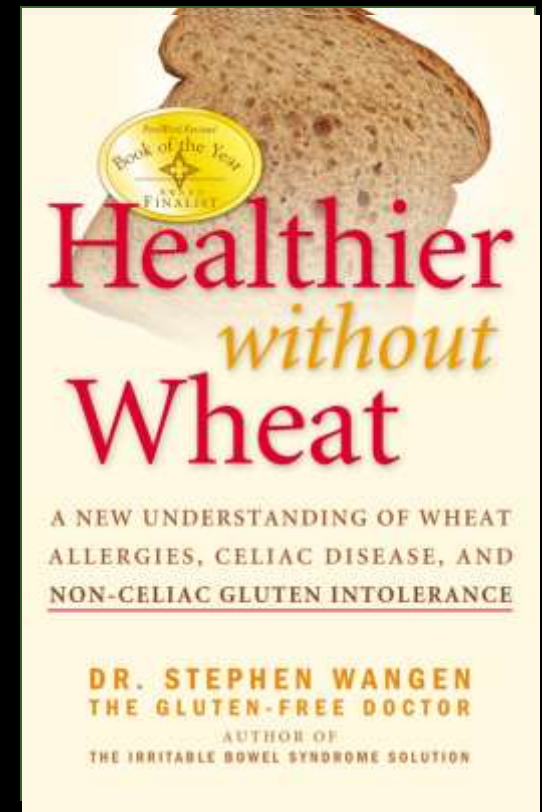


# HEALTHIER WITHOUT WHEAT



Understanding Wheat Allergies, Celiac Disease,  
& Non-Celiac Gluten Intolerance

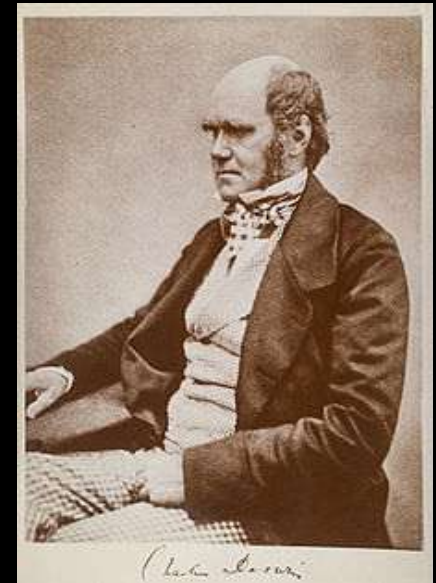
Dr. Stephen Wangen

# THE PROBLEM WITH WHEAT & GLUTEN

# THE FUNDAMENTAL PRINCIPLE OF BIOLOGY



*Natural  
Selection*



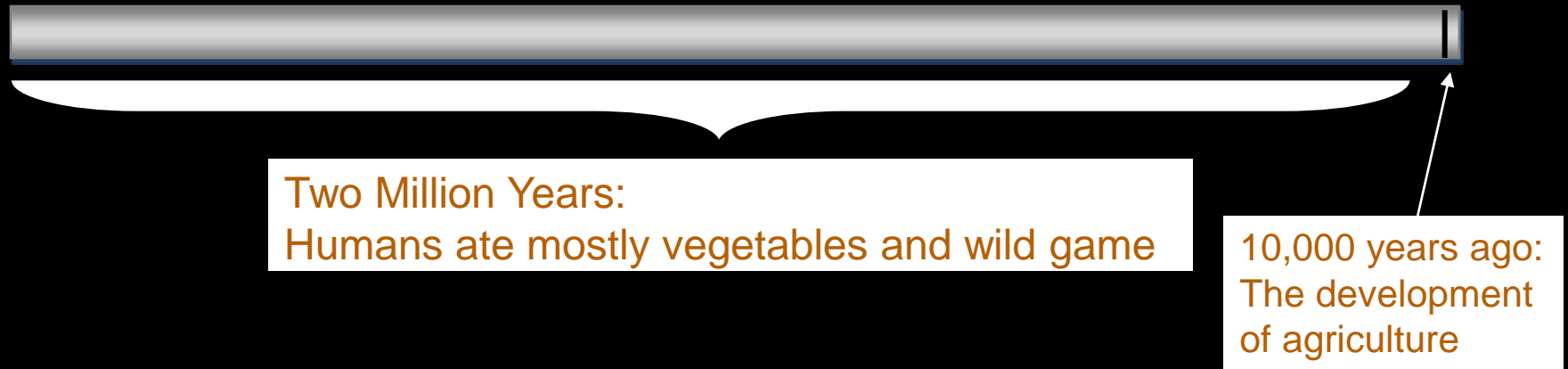
*In the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment.*

**CHARLES DARWIN (1809-1882)**

# WHEAT IS A RELATIVELY NEW FOOD

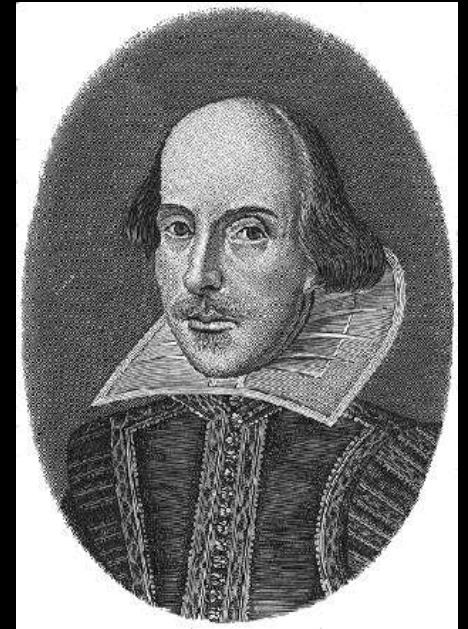
- Wheat has not always been a part of the human diet.
- Only since the development of agriculture have human beings eaten much wheat.
- It has only been in the last few hundred years that wheat has been eaten anywhere near the volume in which it is now consumed.

# HISTORY OF THE HUMAN DIET



For approximately 2 million years, humans consumed very little grain, and virtually no wheat.

It has only been in the past 10,000 years that humans have begun to cultivate and eat most common grains.



*Our remedies oft in ourselves do lie.*

**WILLIAM SHAKESPEARE (1564-1616)**

*All's Well That Ends Well*

# REACTING TO WHEAT

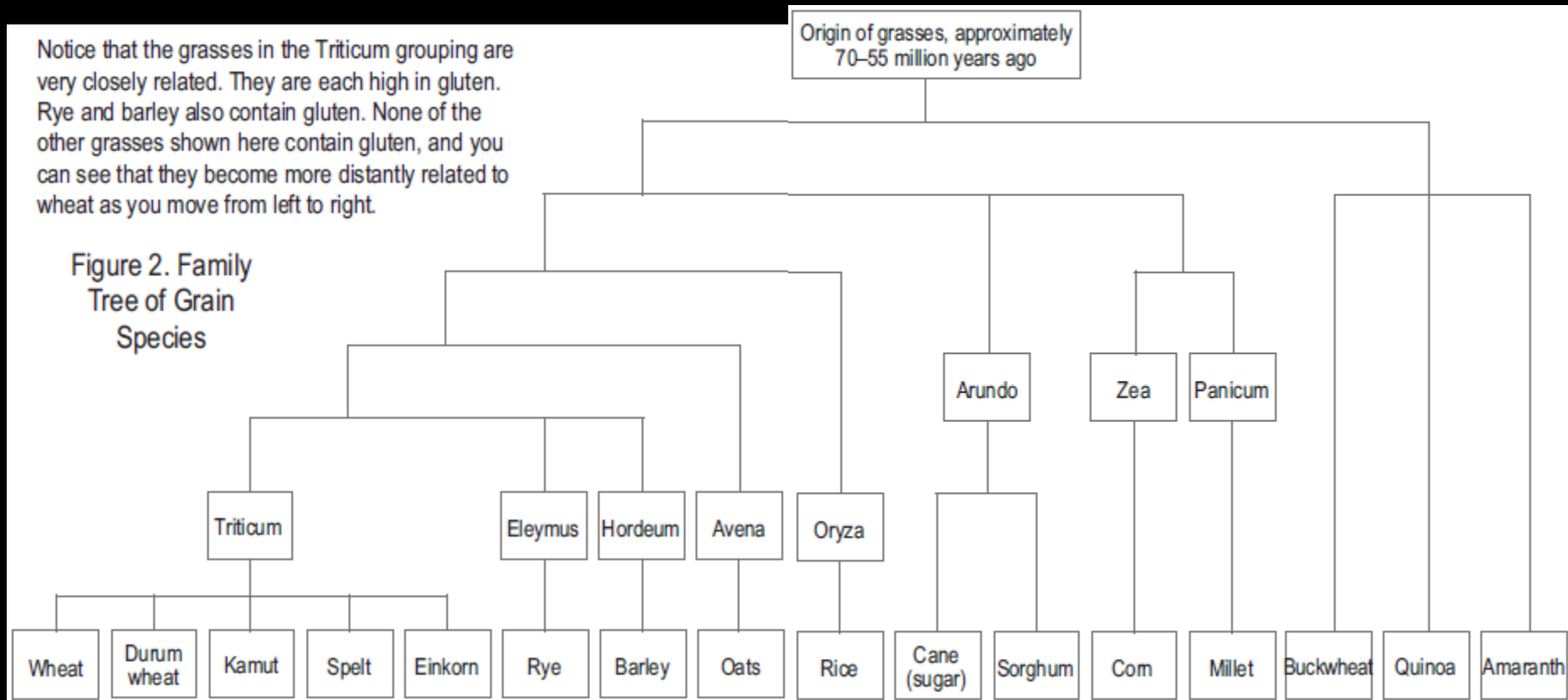
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- The majority of people who react to wheat are reacting to **gluten**.
- Gluten is a protein found in wheat.
- Gluten protein is also found in other grains, including: spelt, barley, and rye.
- Gluten contains **gliadin**.

# FAMILY TREE OF GRAIN SPECIES

Notice that the grasses in the Triticum grouping are very closely related. They are each high in gluten. Rye and barley also contain gluten. None of the other grasses shown here contain gluten, and you can see that they become more distantly related to wheat as you move from left to right.

Figure 2. Family Tree of Grain Species



Grasses in the Triticum group are high in gluten.  
Rye and barley also contain gluten.

# OATS?

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- Oats get contaminated with gluten.
- Therefore only gluten free oats are ok to eat.

# IMMUNE SYSTEM REACTIONS

# TRADITIONAL ALLERGIC REACTIONS

- A traditional *allergic* reaction to wheat or gluten involves the same type of symptoms that are normally associated with allergies:
  - Allergic rhinitis
  - Hives or rash
  - Anaphylaxis
  - Asthma
- These are usually assumed to be IgE antibody reactions, *an immune system reaction*.

# INTOLERANCES

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- Gluten Intolerance is also an immune reaction to gluten.
- These reactions also involve antibodies:

IgA

sIgA

IgG

# ALLERGY VS. INTOLERANCE

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- Consistent standards are not followed.
- Consider lactose intolerance vs. gluten intolerance:

Lactose intolerance is an enzyme deficiency

Gluten intolerance is a immune reaction

# STANDARD MEDICAL PRACTICE

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- Allergies are only deemed allergies when the reactions are visible to the doctor, i.e. anaphylaxis, hives, asthma.
- Only IgE reactions are considered allergies.
- Skin testing misses all IgG and IgA reactions

# MEDICAL DICTIONARY DEFINITIONS

- **Food Allergy:** “Immunologic reactions resulting from ingestion of foods.”
- **Allergy:** “An immune response to a substance..”

This includes:

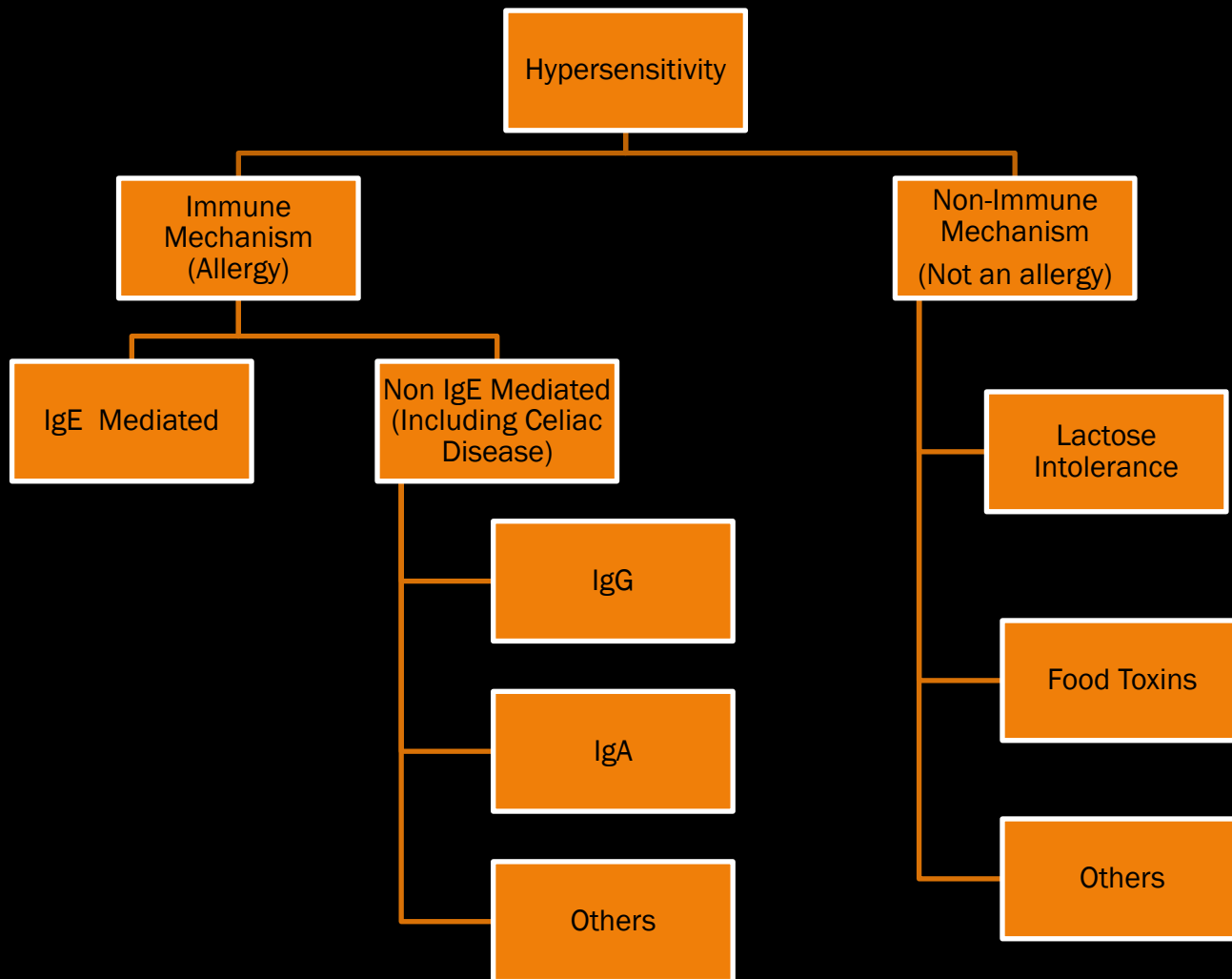
IgE, IgG, IgA reactions

Other immune reactions

Immediate reactions

Delayed reactions

- **Food Intolerance:** “A non-immunological response to a food.”



Allergy. 2001 Sep;56(9):813-24.

**A revised nomenclature for allergy. An EAACI position statement from the EAACI nomenclature task force.**

Johansson SG, et al; (the European Academy of Allergology and Clinical Immunology).

# CELIAC DISEASE

---

# CELIAC DISEASE & VILLOUS ATROPHY

- Villi are microscopic, finger-like extensions of the small intestine.
- In celiac disease the immune system attacks the enzyme (tissue transglutaminase) that repairs the villi.
- Therefore the villi atrophy (become damaged).

# TESTING FOR CELIAC DISEASE

- Endoscopy

  - Biopsy of small intestine

- Blood tests

  - IgA and IgG Tissue transglutaminase antibodies

  - IgA and IgG Deamidated gliadin antibodies

  - IgA Endomysial antibodies

  - Ig A and IgG Gliadin antibodies

# GENETIC TESTING

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- HLA DQ2 and DQ8.
- Most people with celiac disease have these genes.
- But 30% of the population have these genes.
- Less than 1% of the population has celiac disease.
- Genetic testing is not diagnostic for celiac disease, nor does it rule out celiac disease.

## Study on Celiac Disease and No DQ2 or DQ8 Genes

Harmon GS, et al. Gluten-dependent enteropathy and atypical human leukocyte antigen alleles.  
Hum Pathol. 2011 Feb 1.

STUDY: “Ninety-five adult [celiac cases] underwent human leukocyte antigen (HLA) DQ typing. Eighty patients were DQ2 positive, 24 were DQ8 positive, and 11 were DQ2 and DQ8 positive. Two patients did not carry human leukocyte antigen (HLA) DQ2 or DQ8. All of the patients ...responded to a gluten-free diet.”

# NON-CELIAC GLUTEN INTOLERANCE



*Discovery is to see what everyone else has seen,  
and to think what no one else has thought.*

**ALBERT SZENT-GYORGYI (1893-1986)**  
**1937 Nobel Prize winner in medicine**

# PREVALENCE OF GLUTEN INTOLERANCE

- Some have estimated that 30% of the population is gluten intolerant.
- In my experience, I estimate that at least 10% of the population is gluten intolerant.
- No one has studied this in detail.

# VILLOUS ATROPHY

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- Celiac disease is not gluten intolerance.
- Villous atrophy is not always found in individuals with gluten intolerance
- Celiac disease (villous atrophy) is only one potential result of gluten intolerance.
- You don't have to have villous atrophy in order to have gluten intolerance.

# THE RELATIONSHIP BETWEEN CELIAC DISEASE AND GLUTEN INTOLERANCE



# TESTING FOR NONCELIAC GLUTEN INTOLERANCE

- Gliadin is a portion of gluten.
  - Ig A Gliadin antibodies
  - IgG Gliadin antibodies
- Gliadin antibody tests are often run in conjunction with celiac testing. But they are often ignored if the celiac tests are negative.
- If positive, this indicates that the immune system is forming a reaction against this food.

# TESTING CONTINUED

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- Celiac Tests are negative, because they are measuring villous atrophy, i.e. tissue Transglutaminase antibodies; endomysial antibodies; the newer deamidated gliadin antibodies; and biopsy of small intestine.

# STOOL (OR SALIVA) TESTING

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- sIgA antibodies (s=secretory)
- Found in the mucous membranes of body.
- Little is known about how these relate to food allergies or to antibodies in the blood.
- They are an interesting tool for measuring immune response to foods.

# New Study on Saliva Testing

Bonamico M, et al. Journal of Pediatric Gastroenterology and Nutrition. "First salivary screening of celiac disease by detection of anti-transglutaminase autoantibody radioimmunoassay in 5000 Italian primary schoolchildren." 2011 Jan;52(1):17-20.

**STUDY:** 5000 school children in Rome were screened for celiac disease using salivary IgA tTG. 32 were positive and 9 were borderline. 31/32 and 3/9 had positive blood testing as well. 28 had a positive biopsy.

**CONCLUSIONS:** ...demonstrated that it is possible to perform a powerful, simple, well-accepted, and sensitive CD screening using saliva.

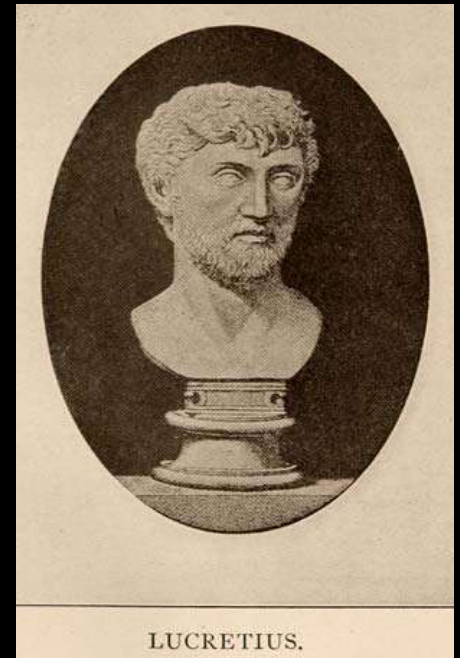
# WHEN NO TEST IS POSITIVE

- Some people find that even when all of the tests are negative, they still feel better when they avoid gluten.
- What's wrong with that?



# THE SYMPTOMS

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*What is food to one may be fierce poison to others.*

**LUCRETIUS (c. 99 B.C. – c. 55 B.C.)**

**Roman poet & philosopher**

***On the Nature of Things***

# SYMPTOMS, CONDITIONS, PROBLEMS

- Gluten intolerance and wheat allergies are known to cause many health problems.
- There are over 200 known conditions which can be caused by gluten intolerance and wheat allergies
- Many other health problems are known to be associated with these food reactions.

# COMMON IN INFANTS AND TODDLERS

- Colic
- Fatigue
- Diarrhea
- Gas
- Vomiting
- Failure to thrive
- Poor growth
- Angry disposition
- Chronic ear infections
- Refusal to eat
- Bloated abdomen
- Eczema
- Constipation
- Poor sleep habits



# COMMON IN ADULTS AND CHILDREN

- Diarrhea
- Constipation
- Heartburn
- Abdominal pain
- Headaches  
(including migraines)
- Fatigue
- Muscle aches
- Joint pain
- Hypoglycemia
- Eczema
- Acne
- Mental fogginess
- Anemia (iron or B12)
- Frequent illnesses
- Itchy skin
- Low bone density

Note that it can be diarrhea or constipation, or neither.

# DIGESTIVE PROBLEMS

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- Abdominal pain
- Aphthous ulcers
- Autoimmune hepatitis
- Bloating
- Canker sores
- Constipation
- Cramping
- Diarrhea
- Dyspepsia
- Liver enzymes elevated
- Enamel defects teeth
- Encopresis
- Eosinophilic esophagitis
- Eosinophilic gastroenteritis
- Esophagitis
- Fructose intolerance
- Gas
- GERD
- Gastroparesis
- Heartburn
- Hepatic steatosis

# DIGESTIVE PROBLEMS, CONTINUED

- Hepatic T-cell lymphoma
- Intestinal bleeding
- Irritable bowel syndrome (IBS)
- Lactose intolerance
- Liver disease
- Nausea
- Occult blood in stool
- Impaired pancreatic function
- Pancreatitis
- Primary biliary cirrhosis
- Primary sclerosing cholangitis
- Reflux
- Sore throat, chronic
- Steatorrhea (fatty stool)
- **Villous atrophy**



# SKIN CONDITIONS

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- Acne
- Eczema
- Dermatitis
- Dermatitis herpetiformis
- Dry skin
- Follicular keratosis
- Hives
- Rashes
- Itchiness
- Psoriasis
- Redness
- Dark circles under eyes
- Linear IgA bullous dermatosis
- Urticaria
- Hereditary angioneurotic edema
- Cutaneous vasculitis
- Erythema nodosum

# SKIN CONDITIONS, CONTINUED

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- Erythema elevatum diutinum
- Necrolytic migratory erythema
- Vitiligo
- Behcet's disease
- Oral lichen planus
- Dermatomyositis
- Porphyria
- Alopecia areata
- Acquired hypertrichosis lanuginosa
- Pyoderma dermatoses
- Pellagra (niacin defic.)
- Generalized acquired cutis laxa
- Atypical mole syndrome and congenital giant nevus

## Study: “Dermatitis Herpetiformis- *A clinical chameleon*”

Pfeiffer C. Hautarzt. 2006 Nov;57(11):1021-8; quiz 1029.  
[Germany]

CONCLUSIONS: “Dermatitis herpetiformis represents the cutaneous manifestation of celiac disease. **While intense pruritus [itchiness] is the characteristic symptom, clinical signs can be highly variable, ranging from grouped papulovesicles [blisters] with excoriations [abrasions] or eczema-like lesions to minimal variants of discrete erythema [redness, inflammation] and digital purpura [bruising]...** Suspecting and then searching for dermatitis herpetiformis is often clinically challenging, as **the disease is a true chameleon with many clinical faces.**”

# EMOTIONAL WELLBEING

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- Anxiety
- Depression
- Irritability
- Emotional ups and downs



## **Study: “Bread and Tears- Naughtiness, Depression and Fits Due to Wheat Sensitivity”**

Proceedings of the Royal Society of Medicine Vol 49, 391.

President-GEOFFREY BARBER, O.B.E., M.A., M.B.

[February 15, 1956]

By GUY DAYNES, M.R.C.S., L.R.C.P., D.C.H.

“Study of over 40 similar cases .... Typically a child between 1 and 5 years becomes naughty and difficult ... He is irritable, negativistic and spiteful, sleep is disturbed and he wakes up many times in the night and often screams; his appetite is poor, he fails to gain weight, his abdomen is often distended and the stools may become bulky, pale and offensive. This condition, if left untreated....slight petit-mal-like attacks may develop, in addition to worsening of the other symptoms. I have been placing these children on a gluten-free diet at the earliest opportunity, and the symptoms respond dramatically, usually within two or three days.”

# Study: Depression and Adolescents With Celiac Disease

Päivi A Pynnönen\*, et al. *BMC Psychiatry* 2005, **5:14** 17 March 2005

**Gluten-free diet may alleviate depressive and behavioural symptoms in adolescents with coeliac disease: a prospective follow-up case-series study**

**METHODS:** Nine adolescents with celiac disease, aged 12 to 16 years, were assessed.

**RESULTS:** A significant decrease in psychiatric symptoms was found at 3 months on a gluten-free diet compared to patients' baseline condition, coinciding with significantly decreased coeliac disease activity ...

**CONCLUSIONS:** Although our results of the amino acid analysis and prolactin levels in adolescents are only preliminary, they give support to previous findings on patients with coeliac disease, suggesting that serotonergic dysfunction due to impaired availability of tryptophan may play a role in vulnerability to depressive and behavioural disorders also among adolescents with untreated coeliac disease.

# PHYSICAL WELLBEING

- Fatigue
- Weight loss
- Weight gain
- Poor endurance
- Inability to gain weight
- Chronic fatigue
- Short stature
- Failure to thrive

Note: It's not just weight loss.



# Study on Fatigue and Adults With Celiac Disease

Siniscalchi M, et al. *Aliment Pharmacol Ther.* 2005 Sep 1;22(5):489-94.

**STUDY:** A total of 130 coeliac disease patients were consecutively recruited in both treated (59 on gluten-free diet) and untreated conditions (71 on normal diet). The control group was made up of 80 healthy controls. Coeliac disease patients and healthy controls underwent laboratory tests, a set of questionnaires for studying fatigue: visual analogue scale for fatigue, chronic fatigue syndrome questionnaire, fatigue severity scale and a modified version of the Zung self-rating depression scale.

**CONCLUSION:** “In coeliacs, fatigue is a common finding, which ameliorates with the gluten-free diet ...”

# Study on Chronic Fatigue and Adults with High Gliadin Antibodies

Arnason JA, et al. Gut. 1992 Feb;33(2):194-7.

Do Adults with High Gliadin Antibody Concentrations Have Subclinical Gluten Intolerance?

STUDY: IgG and IgA Gliadin antibodies were measured in 200 adults who were randomly selected from the Icelandic National Register. Those with high gliadin antibody concentrations were invited with negative controls to participate in a clinical evaluation. Neither the study subjects nor the physicians who recorded and evaluated the clinical findings were aware of the antibody levels.

CONCLUSION: Significantly higher proportion of the gliadin antibody positive individuals reported unexplained attacks of diarrhoea and a prevalence of chronic fatigue.

# NEUROLOGICAL PROBLEMS

- ADHD
- Alzheimer's
- Autism
- Difficulty concentrating
- Cerebella atrophy
- Mental fog
- Brain white-matter lesions
- Insomnia
- Rett syndrome
- Schizophrenia
- Epilepsy/Seizures
- Multifocal axonal polyneuropathy
- Peripheral neuropathy (numbness or tingling of extremities)



# Study on Neurological Syndromes and Gluten Sensitivity

Neurologic Presentation of Celiac Disease  
Gastroenterology. 2005 Apr;128(4 Suppl 1):S92-7.  
Bushara KO.

Neurology Department, Minneapolis VA Medical Center, University of Minnesota

“Celiac disease (CD) long has been associated with neurologic and psychiatric disorders including cerebellar ataxia, peripheral neuropathy, epilepsy, dementia, and depression. Earlier reports mainly have documented the involvement of the nervous system as a complication of prediagnosed CD. However, more recent studies have emphasized that a wider spectrum of neurologic syndromes may be the presenting extraintestinal manifestation of gluten sensitivity with or without intestinal pathology. These include migraine, encephalopathy, chorea, brain stem dysfunction, myelopathy, mononeuritis multiplex, Guillain-Barre-like syndrome, and neuropathy...

“It has been suggested that gluten sensitivity (as evidenced by high antigliadin antibodies) is a common cause of neurologic syndromes...”

# Study on ADHD and Celiac Disease

H Niederhofer... - Journal of Attention Disorders, 2006 *Italy*  
**A Preliminary Investigation of ADHD Symptoms in Persons With Celiac Disease**

**METHOD:** The authors assess 132 participants from 3 to 57 years of age ( $M = 19.3$  years) affected by CD for the possibility of an associated ADHD-like symptomatology.

**RESULTS:** The overall score improves significantly as well as most of the ADHD-like symptomatology specific features.

**CONCLUSION:** The data indicate that ADHD-like symptomatology is markedly overrepresented among untreated CD patients and that a gluten-free diet may improve symptoms significantly within a short period of time. The results of this study also suggest that CD should be included in the list of diseases associated with ADHD-like symptomatology.

# Study on Alzheimer's and Celiac Disease

J Clin Gastroenterol. 2008 Jan;42(1):59-61.

**Celiac disease diagnosed in the elderly.**

Lurie Y, Landau DA, Pfeffer J, Oren R.

STUDY: "...7 patients with CD diagnosed after the age of 60 were identified. **Two female patients presented with cognitive decline that was attributed to Alzheimer dementia but ameliorated after the initiation of gluten-free diet.** A third patient had peripheral neuropathy that completely resolved after the initiation of gluten-free diet. ... Diet treatment led to complete resolution of symptoms in most cases and a significant weight gain. One patient developed a fatal intestinal T-cell lymphoma."

# (Another) Study on Alzheimer's Disease and Celiac Disease

Acta Neurol Scand. 1997 Mar;95(3):147-51.

**Is celiac disease associated with Alzheimer's disease?**

Frisoni GB, et al.

Alzheimer's Disease Unit, Ospedale S.Cuore-FBF, Brescia, Italy.

STUDY: Thirty-three Alzheimer's patients and 24 elderly controls were screened for celiac disease. IgA and IgG antigliadin antibodies were assayed in serum samples with enzyme-linked immunoassay. Confirmation of celiac disease in positive subjects was made by assaying IgA anti-endomysium antibodies by indirect immunofluorescence. **Two Alzheimer's patients and 2 controls were positive for antigliadin antibodies** (6 versus 8%; NS). None was positive for anti-endomysium antibodies.

CONCLUSION: We conclude that the prevalence of celiac disease in Alzheimer's disease is not higher than in cognitively unimpaired elders, suggesting that the immune changes in celiac disease are unlikely to play a role in Alzheimer's disease.

# Study on Autism and Allergen Free Diets

Knivsberg, A.M., et al. Nutritional Neuroscience. 2002 Sep;5(4):251-61. Norway.

**STUDY:** A randomised, controlled study of dietary intervention in autistic syndromes. 20 participating children randomly assigned to either a gluten and dairy free diet or a control group for one year.

**RESULTS:** Significant reduction of autistic behavior was registered for participants in the diet group.

# **(Another) Study on Autism and Allergen Free Diet**

Knivsberg, A.M., et al. Nutritional Neuroscience, Vol 2, Issue 6, Dec 1999, 435 – 439. Norway.

## **Dietary Intervention for a Seven Year Old Girl with Autistic Behaviour**

**STUDY:** A seven year old girl with autistic behavior placed on a gluten and casein free diet. The young girl's behavior and skills were registered before diet, after one year and after two.

**RESULTS:** Over the period of two years the girl changed from being severely withdrawn to a normally communicating child who enjoys the company of others.” The child's linguistic and cognitive skills also increased simultaneously more than could be expected.

# Study on Seizures and Celiac Disease

J Assoc Physicians India. 2010 Aug;58:512-5.

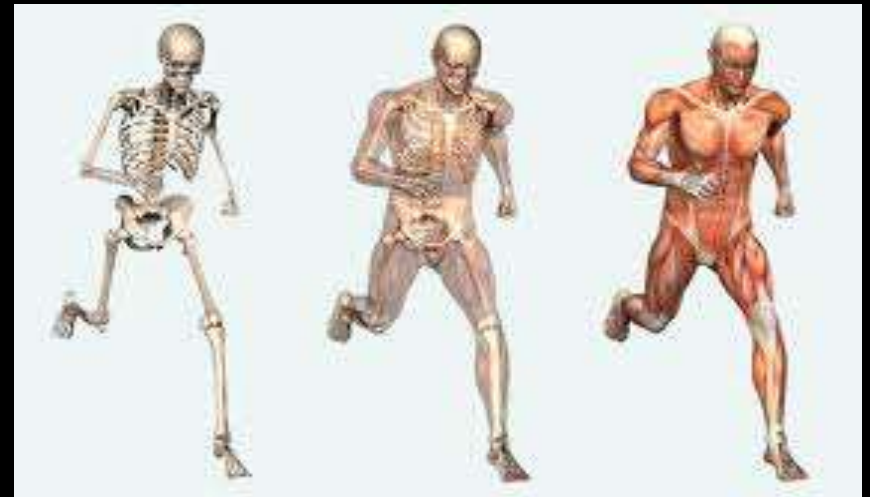
**Intractable seizures and metabolic bone disease secondary to celiac disease.**

Maniar VP, Yadav SS, Gokhale YA.

STUDY: “Patients with atypical (non-diarrhoeal) presentations are missed as the diagnosis of Celiac Disease is not considered. **We present three young girls (ages 18, 19, 23 at presentation) who were admitted to our hospital as intractable seizures.** All had low serum calcium, features of rickets/osteomalacia and anaemia. The diagnosis of CD was confirmed by serologic tests (IgA transglutaminase and IgG antigliadin antibodies) and biopsy of the duodenum. **In all patients gluten free diet not only provided drug free control of seizures but also helped correct other features of malabsorption like hypocalcaemia and anaemia.** We wish to highlight that hypocalcaemia of CD which may present as intractable seizures can be treated only by treating CD with gluten free diet and not by oral vitamin D and Calcium alone.”

# MUSCULOSKELETAL PROBLEMS

- Arthritis
- Fibromyalgia
- Rheumatoid arthritis
- Muscle aches
- Joint pain
- Osteoporosis
- Osteopenia
- Osteomalacia
- Polymyositis
- Loss of strength
- Multiple sclerosis
- Myasthenia gravis



# Study on Arthritis and Celiac Disease

Saudi J Gastroenterol. 2003 May;9(2):75-8.

The significance of elevated serologic markers of celiac disease in children with juvenile rheumatoid arthritis.

Al-Mayouf SM, et al. [Saudi Arabia.]

**STUDY:** “Forty-two children (24 females) with JRA, aged between 5-15 years underwent study of serologic markers for CD (gliadin-IgA, gliadin-IgG, reticulin and endomysium-IgA antibodies). Endoscopic intestinal biopsy was performed in patients who had positive serologic markers for CD. The diagnosis of CD was based on the classic finding of villous atrophy.”

**RESULTS:** Eighteen patients (42.8%) had serologic markers for CD. Levels of gliadin -IgG were high in 14 patients (77.8%), four patients (22.2%) had high levels of gliadin-IgA and seven patients (38.9%) had endomysium antibodies (AEA). One patient had reticulin antibodies (ARA) 5.5%. Sixteen patients underwent intestinal biopsy; in only one patient with endomysial antibodies (2.38%), biopsy revealed typical finding of CD. The patient with CD showed improvement in both growth parameter as well as articular symptoms after starting gluten-free diet.

# Study on Arthritis and Gliadin Antibodies

Scand J Gastroenterol. 2010 Oct;45(10):1197-202.

Positive serum antigliadin antibodies without celiac disease in the elderly population: does it matter?

Ruuskanen A, et al.

Department of Neurology, Päijät-Häme Central Hospital in Lahti, Finland.

**MATERIAL AND METHODS:** Serum IgA- and IgG-class gliadin antibodies and IgA-class tissue transglutaminase antibodies (tTGA) were determined in 2815 individuals aged 52-74 years. Equal numbers of AGA- and tTGA-negative participants of similar age and gender, but without known celiac disease, were randomly selected as controls.

**RESULTS:** Altogether 381 persons (13%) were positive for IgA/IgG-class AGA; 38 of them were also positive for tTGA. Out of the biopsied subjects, 34 (100%) in the AGA+ tTGA+ group and five (9%) in AGA+ tTGA- group had celiac disease. Rheumatoid arthritis and depression were found significantly more often in gliadin antibody positives than controls. The significance remained even when tTGA-positive and known celiac disease cases were excluded.

**CONCLUSION:** Gliadin antibody positivity ...seems to be related to rheumatoid arthritis and depression.

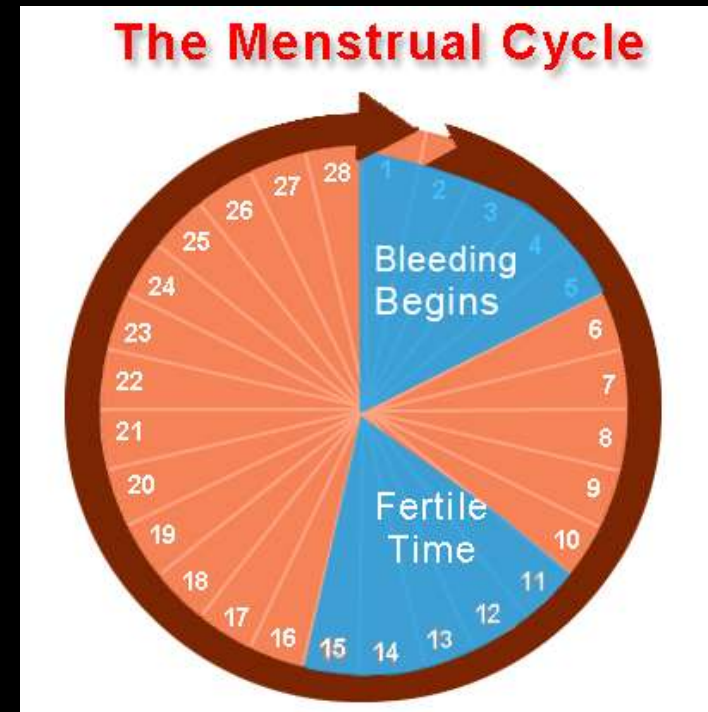
# RESPIRATORY PROBLEMS

- Wheezing
- Chronic cough
- Chronic sinusitis
- Shortness of breath
- Asthma



# WOMEN'S HEALTH

- Irregular menstrual cycle
- Infertility (also male infertility)
- Delayed start of menstruation
- Premature menopause
- Spontaneous abortion/miscarriage



# Study on Fertility and Celiac Disease

Latent celiac disease in reproductive performance of women  
Ashok Kumar M.D., et al. *Fertility and Sterility*, 24 November  
2010

**STUDY:** Eight hundred ninety-three women (104 women with recurrent miscarriage, 104 women with unexplained stillbirth, 230 cases of unexplained infertility, 150 pregnant women with intrauterine growth restriction, 305 control cases).

**CONCLUSION:** A significant number of women with poor reproductive performance had positive blood tests for celiac disease.

# **(Another) Study on Fertility and Celiac Disease**

J Reprod Med. 2010 Jan-Feb;55(1-2):3-8.

**Celiac disease and its effect on human reproduction: a review.**

Soni S, Badawy SZ.

STUDY: “In women, this disease may have implications on menstrual and reproductive health. The symptom complex includes **delayed menarche, early menopause, secondary amenorrhea, infertility, recurrent miscarriages and intrauterine growth restriction. These women benefit from early diagnosis and treatment.**”

# HEAD

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- Headaches
- Migraines
- Alopecia areata  
(hair loss)



# Study on Headaches and Celiac Disease

Lionetti E, et al. J Pediatr Gastroenterol Nutr. 2009 Aug;49(2):202-7.

**Headache in pediatric patients with celiac disease and its prevalence as a diagnostic clue.**

RESULTS: “Overall, 88 (of 354) patients with CD complained of headaches before the diagnosis of CD as compared with 16 in the control group (24.8% vs 8%,  $P < 0.001$ ). **After the institution of a gluten-free diet, the headaches significantly improved in 68 children (77.3%).**”

# AUTOIMMUNE DISORDERS

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- Addison's disease
- Autoimmune chronic hepatitis
- Diabetes type I
- Graves' disease
- Secondary hyperparathyroidism
- Hypothyroidism, autoimmune
- Idiopathic autoimmune hypoparathyroidism
- Idiopathic thrombocytopenic purpura (ITP)
- Lupus (SLE)
- Myasthenia gravis
- Sarcoidosis
- Scleroderma
- Sjogrens syndrome
- Thyroiditis
- **Villous atrophy**

# Study on Thyroid Disease and Celiac Disease

Ansaldi N, et al. J Pediatr Gastroenterol Nutr. 2003 Jul;37(1):63-6.

Autoimmune Thyroid Disease and Celiac Disease in Children.

**RESULTS:** “Autoimmune thyroid disease was found in 90 of 343 (26.2%) patients with CD (62 on a gluten-free diet) and in 20 (10%) of the control subjects ( $P = 0.001$ ).”

**CONCLUSIONS:** The high frequency of autoimmune thyroid disease found among patients with CD, even those on a gluten-free diet, may justify a thyroid status assessment at diagnosis and at follow-up evaluation of children with CD.

# (Another) Study on Thyroid Disease and Celiac Disease

Sategna-Guidetti C, et al. Am J Gastroenterol. 2001 Mar;96(3):751-7.  
Prevalence of Thyroid Disorders in Untreated Adult Celiac Disease Patients and Effect of Gluten Withdrawal – An Italian Multicenter Study.

**METHODS:** “A total of 241 consecutive untreated patients and 212 controls were enrolled. In 128 subjects a thorough assessment, including intestinal biopsy, was repeated within 1 yr of dietary treatment. Thyroid function was assayed by measuring the levels of TSH, free T3, free T4, thyroperoxidase, and thyroid microsome antibodies.

**RESULTS:** Thyroid disease was 3-fold higher in patients than in controls ( $p < 0.0005$ ). Hypothyroidism, diagnosed in 31 patients (12.9%) and nine controls (4.2%), was subclinical in 29 patients and of nonautoimmune origin in 21.

**CONCLUSIONS:** The greater frequency of thyroid disease among celiac disease patients justifies a thyroid functional assessment. In distinct cases, gluten withdrawal may single-handedly reverse the abnormality.

# CANCERS

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- Colon cancer
- Esophageal and
- Oropharyngeal carcinoma
- Melanoma
- Non-Hodgkin's lymphoma
- Small bowel adenocarcinoma

# MISCELLANEOUS

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- Anemia
- Iron deficiency
- Vitamin B12 deficiency
- Vitamin K deficiency
- Folate deficiency
- Impotency
- Raynaud's
- Cystic fibrosis
- Pulmonary hemosiderosis
- Down syndrome
- Elevated eosinophils in blood

# WHY SO MANY PROBLEMS?

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- Malabsorption of nutrients
- Inflammation



# MYTHS ABOUT CELIAC DISEASE AND GLUTEN INTOLERANCE

# MYTHS

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- Celiac disease is the worst form of gluten intolerance.
- Celiac disease is the end-stage of gluten intolerance.
- Everyone with celiac disease has symptoms.

# Study on Lack of Symptoms and Celiac Disease

**Emerging new clinical patterns in the presentation of celiac disease.**

Archives of Pediatric & Adolescent Medicine. 2008  
Feb;162(2):164-8. Telega G, Bennet TR, Werlin S

STUDY: “[A review of] the medical records of all patients diagnosed with celiac disease at the Children's Hospital of Wisconsin between 1986 and 2003...[demonstrated that patients] with celiac disease **usually** do not present with classic symptoms; they are more likely to be asymptomatic...”

# OTHER FOOD ALLERGIES & INTOLERANCES

- Gluten is just one of *many* possible food allergies.
- A large percentage of people with a reaction to gluten, also react to other foods.

# REMEMBER

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- **Anyone** can be gluten intolerant.
- Everyone should be tested.
- It *is* possible to avoid gluten.
- You *can* be much healthier!

**And, your mother was right...**

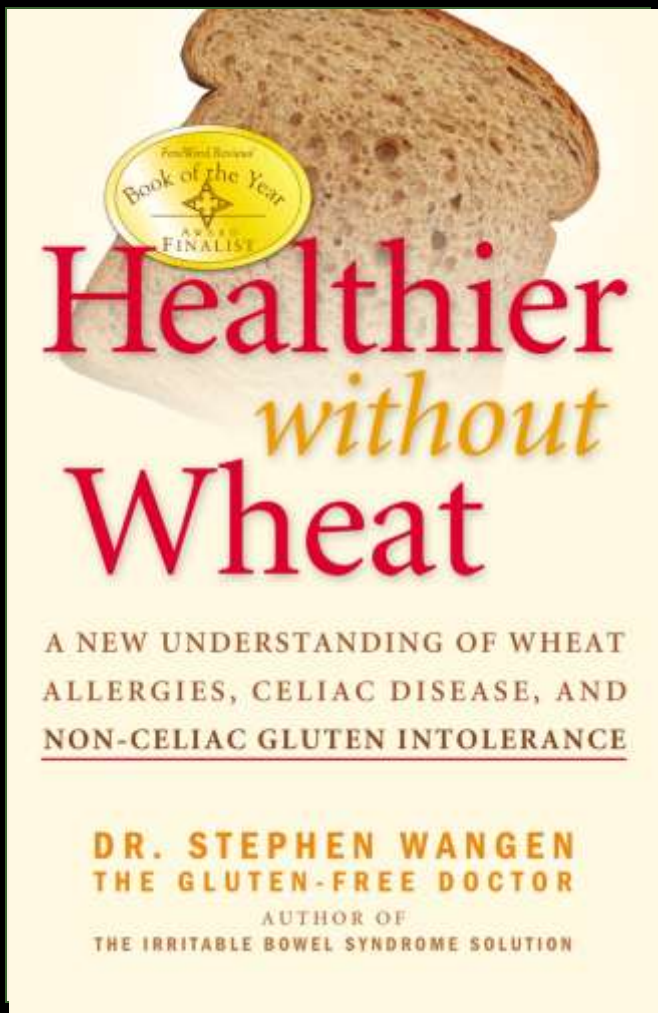
- Eat your vegetables!
- Eat healthy proteins
- Eat healthy fats

Sign up for free, monthly  
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Follow the latest findings, patient  
stories, and allergy free products on  
Dr. Wangen's Blog.

[www.IBSTreatmentCenter.com](http://www.IBSTreatmentCenter.com)

**MORE INFORMATION AVAILABLE**



*ForeWord Reviews'*  
*2010*  
*Book of the Year*  
*Award Finalist*

*Everything in the book is substantiated with solid facts, interviews, studies, and reliable data. Wangen covers everything, explaining in detail what tests are needed, questions to ask your doctor, what to do once you've been diagnosed, and complications that may arise to the healing process. I highly recommend this book if you have a wheat intolerance or allergy because Dr. Wangen will put everything into perspective for you.*

Connie Sarros  
Co-author of "Gluten-Free Cooking for Dummies"

*For the growing number of us sickened by wheat, "Healthier Without Wheat" tells us why that is and what to do about it. In this thorough, yet easy-to-read book, Dr. Wangen...includes fascinating case studies that help us understand his points. This is an excellent handbook for understanding wheat as a possible culprit in today's society, as well as how to live a healthy life without it. Get a copy and keep it handy, you'll refer to it again and again.*

Carol Fenster  
Author of "1000 Gluten-Free Recipes"