis / Misdiagnosis of Celiac Disease

- ▶ Not many of us know enough about Celiac Ds
- ▶ Not a lot of education about the disease
- ▶ Very little research being published in medical journals

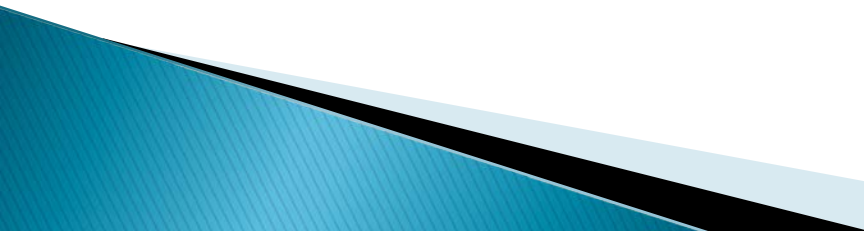
“Iceberg” Theory

- ▶ Tip of the iceberg
 - 10–30% with classic symptoms such as diarrhea, gas, bloating and nutritional deficiencies
- ▶ Hidden below the water line
 - 70–90% with atypical symptoms or no symptoms at all

Celiacs who ingest the gluten protien

- ▶ Suffer from multisystem conditions:
 - Endocrine
 - Orthopedic
 - Reproductive
 - Hepatic
 - Hematological
 - Musculoskeletal
 - Neurological

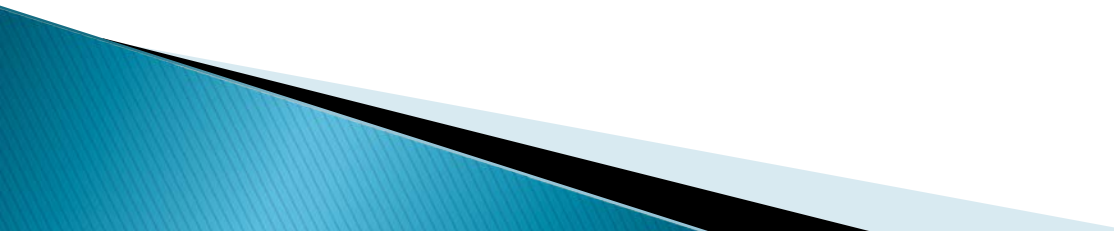
Diagnosis of Celiac Disease

- ▶ First you have to think about it
 - ▶ Not everyone with celiac ds exhibits GI sxm's, or any sxm's at all
 - ▶ diagnosing celiac ds is a multistep process involving blood tests and a small intestine bx
 - ▶ Failure to treat this ds can lead to even more severe health problems
- 

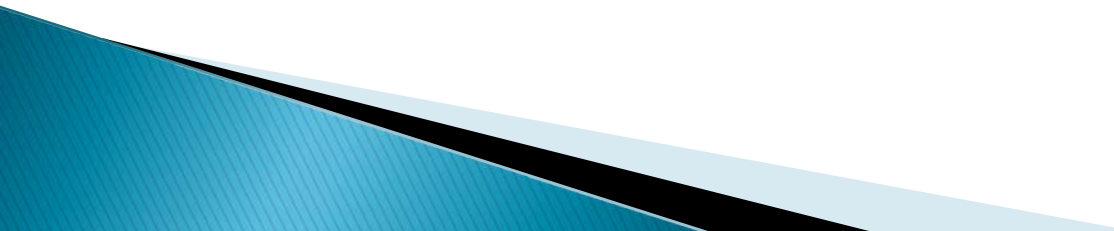
Time to Diagnosis

- ▶ Europe: 4–6 weeks
- ▶ United States: **10 –13 years!**

Clinicians who Miss the Boat

- ▶ Anemia
 - ▶ Irritable bowel syndrome
 - ▶ Psychological dysfunction
 - ▶ Diarrhea
 - ▶ Inflammatory bowel disease
 - ▶ Diabetes
 - ▶ Spastic colon
 - ▶ Ulcers
 - ▶ Viral gastroenteritis
- 

Cont. Misdiagnoses

- ▶ Chronic fatigue syndrome
 - ▶ Weight loss
 - ▶ Allergies
 - ▶ Parasites, amoebae, other infections
 - ▶ Gallbladder disease
 - ▶ Cancer, lymphoma, digestive disorders
 - ▶ Colitis
 - ▶ Lactose intolerance
 - ▶ GERD
- 

Step one in the Dx of Celiac DS

- ▶ Obtaining the celiac panel (serology testing)
- ▶ Your panel should include:
 1. Antiendomysial antibody (IgA EMA)
 2. Total serum IgA
 3. Tissue transglutaminase (tTG-IgA , tTg-IgG)
 4. Antigliadin antibody (AGA-IgA & AGA-IgG)

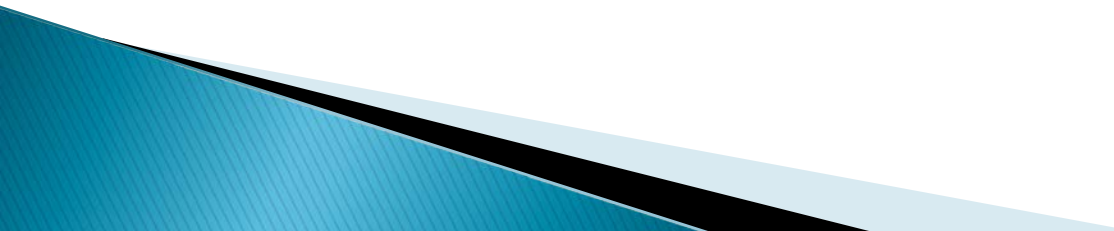
Step two in the Dx of Celiac DS

- ▶ Endoscopy and small tissue biopsy

Step three in the Dx of Celiac Ds

- ▶ Genetic testing

Treatment

- ▶ Currently, the only scientifically proven treatment of celiac disease is strict lifelong adherence to a gluten-free diet
 - ▶ Eliminate all foods and medications containing gluten from wheat, rye, and barley
- 

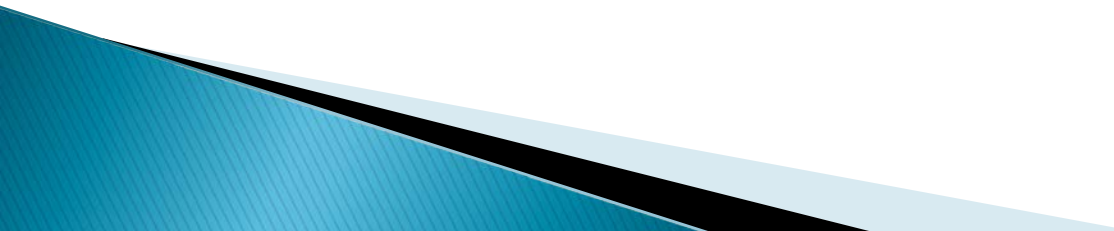
Vitamin and mineral deficiencies

- ▶ Patients with celiac disease should be assessed for vitamin and mineral deficiencies
 - ▶ Also look for Vit D and Calcium deficiency
- 

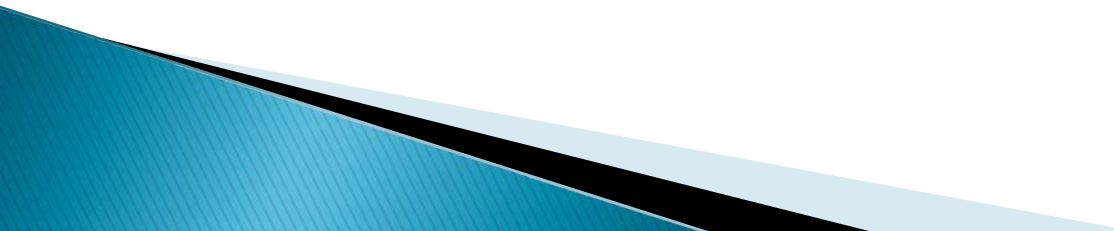
The Importance of Label Reading

- ▶ Instruct your patients to carefully read all labels
- ▶ Recognize hidden sources of gluten
- ▶ Check with the manufacturers
- ▶ Do not forget
 - Hidden sources
 - Contamination/contact

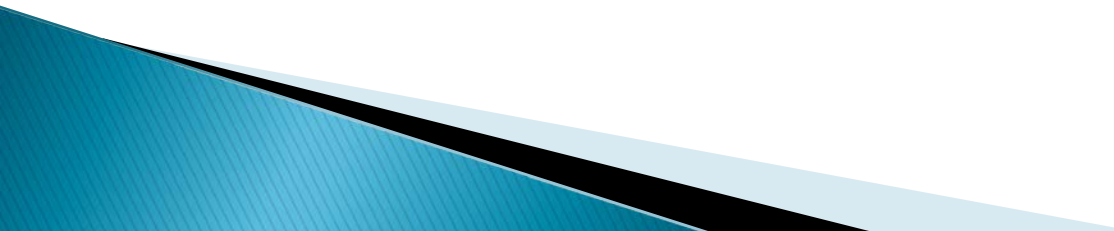
Many other products not commonly thought about

- ▶ Beauty products
 - ▶ Play-Doh
 - ▶ Stamp and envelop adhesive
 - ▶ Prescription drugs and over the counter meds
- 

How Much Gluten Can Hurt You?



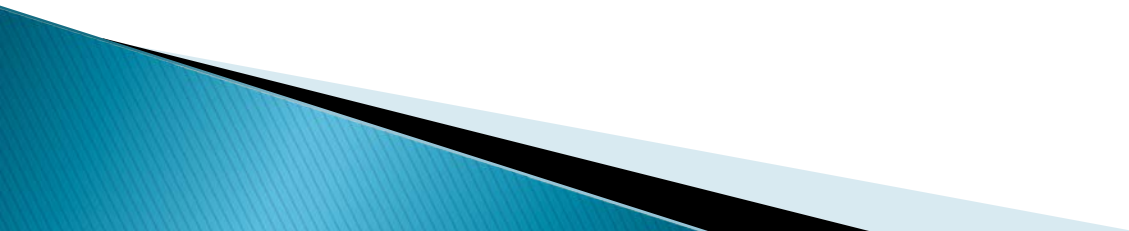
Avoiding Cross-Contamination

- ▶ Oversee food preparation like a hawk
 - ▶ Ask tons of questions
 - ▶ Read all labels carefully
 - ▶ Educate your friends
 - ▶ Keep separate utensils and maintain their integrity
- 

Follow Up

- ▶ All patients with celiac disease should be followed long term
- ▶ Serologic markers may be used to monitor compliance

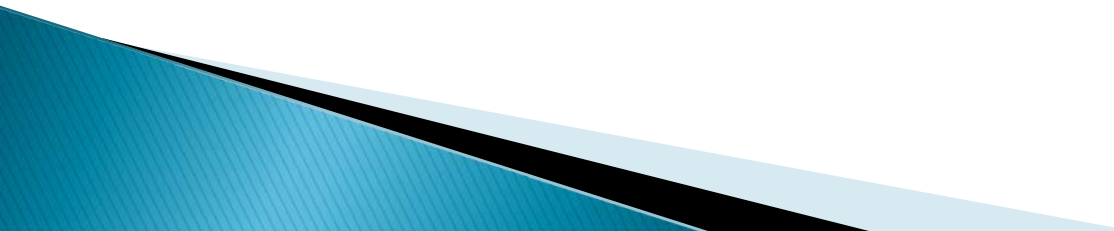
Follow- Up Biopsy



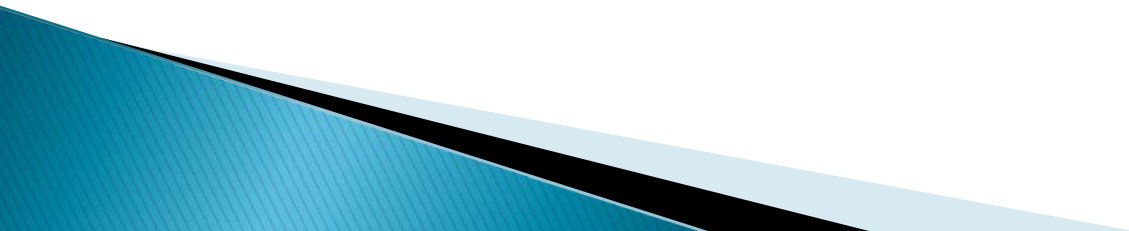
The Biggest Responsibility

- ▶ **EDUCATION**
 - ▶ **EDUCATION**
 - ▶ **EDUCATION**
- 

The Extra Mile

- ▶ Talk to friends, family members and coworkers about celiac disease
 - ▶ If your child has celiac disease, hold a school meeting to educate teachers, staff, and fellow parents about the seriousness of this disorder
 - ▶ You may need to include G-free items on the cafeteria menu
- 

Conclusion:



Selected References

- ▶ Hasselbeck, E.; The G. Free Diet: A gluten-free survival Guide, New York, Hachette Book Group; 2009
 - ▶ Green, PHR, Jones,R. ; Celiac Disease: a hidden epidemic, New York, Harper Collins, 2006
 - ▶ Mangione R, Patel, PN; Caring for patients with Celiac disease; The role of the Pharmacist; The American Pharmacists Association, 2008
 - ▶ Presutti, JR, Congemi, JR, Cassidy, D, Hill, D; Celiac Disease, American Family Physician, 2007; Vol 76, number 12
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