



The Value of Wheat

Health Benefits of Wheat

- Wheat is the single most important source of plant protein in our diet.ⁱ
- Wheat, in its natural unrefined state, is a good source of fibre, manganese, and magnesium (a mineral that acts as a co-factor for enzymes involved in the body's use of glucose and insulin secretion).ⁱⁱ
- Products that list “whole grain whole wheat” or “whole wheat flour with added germ” in the ingredient section are the most nutritious wheat products.ⁱⁱⁱ
- Grain products provide an important source of energy.^{iv}
- Grain products, particularly whole grains, provide a wealth of essential nutrients necessary for good health and are a source of vitamins, minerals and fibre,^v which help us feel full and satisfied.
- Research shows that people who eat more whole grains may have a lower risk of heart disease, stroke, diabetes, and some cancers.^{vi}
- Two prospective cohort studies found an inverse relationship between whole grain intake and mortality from all causes.^{vii,viii} This relationship was not affected by the amount of refined grain intake and was thought to be linked to the nutrients found in the fibre component of the grain.^{ix,x}
- Dr. David Jenkins, a world leader in nutrition research and the founder of the Glycemic Index (GI) that has paved the way for many of today's popular diets, includes whole wheat pasta and whole wheat cereals in his top 10 healthy foods based on his research findings.^{xi}

How Much Wheat do We Need?

- Whole grains, such as whole wheat pasta, are part of the daily recommended diet according to *Canada's Food Guide*.^{xii}
- Wheat is a grain. *Canada's Food Guide* recommends the following daily intake of grain products:
 - The average healthy Canadian should consume 6-7 servings of grain foods daily, half of which should come from whole grains, like whole grains breads and whole wheat pasta.^{xiii}
 - Wheat is the foundation of many healthy staple grain foods, including bread, pasta and cereal.

Age Category		Male	Female
Children	2-3 years	3	3
	4-8 years	4	4
	9-13 years	6	6
Teenagers 14-18 years		7	6
Adults	19-50 years	8	6-7
	51 years +	7	6

Dr. William Davis makes a variety of statements in his new book, *Wheat Belly*, regarding the consumption of wheat. This is a fact sheet with peer-reviewed information that refutes many of his claims.

Wheat is part of a healthy, balanced diet and overall healthy lifestyle. It provides us with a host of vitamins, minerals, fibre and essential nutrients. *Canada's Food Guide* recommends the average healthy Canadian consume 6-7 servings of grain foods daily, half of which should come from whole grains, like whole grains breads and whole wheat pasta. In his book, Dr. Davis uses sensationalistic tactics to instil fear in the public to influence them to stop consuming wheat. Dr. Davis misrepresents scientific concepts and irresponsibly uses them to support his scientifically-unfounded claims.

Is wheat breeding detrimental to our health?

- No. Plants evolve naturally over time. Wheat breeding improves wheat traits through controlled means.
- All plant breeding is basically the same. In fact, this is the same process as those used in fruit and vegetable breeding. Although Dr. Davis dramatizes the process involved, they are subject to strict regulations.
- Commercially-grown GMO (genetically modified organisms) wheat does not exist anywhere in the world.
- There is no hybrid wheat currently on the market in Canada and hybrid wheat comprises less than 1% of the European wheat market.
- The Canadian Food Inspection Agency regulates the environmental release of plants with novel traits (PNTs) and is subject to a full regulatory review.

Is the number of people diagnosed with Celiac Disease growing because of the way wheat is grown?

- No. Celiac Disease is an autoimmune disorder with a genetic component, appearing to be linked to certain types of HLA (human leukocyte antigen) genes.^{xiv} The rate at which adults are being diagnosed is increasing, particularly those in the 40-50 year old range, due to greater awareness and improved diagnosis skills.^{xv}
- According to the Canadian Celiac Association estimated that 1 in 133 persons in Canada are affected by celiac disease.^{xvi}
- Genetic factors are involved in celiac disease. About 10% of the relatives of persons with celiac disease may also have the condition.^{xvii}

Dr. Davis says that because wheat contains amylopectin A, it makes us fat. Is this true?

- Amylopectin is the main component in the majority of starches, such as cereal grains (such as wheat, rice, barley, and corn) and potatoes.
- It is converted into blood sugar (glucose) and used as energy or stored in the body in the form of glycogen.
- Weight gain results when people consume more calories than they expend, so the best advice is to eat all foods in moderation.

Dr. Davis compares bread to candy bars and claims that two slices of whole wheat bread increase blood sugar to a higher level than a candy bar does. Is this true?

- Arguments that Dr. Davis makes regarding the effects of glycation resulting from consumption of wheat products are overly simplistic, and in fact apply to any food product that produces glucose.
- Glycation is an unavoidable consequence of the presence of glucose in the bloodstream, which is a necessary condition to sustain life. It is true that foods that result in larger increases in blood sugar can cause increased glycation, and Dr. Davis suggests that wheat products are among the worst of such culprit foods; in fact, he goes as far as to claim that "two slices of whole wheat bread increases blood sugar to a higher level than a candy bar does." This statement implies that in consideration of blood sugar control, a candy bar is a better food choice than two slices of whole wheat bread; presumably this conclusion is based on their respective glycemic indices (GI), in which case, this is true: whole wheat bread has a GI = 72, while a representative candy bar (Snickers Bar®, M&M, Mars) has a GI = 68.^{xviii}

- This data alone is highly misleading. When considering the effect of food on blood sugar, GI only tells one part of the story; a more complete measure is the glycemic load (GL), which indicates the degree of glycemic response and insulin demand produced by a specific amount of a specific food.^{ix} In this way, glycemic load reflects both the quality (i.e. GI) and the quantity (i.e. amount of carbohydrates) of dietary carbohydrates in food servings.
- By factoring in the number of carbohydrates in each serving size, a typical serving size of whole wheat bread has a GL = 9, placing it in the low GL category, while a candy bar has a GL = 23, placing it in the high GL category. Even if we were to equate the overall portion sizes by weight by doubling the serving size of the bread, it has a GL = 19, which places it in the moderate GL category, and still has a lower overall effect on blood sugar than a candy bar.
- Given the context of the article and Dr. Davis' position as a preventative cardiologist, the lay-reader may interpret that whole wheat bread is less heart-healthy than a candy bar. This is a dangerous conclusion and requires important clarification.
- Whole wheat bread represents a nutritionally-rich food product, including a variety of essential vitamins, minerals, and heart-healthy nutrients, including fibre and antioxidants. On the contrary, candy bars are not only nutritionally void, but they are heavy in saturated fats, which are among the strongest dietary components linked to cardiovascular disease.
- Part of the reason that candy bars demonstrate a lower GI compared to whole wheat bread is because of the high fat content of candy bars, which can slow gastric emptying and therefore slow the rate of carbohydrate digestion.^x So the apparent benefit of lower GI comes at the more deleterious expense of saturated fats in candy bars. Any food that is primarily protein or fat will have a low glycemic index because a rise in blood sugar is directly related to the carbohydrate content of food.

Will eliminating wheat from my diet result in weight loss?

- Carbohydrates, like wheat products, have come under attack with the current popularity of low-carbohydrate diets for weight reduction. A review of low-carbohydrate diets found no evidence to support this claim.^{xi}
- Weight loss is associated with decreased caloric intake.^{xxii,xxiii} It is a simple equation of calories in (consumed) and calories out (expended), rather than eliminating specific foods or entire food groups.
- Simply eliminating an item of food regularly consumed and not substituting it with alternative calories will result in weight loss. This is not specific to wheat.
- Dr. Davis uses anecdotal evidence from his patients to support his claim, rather than sound scientific studies. The studies Dr. Davis does reference are based on animals and he extrapolates the findings and applies them to humans.
- Unless you have celiac disease, a wheat allergy or are gluten sensitive, there is no reason to follow a gluten-free diet. In fact, there are many reasons for an otherwise healthy individual not to eliminate wheat foods from the diet, especially missing out on the important nutrients it contributes to a balanced diet.

Dr. Davis claims we become addicted to wheat. Is this true?

- According to Dr. Davis we over eat because of an addiction caused by peptides that form during the breakdown of wheat gliadin (gluten) and that the removal of wheat will curb this addiction, thereby conquering over eating.
- Meat, fish, soy spinach, corn and rice also produce the same peptides.

ⁱ Government of Canada website. Wheat Breeding. Sourced on October 4, 2011. Available at <http://www.science.gc.ca/default.asp?Lang=En&n=EE4977FA-1>.

ⁱⁱ The World's Healthiest Foods website. Whole Wheat. Sourced October 4, 2011. Available at <http://www.whfoods.com/genpage.php?tname=foodspice&dbid=66#healthbenefits>.

ⁱⁱⁱ Eat Right Ontario website. Choosing Whole Grains FAQs. Sourced on October 4, 2011. Available at <http://www.eatrightontario.ca/en/viewdocument.aspx?id=39#what>.

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- ^{iv} Pasut, Laura, Mc.Sc., RD. *Grains, essential for healthy eating*. Sourced on October 4, 2011. Available at http://www.grainsestential.ca/english/pdf/healthprofessionals/grains_forhealthyeating.pdf.
- ^v Eat Right Ontario website. Choosing Whole Grains FAQs. Sourced on October 4, 2011. Available at <http://www.eatrightontario.ca/en/viewdocument.aspx?id=39#what>.
- ^{vi} Eat Right Ontario website. Choosing Whole Grains FAQs. Sourced on October 4, 2011. Available at <http://www.eatrightontario.ca/en/viewdocument.aspx?id=39#what>.
- ^{vii} Jacobs DR, et al. Is whole grain intake associated with reduced total and cause-specific death rates in older women? The Iowa Women's Health Study. *Am J Pub Health* 89(3):322-29, 1999.
- ^{viii} Steffen LM, et al. Associations of whole-grain, refined-grain, and fruit and vegetable consumption with risks of all-cause mortality and incident coronary artery disease and ischemic stroke: the Atherosclerosis Risk in Communities (ARIC) Study. *Am J Clin Nutr* 78:383-90, 2003.
- ^{ix} Jacobs DR, et al. Fiber from whole grains, but not refined grains, is inversely associated with all-cause mortality in older women: the Iowa Women's Health Study. 19(3):326S-330S, 2000.
- ^x Jacobs DR, Steffen LM. Nutrients, foods, and dietary patterns as exposures in research: a framework for food synergy. *Am J Clin Nutr* 78(suppl):508S-13S, 2003.
- ^{xi} St. Michael's Foundation website. Dr. David Jenkins' Top 10 Healthy Foods. Sourced October 3, 2011. Available at <http://www.stmichaelsfoundation.com/inspiringstories/michaelstories/index.aspx?c=GFs1dXRO&a=1>.
- ^{xii} *Eating Well With Canada's Food Guide*. Make each Food Guide Serving count... page 3.
- ^{xiii} *Eating Well With Canada's Food Guide*. Make each Food Guide Serving count... pages 1 and 3.
- ^{xiv} Canadian Celiac Association website. Celiac Disease (CD). Sourced on October 4, 2011. Available at <http://www.celiac.ca/celiac.php>.
- ^{xv} Canadian Celiac Association website. Celiac Disease (CD). Sourced on October 4, 2011. Available at <http://www.celiac.ca/celiac.php>.
- ^{xvi} Canadian Celiac Association website. Celiac Disease (CD). Sourced on October 4, 2011. Available at <http://www.celiac.ca/celiac.php>.
- ^{xvii} Canadian Celiac Association website. Celiac Disease (CD). Sourced on October 4, 2011. Available at <http://www.celiac.ca/celiac.php>.
- ^{xviii} Glycemic Index Foundation, University of Sydney.
- ^{xix} Burani, Johanna. Practical Use of the GI. American Diabetes Association, 2006. Available <http://www.glycemicindex.com/>.
- ^{xx} Glycemic Index Foundation, University of Sydney.
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