Celiac Disease: Common Myths and Misconceptions

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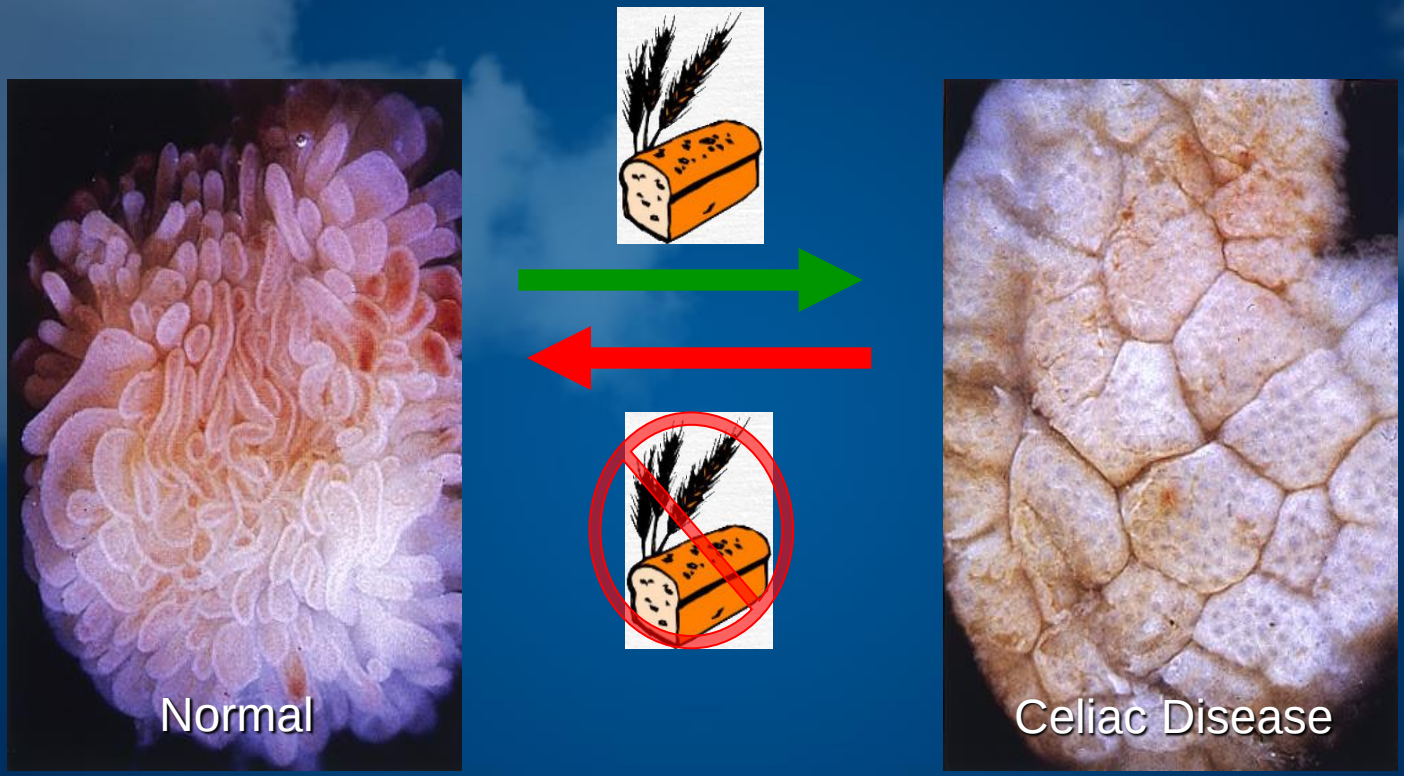
Disclosures

- None

Celiac Disease: Essentials



- caused by ingestion of gluten
- genetically susceptible individuals (high risk groups)

Celiac Disease and Children:
Common Myths and Misconceptions

"My baby can be born with celiac disease."

MYTH

Celiac Disease: Necessary Factors

A baby is not born with celiac disease, but may be born with *the potential* to develop celiac disease…

Genes

Gluten

Immune Response

Celiac disease

Celiac Disease and Children: Newborns…

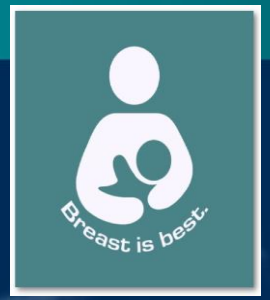
Until gluten is introduced into the diet, even a baby with celiac genes cannot get celiac disease.

Celiac Disease and Children: *Myths and Misconceptions*

"Breastfeeding will decrease the chance my child will develop celiac disease."

FACT

Celiac Disease and Breastfeeding



- Breastfeeding has a protective effect on the development and presentation of celiac disease

Infants that are breast fed when gluten is introduced are half as likely to develop celiac disease.

- with milder (silent) symptoms

Peters U et.al., Ann Nutr Metab 2001; 45:135--42

Faith-Magnusson K et.al., Pediatr Allergy Immunol 1996; 7:1-5

D'Amico MA. et.al., Clin Pediatr 2005; 44(3):249-258

Ivarsson A. et.al., Am J Clin Nutr 2002; 75:914-921

Celiac Disease and Children: *Myths and Misconceptions*

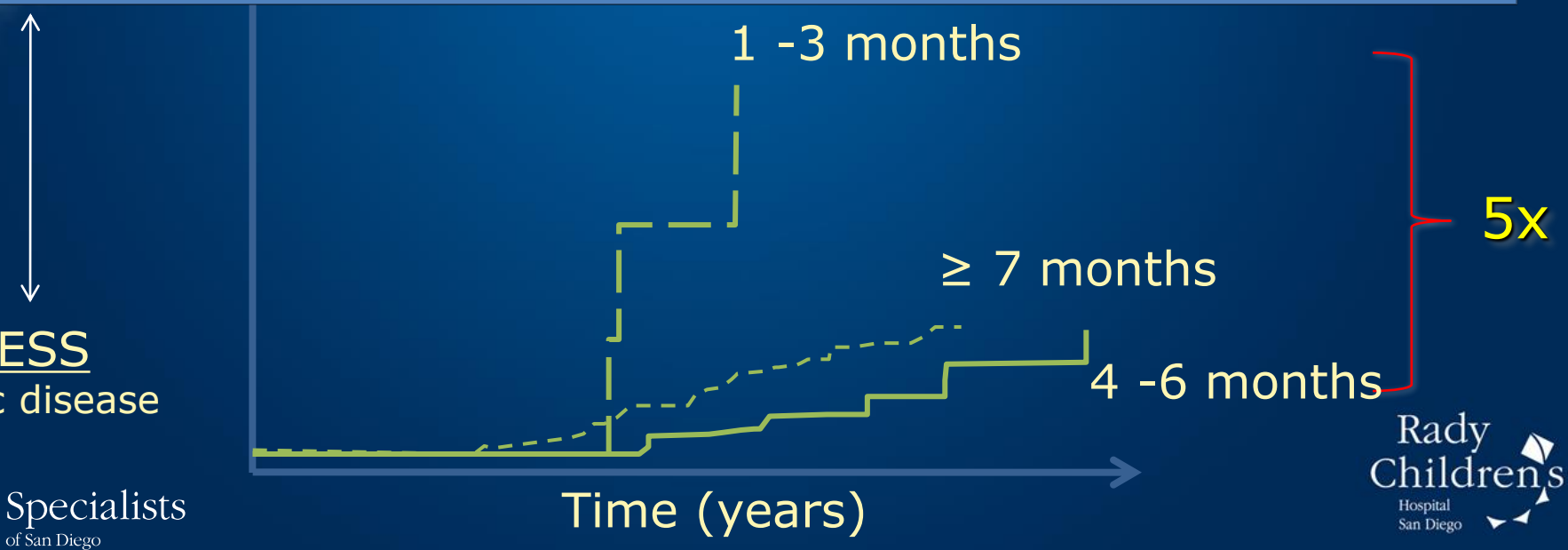
"Celiac disease risk is lessened by delaying introduction of gluten into the diet ."

FACT

Timing of Gluten Introduction and Risk of Celiac Disease

- 1560 at risk children followed over time

It is recommended that gluten be added to an infant's diet between 4 and 6 months of age.



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Adapted from Norris JM et.al., JAMA 2005; 293:2343-

Celiac Disease and Children:
Facts, Fiction, and Controversies

"A child must have gastrointestinal symptoms in order to have celiac disease."

MYTH

‘Classic’ Presentation of Celiac Disease

- “Malabsorption” Symptoms
  - Diarrhea
  - Vomiting
  - Belly pain
  - Loss of appetite
  - Failure to Thrive
- Starts ~ 6 - 24 months, following gluten introduction into diet

Non-gastrointestinal Manifestations of Celiac Disease

MOUTH - dental enamel defects, mouth sores

GROWTH - short sta

DEVELOPMENT -

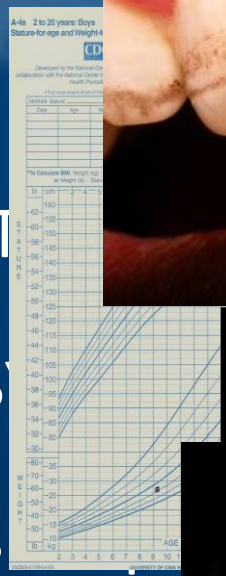
MUSCULOSKELET

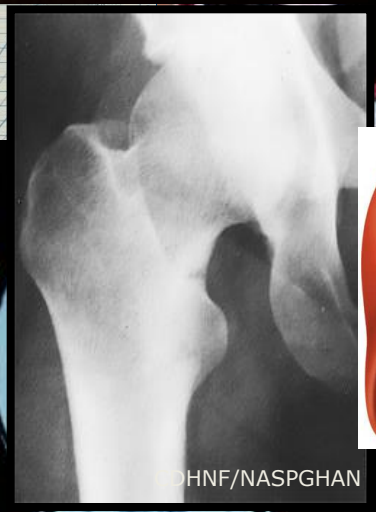
NEUROLOGIC/PS ssion

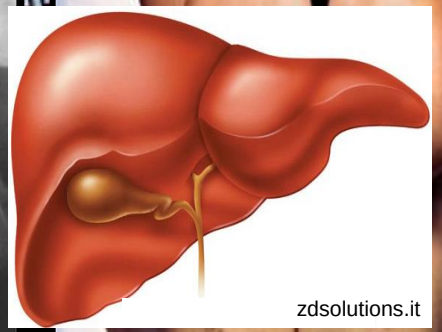
SKIN - dermatitis

LIVER - inflammation o

BLOOD - iron deficienc







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Silent Celiac Disease

- NO SYMPTOMS even though there is damage to the lining of the gastrointestinal tract
- Often found in populations at high risk for celiac disease
  - Close relatives of people with celiac disease
  - Other conditions associated with celiac disease
    - Type 1 diabetes mellitus
  - Other syndromes associated with celiac disease
    - Down syndrome

Celiac Disease and Children: *Myths and Misconceptions*

"My child has a hearty appetite and is overweight, so she cannot have celiac disease."

MYTH

Childhood Obesity and Celiac Disease

- Among 143 children diagnosed with celiac disease at Children's Hospital Wisconsin 1986-2003
  - 11% overweight
  - 4.5% obese

www.sciencesiteoftheday.com

Celiac disease can occur in children with various body shapes and sizes.

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Telega et.al. Arch Ped Adoles Med. 2008; 162 (2) 164-168
Venkataasubramani et al Obesity in pediatric celiac disease

Celiac Disease and Children: *Myths and Misconceptions*

"If my child has a positive TTG blood test for celiac disease, this means he has celiac disease."

MYTH

How to Test for Celiac Disease in Children

Step #1:

Celiac Disease antibody screen: for kids >2 yo

Simple blood test

- Check levels of tissue transglutaminase (TTG IgA)
- Check total amount of IgA

Note: for children younger than two years of age

Celiac Disease antibody screen: for kids <2 yo

- Simple blood test
  - Check levels of **anti-gliadin** antibodies

Celiac Disease and Diagnosis

- Sometimes the TTG screening test is ***negative*** even when a child *has* celiac disease…
  - If child is not eating gluten
  - If child < 2 years old, not enough 'auto-antibody' produced
  - If child has IgA deficiency

- Sometimes the TTG screening test is ***positive*** when a child *does not have* celiac disease…
  - When there are other autoimmune conditions
  - In the presence of chronic liver disease
  - Transient positivity in childhood

Celiac Disease and Diagnosis

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  - Child is not eating gluten
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  - Transient positivity in childhood

Caution:

Celiac Disease should not be diagnosed based on single blood test ALONE!!!

How to Test for Celiac Disease in Children

Step #1:

Celiac Disease antibody screen

- Simple blood test
  - Check levels of tissue transglutaminase (TTG IgA)
  - Check total amount of IgA

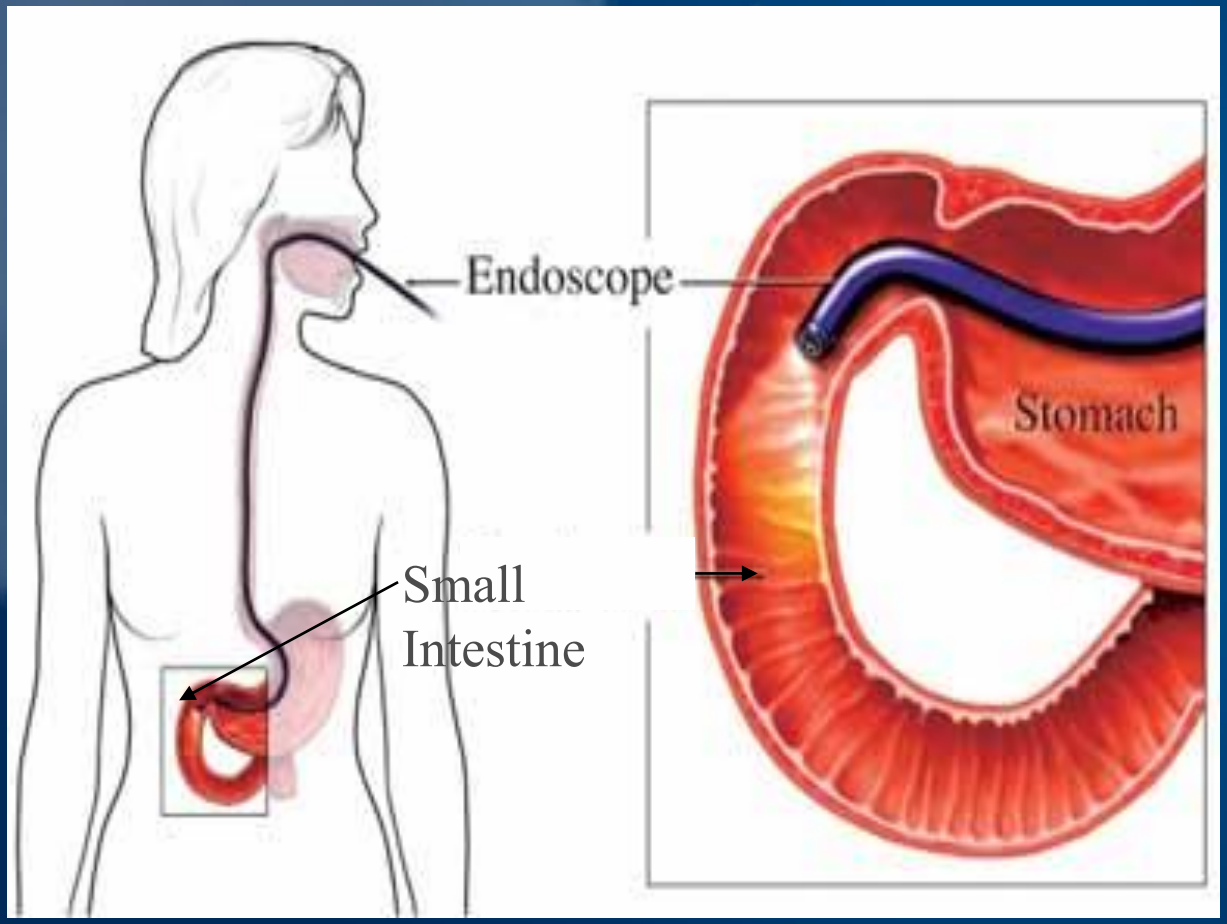
If TTG is elevated

Step #2:

Upper endoscopy with biopsies

- Invasive procedure to sample small intestinal tissue
  - Look for evidence of tissue damage

Upper Endoscopy with Biopsies in Children



- Confirm celiac disease diagnosis
- Establish level of damage to the lining of the GI tract
- Evaluate for other problems

Celiac Disease and Children: *Myths and Misconceptions*

"If celiac serology is negative, my child will never develop celiac disease."

MYTH

Genetic Testing for Celiac Disease

- HLA class II genes known as *HLA-DQ2* and *HLA-DQ8* located on chromosome 6p21
- Approximately 95% of CD patients express *HLA-DQ2*, and the remaining patients are usually *HLA-DQ8* positive. However, the *HLA-DQ2* allele is common and is carried by approximately 30% of Caucasian individuals
- *HLA-DQ2* or *HLA-DQ8* is necessary for disease development but is not sufficient for disease development; its estimated risk effect is only 36-53%

Genetic Testing for Celiac Disease

In high-risk, asymptomatic children with negative TTG, consider HLA testing:

If HLA DQ2/DQ8 positive:

- Continue surveillance while asymptomatic (frequency unclear but every 3 years reasonable)
- If symptomatic proceed with endoscopy

If HLA DQ2/DQ8 negative:

- Development of CD highly unlikely, discontinue screening but clinical review if symptoms develop

Celiac Disease and Children: *Myths and Misconceptions*

"My child will eventually grow out of celiac disease."

MYTH

Celiac Disease is Lifelong

- Celiac Disease diagnosis must be confirmed
  - Positive screening blood tests (TTG)
  - Biopsy of intestine shows celiac disease
  - Improvement in symptoms after GFD initiated
- Children can not "grow out of celiac disease"
  - Need for a gluten free diet is lifelong, although inflammation of the intestines and other manifestations do heal!
  - It is not OK to have gluten-containing foods every once in awhile

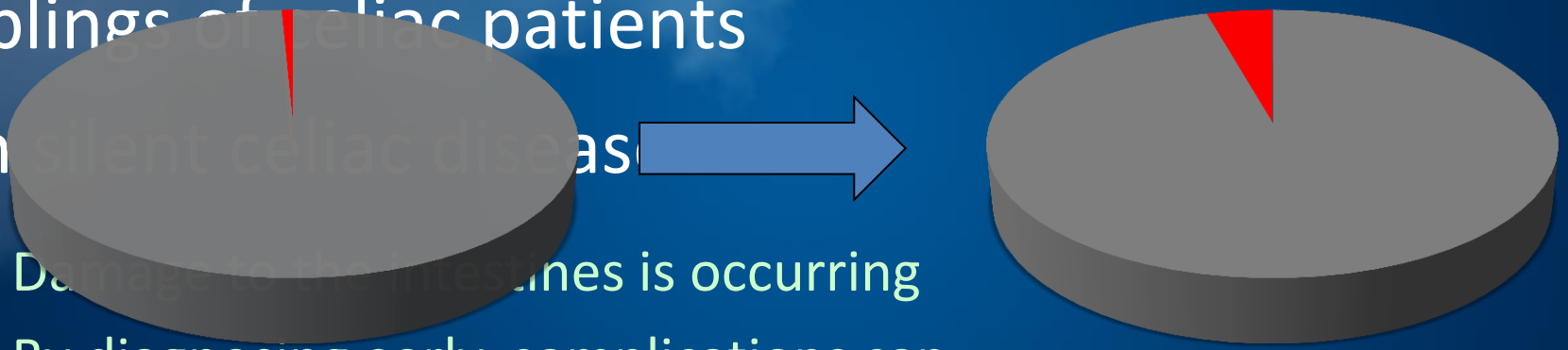
Celiac Disease and Children:
Myths and Misconceptions

"I have a child with celiac disease. My other two children don't have symptoms, so I do not need to get them tested."

MYTH

Celiac Disease in Family Members

- One study found 23% of 168 siblings with no symptoms had celiac disease
- Silent celiac disease 24 - 48 times more frequent in siblings of celiac patients
- In silent celiac disease
  - Damage to the intestines is occurring
  - By diagnosing early, complications can be prevented



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Bardella, M.T. et.al, Digestion 2007;75:182-187

Celiac Disease in Family Members

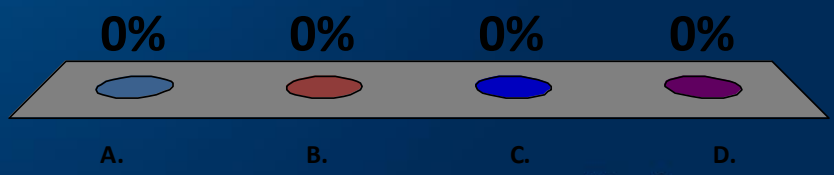
Screening recommendations:

- Screen family members; screen siblings @ 3 years old
- Even if initial celiac disease screen is negative, siblings should be screened every 2 years (or sooner) if celiac disease manifestations arise
- Consider genetic testing at the time of initial screening; if sibling does not have DQ2 or DQ8 gene, further screening is not necessary

Question #1

Who should not be screened for celiac disease?

A. 4yo sibling of celiac disease patient
B. Overweight child with persistent abdominal pain
C. Child with type 1 DM and negative DQ2/DQ8 genetic testing
D. Sibling of CD patient with negative TTG 1 year ago and new GI symptoms



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Question #1

Who should not be screened for celiac disease?

A. 4yo sibling of celiac disease patient

B. Overweight child with persistent abdominal pain

C. Child with type 1 DM and negative DQ2/DQ8 genetic testing

D. Sibling of CD patient with negative TTG 1 year ago and new GI symptoms

Question #2

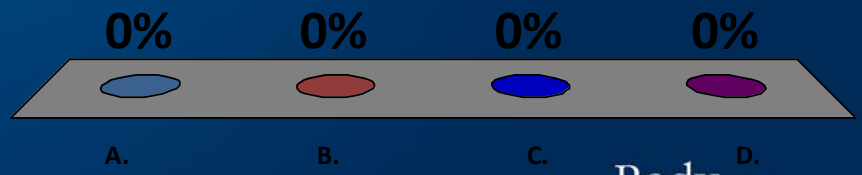
What is/are good intervention(s) after obtaining a positive TTG result:

A. Referring child for upper endoscopy and biopsies

B. Confirm IgA levers are normal

C. Doing a trial of gluten restriction

D. Screen for another autoimmune conditions



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Question #2

What is/are good intervention(s) after obtaining a positive TTG result:

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B. Confirm IgA levers are normal

C. Doing a trial of gluten restriction

D. Screen for another autoimmune conditions

Take Home Points

- Breast feeding reduces the risk of celiac disease and/or at least delays its onset.
- Introducing gluten after 4 months of age is associated with a decreased risk of celiac disease.
- Celiac disease has a variable presentation in childhood.
- Screening for celiac disease in childhood is similar to adults –except if less than 2 years old.
- Celiac disease is prevalent in siblings, and siblings should be screened, even if asymptomatic!
- Gluten restriction is NEVER advised before confirming the diagnosis by endoscopy

Thank you!

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