



Ontario Home Economics Association

Ask a Professional Home Economist

For Immediate Release

Holes in Whole Wheat and Whole Grain

by Carol T. Culhane, P.H.Ec.

“Make half your grains whole” is a bold caption in Health Canada’s recently-released “Eating Well with Canada’s Food Guide”, intended to encourage consumption of a variety of whole grains including wheat, and lesser known choices such as barley, brown rice, oats, quinoa and wild rice.

Consumers, nutritionists and food writers may be surprised to learn that the terms “whole wheat” and “whole grain” are not synonymous in Canada.

Increasing scientific support of the nutritious goodness of whole grains, promotion by health professionals and rise in consumer demand has caused the terms “whole wheat” and “whole grain” to be used interchangeably in Canada. However, close examination reveals that these designations refer to flours and/or foods of differing composition. For example, Canadian food regulations have standardized the composition of whole wheat flour such that all components of the wheat kernel need not be present, despite the descriptor “whole”. On the other hand, the term “whole grain” is not currently standardized, yet when used to describe a food such as “whole grain cereal”, its use requires a significant presence of all proportional, naturally-occurring components of the entire grain kernel.

The exact name and precise composition of several foods sold in the Canadian marketplace are regulated by the Food & Drug Regulations. Referred to as the Standard for that food, it is designated by the symbol [S]. For example, the Standard regulating the name and composition of bread is Section **B.13.021 [S] Bread or White Bread**; that of whole wheat bread is **B.13.026 [S] (naming the percentage) Whole Wheat Bread**.

The White Flour Standard **B.13.001 [S]** requires enrichment – the replacement of vitamins and minerals lost during the milling process – resulting in “enriched flour”. It also provides for fortification – the addition of vitamins or minerals to a food to address a nutrient deficiency in a population – with folic acid. The Whole Wheat flour Standard **B.13.005 [S]** does not allow either enrichment or fortification.

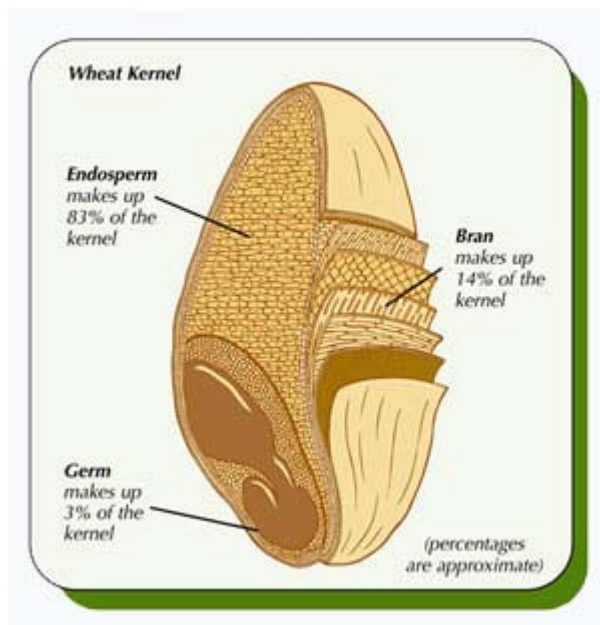
The composition of non-standardized foods is governed by Section 5.1 of the Food & Drugs Act (FDA): “No person shall label, package, treat, process, sell or advertise any food in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety.” For example, whole wheat pasta is a non-standardized food, yet its legal sale requires the presence of a significant amount of whole wheat flour.

While the legislation has been designed to free the marketplace of fraudulence, and to provide optimal nutrition for staple dietary items like flour, bread, rice and pasta, some irregularities and discrepancies have inevitably arisen, some of which are illustrated herein.

The Sum is Greater than the Whole

The wheat kernel components and the proportional composition of each are shown in Figure 1.

Figure 1, Wheat Kernel Components (Courtesy of Baking Association of Canada)



The Making of Whole Wheat Flour

The Standard for “whole wheat flour” specifies that no less than 95% of the natural constituents of the wheat kernel be present. Whole wheat flour can be prepared from milled endosperm, representing 83% of the kernel, to which is added the bran, representing 14% of the kernel, resulting in 97% of the wheat kernel. The germ is commonly not present in whole wheat flour or whole wheat-based foods.

Identifying the Holes in the Whole

Table 1 lists commonly-consumed wheat-based foods, identifies the presence or absence of a Standard [S], the wheat kernel components present, as well as the scope of enrichment and/or fortification in Canada.

Table 1, Wheat-based Foods: Name, Kernel Components, Degree of Fortification

<i>Wheat-based Flours or Foods</i>	<i>Standardized[S] Name and Composition</i>	<i>Wheat Kernel Component(s)</i>	<i>Mandatory Enrichment or Fortification</i>	<i>Optional Enrichment or Fortification</i>
Enriched White Flour ^{1,2}	Yes “shall be free of bran coat and germ”	Endosperm	Niacin, riboflavin, thiamine, iron, folic acid	Vitamin B ₆ , d-pantothenic acid, magnesium, calcium
Whole Wheat Flour ^{3,4}	Yes “shall contain the natural constituents of the wheat berry [kernel] to the extent of not less than 95% of the total weight of the wheat from which it is milled”	Most commonly: Endosperm, bran	No (Prohibited by the Standard)	No (Prohibited by the Standard)
Whole Grain Flour ⁵	Proposed December 2006 by Health Canada and is currently under consultation with food industry	Endosperm, bran, germ (Proposed)	None Proposed	None Proposed
Pasta	No	Endosperm	No	Yes ⁶
Enriched Pasta	No	Endosperm	Niacin, riboflavin, thiamine, iron, folic acid	Vitamin B ₆ , pantothenic acid, magnesium
Whole Wheat Pasta	No	Most commonly: Endosperm, bran	No	Yes ⁶

¹ Alternative names as per the Standard: Flour, White Flour, Enriched Flour.

² Flour is specified in the Standard for White Bread.

³ Alternative name as per the Standard: Entire Wheat Flour.

⁴ Whole Wheat Flour is specified in the Standard for Whole Wheat Bread.

⁵ May be declared as “Whole Wheat Flour with added germ” in ingredient listings.

⁶ “All or nothing rule” prevails – if any one of the eight vitamins and minerals listed in the last two columns of Enriched Pasta is added, then all eight vitamins and minerals must be added.

Advice for Optimal Nutrition

Until clear definitions are legislated, consumers are advised to:

- Read the ingredient list on the package label or, if purchasing fresh, ask the baker or retailer to identify the ingredients.
- Obtain optimum B-vitamin and iron content in partial whole-wheat foods by choosing those that declare enriched flour near the beginning of the ingredient list.
- Look for whole grain foods that describe the grains as “whole” in the ingredient list, or, in the case of wheat, indicate the presence of “whole wheat flour with added germ”.
- Select “enriched pastas”, or those which declare added vitamins and minerals in the ingredient listing.
- Note that “stone ground”, as in “stone ground wheat”, refers to milling of the entire kernel, including the germ.

– 30 –

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The Ontario Home Economics Association, a self-regulated body of Professional Home Economists, promotes high professional standards among its members so that they may assist families and individuals to achieve and maintain a desirable quality of life.

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