

# Whole Grain Summit

## Modern Wheat: Nutritious Food to Feed the World or *Corrupted Foodstuff?*

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# Who Are We?

- Organized in 1972 at the all-time low of wheat flour consumption at 110 lbs/person
- 80% of income from 26 wheat producer organizations; the remainder from industry members



# Charges Being Leveled Against Wheat/Grains

- GMO wheat is causing the increase in celiac disease and non-celiac gluten sensitivity (NCGS)
- Modern wheat contains more gluten/gliadin
- Wheat/grain causes inflammation
- Wheat has caused the obesity epidemic



# Modern Wheat – GMO?

- There is no GMO wheat commercially available in the world
- All auto-immune diseases have increased
- Current best suspect is the change in our gut microbiome



# What Causes Celiac Disease?

1. Genetics – you **must** have a gene
2. Exposure to gluten
3. A “leaky” gut
4. Trigger - stress, trauma
  - Surgeries, pregnancy, etc., death in the family or divorce
  - Viral infections



# Non-Celiac Gluten Sensitivity

## New and Controversial

- Abdominal pain - 68%
- Eczema, rash - 40%
- Headache - 35%
- “Foggy mind” - 34%
- Fatigue - 33%
- Diarrhea - 33%
- Depression - 22%
- Numbness in extremities - 20%
- Joint pains - 11%

# Celiac Disease and Non-Celiac Gluten Sensitivity (NCGS)

- Estimated less than 1% of Americans have celiac disease
- FODMAPS have been credited with the majority of reported effects formerly attributed to NCGS
- Dr. Stephano Guandalini, MD
  - Founder and Director of the Chicago Celiac Research Center, estimates less than 0.5% of Americans have NCGS



# Where's The Research?

- In 2011, Monash University in Australia announced there were a **high** percentage of people who were “sensitive” to gluten but did not have celiac disease
- In August 2013, the same researchers said they were **wrong**
- They determined that people were **rarely sensitive to gluten**
- The problem is FODMAPS – Fermentable Oligo, Di, Mono saccharides and Polyols.





# The Web is Driving the Gluten-Free Message

Of all the messages on the internet about gluten, only .5% come from scientists (celiac researchers and dietitians)



Modern Wheat – Bred to contain more gluten  
and more potent gliadin?



# Gluten Levels in Wheat – Unchanged in the U.S.

- Analysis found that gluten levels in various wheat varieties have **changed little on average** since the 1920's
  - Gluten addition to breads and foods has increased
  - Vital gluten imports are estimated to have increased 300% since 1977



# Gluten Levels in Wheat – Unchanged in Canada

- Two studies at the U of Saskatchewan
  - 1% change in protein content (80% of the protein is gluten) since 1860 – Red Fife wheat\*
  - Continuing research to discover if there are changes in the major celiac disease protein – gliadin.



\* Hucl P, Briggs C, Graf R.J. and Chibbar R.N. Genetic gains in agronomic and selected end-use quality traits over a century of plant breeding of Canada Western Spring Wheat. Cereal Chem. First Look. May 18, 2015

# WFC's Gluten-free Messaging

- Acknowledge the seriousness of Celiac disease and gluten intolerance -- while providing information on why a gluten-free diet is NOT recommended for the general population
- Gluten actually increases beneficial gut and colon bacteria in healthy individuals
- Most gluten-free foods are NOT whole grain or enriched – decreased fiber, B vitamins (riboflavin, thiamin, niacin and folic acid) and iron
- Gluten-free does not mean “healthier”
- Gluten-free foods are often more expensive



A photograph of a wheat field under a blue sky with scattered white clouds. The wheat is green and appears to be in the early stages of ripening. The sky is a clear, light blue, and the clouds are soft and white, adding texture to the background.

Does Modern Wheat Cause Inflammation?

# Wheat and Inflammation

- **Whole-grain intake favorably affects markers of systemic inflammation in obese children: A randomized controlled crossover clinical trial.** Hajhashemi P(1), Azadbakht L, Hashemipor M, Kelishadi R, Esmailzadeh A. Mol Nutr Food Res. 2014 Jan 30.
- **Association between dietary whole grain intake and risk of mortality: two large prospective studies in US men and women.** Wu H, Flint AJ, Qi Q, van Dam RM, Sampson LA, Rimm EB, Holmes MD, Willett WC, Hu FB, Sun Q. JAMA Internal Med. 2015 Mar;175(3):373-84.
- **Adherence to the Mediterranean diet attenuates inflammation and coagulation process in healthy adults: the ATTICA Study.** Chrysohoou C, Panagiotakos DB, Pitsavos C, Das UN, Stefanadis C. J Am Coll Cardiol 2004; 44: 152–8.

## Wheat and Inflammation (continued)

- **Whole grain wheat consumption reduces inflammation in a randomized controlled trial on overweight and obese subjects with unhealthy dietary and lifestyle behaviors: role of polyphenols bound to cereal dietary fiber.** Vitaglione P, Mennella I, Ferracane R, Rivellese AA, Giacco R, Ercolini D, Gibbons SM, La Storia A, Gilbert JA, Jonnalagadda S, Thielecke F, Gallo MA, Scalfi L, Fogliano V. *AJCN* 101(2):251-61. Feb 2015.
- **A High Fiber Diet May Improve Bowel Function and Health-Related Quality of Life in Patients with Crohn's Disease.** Brotherton CS, Taylor AG, Bourguignon C, Anderson JG. *Gastroenterol Nurs.* 2014 ; 37(3): 206–216.



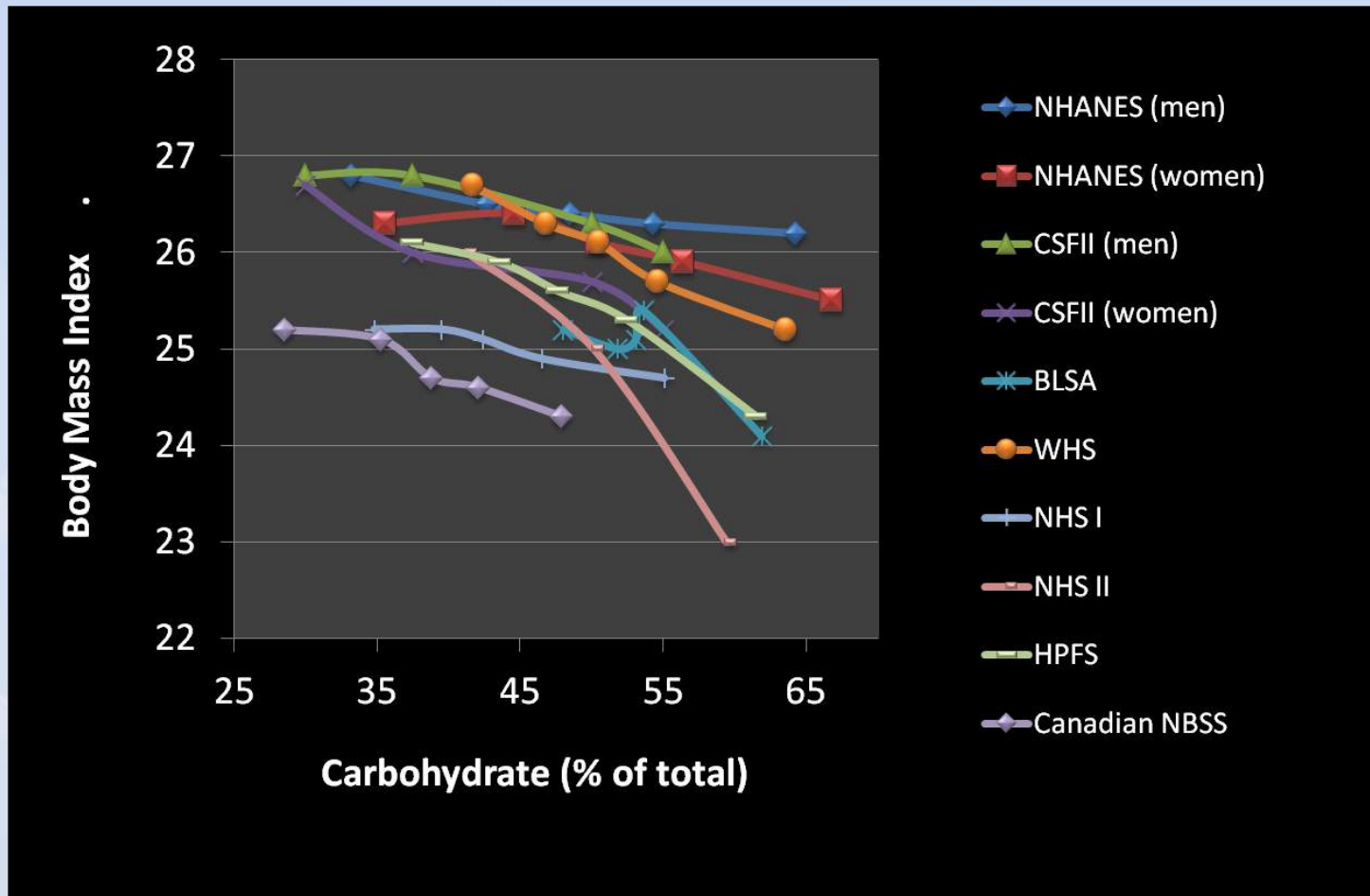
Does Wheat Cause Obesity?



# Wheat and Obesity

- **Does wheat make us fat and sick?** Fred J.P.H. Brouns, Vincent J. van Buul, Peter R. Shewry. *J Cereal Sci* 58 (2013) 209e215.
- **Adherence to the traditional Mediterranean diet is inversely associated with body mass index and obesity in a Spanish population.** Schroder H, Marrugat J, Vila J, Covas MI, Elosua R. *J Nutr* 2004; 134: 3355–61.
- **Carbohydrate Intake and Overweight and Obesity among Healthy Adults.** Anwar T. Merchant, Hassanali Vatanparast, Shahzaib Barlas, Mahshid Dehghan, Syed Mahboob Ali Shah, Lawrence De Koning, Susan E. Steck. *JADA* 2009; 109:1165-1172.

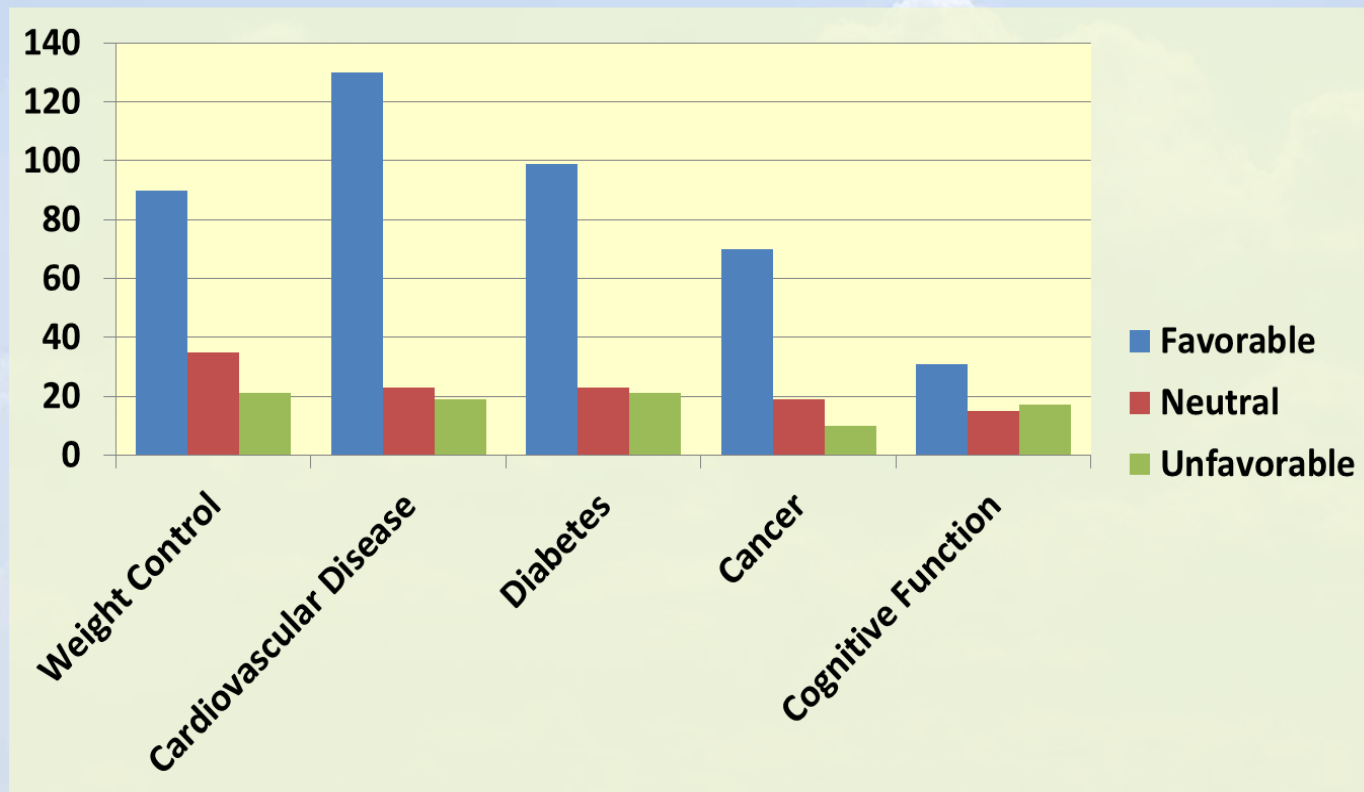
# Relationship Between Carbohydrate Intake and Body Mass Index



Gaesser. *JADA* 2007; 107:1768-1780

# Carbohydrates and Grains for Various Health Outcomes

Published Articles in Peer-Reviewed Literature, 2010-2013.



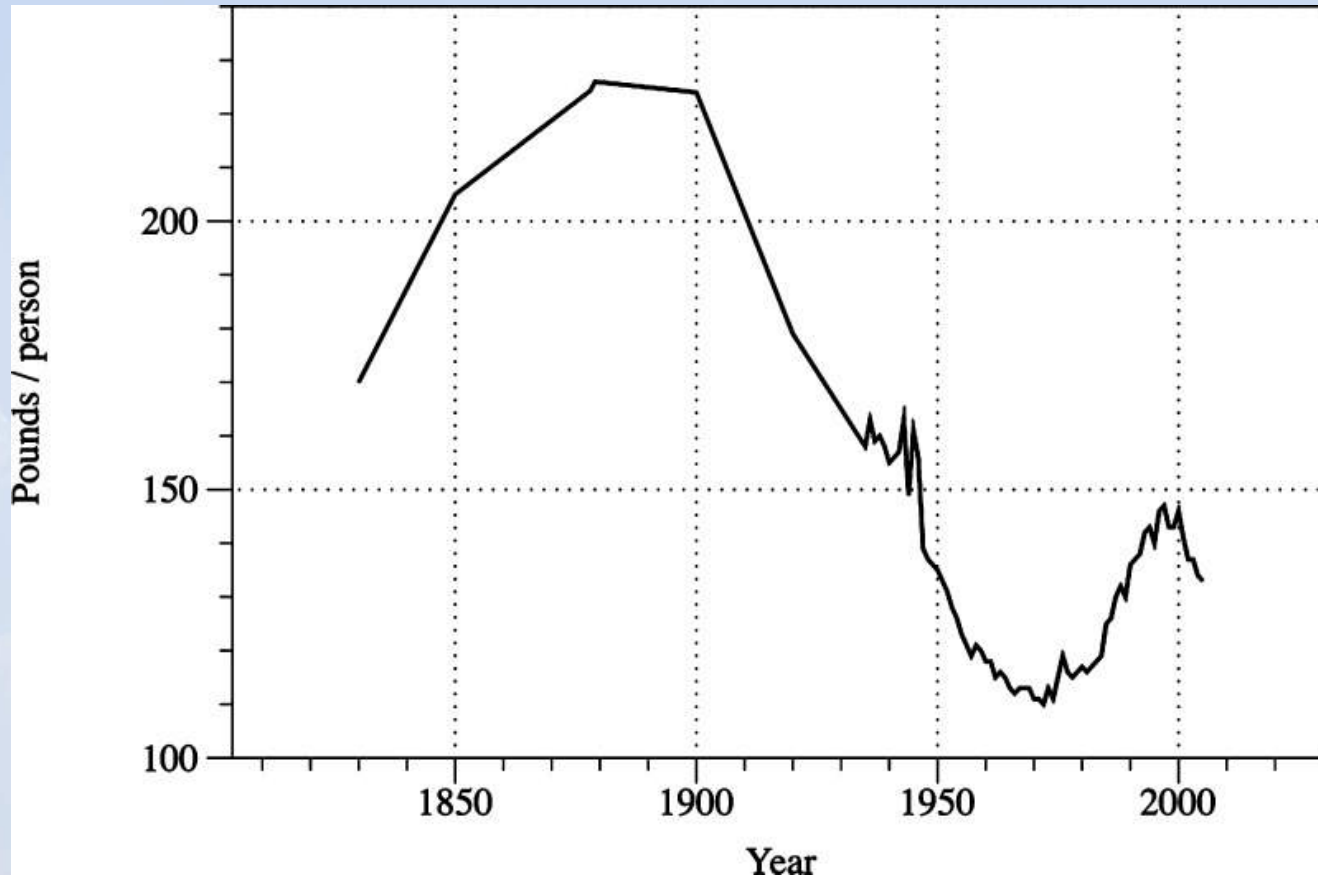
Source: Glenn Gaesser, ASU. 2014

Wheat consumption is not *associated* with high levels of belly fat OR obesity

- The French eat 1.5 times as much wheat as the US and have 1/3 the obesity rate
- The Italians eat twice as much wheat as the US and have 1/4 the obesity rate

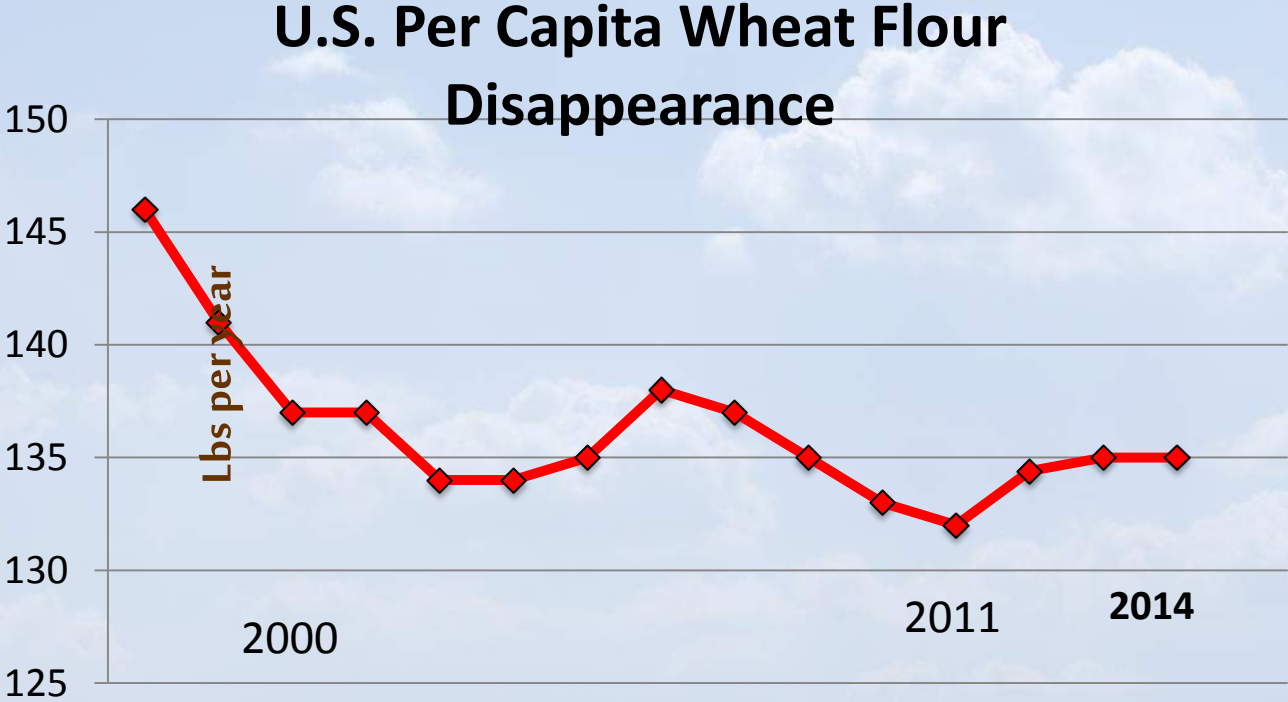


# Wheat Consumption Trends Do Not Follow Obesity Trends 1830-2010



Source: Kasarda DD J Agric Food Chem. 2013 Feb 13;61(6):1155-9.

# Recent Wheat Flour Consumption Trends



Sources: US Dept. of Commerce Bureau of the Census and NAMA

# Questions?

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