



Whole Grain Foods North America (NA) 北美的全谷物食品

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Some Interesting Facts

一些有趣的事实

- Whole grain food market (world-wide) for 2017 hit \$ 27.6 billion 世界全谷物276亿美元
- USA #1 for whole grain market 美国是最大
- Asia-Pacific fastest growth 亚太地区市场增长最快
- **18-34** year-old largest consumer group 最大消费群体 18-34岁
- Whole grain food consumption increased by 20% from 2005 to 2008
- Almost 20 times more new whole grain foods in 2010 compared to 2000 2000年到2010增长20倍

Food differences 食物的差异

- I would first like to give you an idea of the types of foods eaten in North America that contain **whole grains**

我想给大家介绍北美消费的含全谷物食品

- Many of these foods are different from those eaten in China

其中一些与在中国消费的全谷物食品不同

Major whole grain foods in NA

1. Breakfast cereals: normally eaten with milk

早餐谷物：通常与牛奶一起食用

2. Breads and pasta

(macaroni, spaghetti, noodles, pizza, etc.)

面食：面包和意大利面

(通心面、细面、面条、披萨...)

3. Cereal bars, crackers and cookies

谷物棒，酥脆饼，甜饼干



Breakfast cereals 早餐谷物



Lowers
cholesterol

降低胆固醇

Breakfast cereal
made with **whole
grain oats**
全燕麦加工的
早餐谷物

Breakfast cereal with **quinoa** and **oats**
藜麦和燕麦 早餐谷物



Breakfast porridge made with
oats 早餐燕麦粥



Whole
grain
oatmeal
porridge:
similar to
rice
congee



Xi 'fan 稀饭 or Zhou 粥



Some people put fruit in their **oat** porridge

一些人早餐燕麦粥中加水果

Breakfast cereal
containing **wheat
bran** 含麦麸的早餐谷物



whole grain (**wheat**)
breads

全谷物（全麦）面包



Whole grain bread with flax seed 含亚麻籽的早餐谷物



Organic, whole grain bread
有机全谷物面包





Whole grain bagels
全谷物百吉饼/贝谷圈



refined grain
bread: no bran
or germ

精加工（小麦）
面包：无麦麸
和麦胚





buns and rolls with **whole grain wheat** are now available
全小麦面包、面包圈，
能买得到



Pasta made from
whole grain wheat
全小麦意面



Whole grain spaghetti

全谷物意大利细面条





Cookies

全谷物甜饼干





cereal bars containing
whole grains: quick
breakfast food

全谷物棒
早餐方便食物

Whole grains 何谓全谷物？

Whole grains are grains which have undergone the **least amount** of processing.

全谷物是指经过最小程度加工的谷物

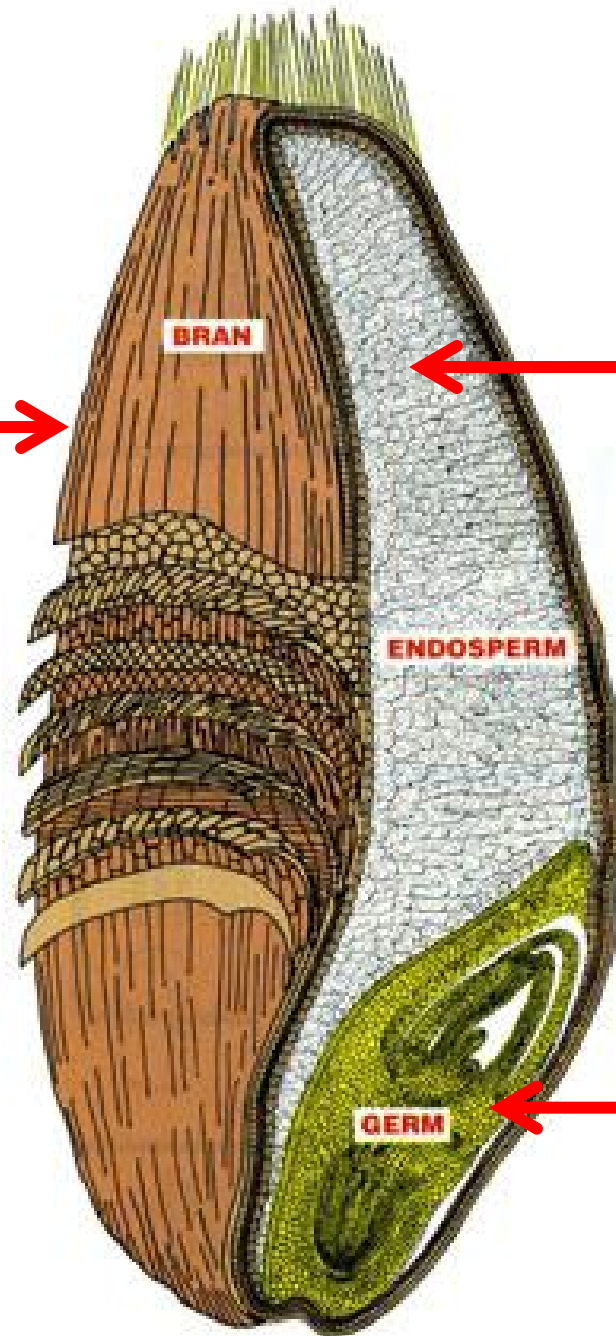
- This means that all three major parts of the grain are preserved, including the **bran, germ,** and **endosperm**.

这意味着**麸皮（种皮）、胚芽和胚乳**三大部分全部得到了保留

Whole wheat
grain kernel
小麦全谷粒

bran
麸皮

Refined or
processed wheat
only contains the
endosperm
将加工小麦，仅
保留胚乳



endosperm
胚乳

germ or
embryo
胚芽

Whole grains 全谷物结构

- **The bran 麸皮** is the protective covering of the grain and provides fiber, B vitamins, and minerals., 提供纤维、B族维生素和矿物质
- **The germ 胚芽** feeds the seed and is the source of new growth in the plant. It provides vitamins, including B vitamins and vitamin E, minerals and healthy fats. 提供B族维生素、V_E，矿物质 和 健康的油脂
- **The endosperm 胚乳** is the inner seed and provides carbohydrate and protein. It also provides vitamins and minerals 碳水化合物（淀粉，约9成）和蛋白质（约1成）

Whole grain rice kernel 稻米粒

外壳，稻壳

hull

麸皮层
(种皮+糊粉层)

bran
layer

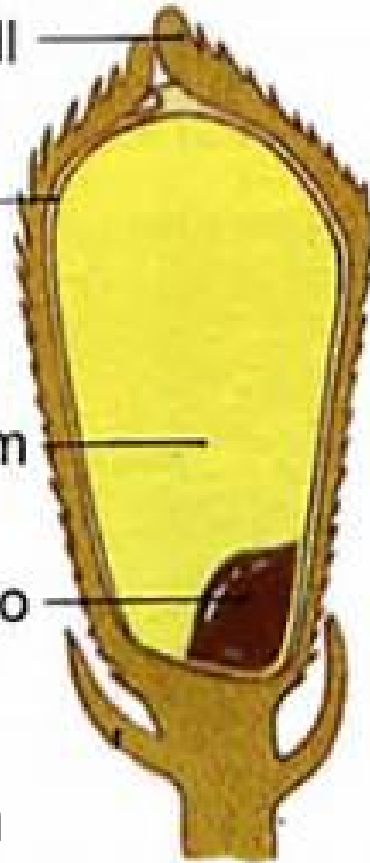
胚乳

endosperm

胚芽

embryo

or
germ



Refined rice only
contains the
endosperm:
no bran, hull or germ

精加工稻米（精白米）
仅剩胚乳

- Brown whole grain rice

棕色全稻米

即糙米

- Contains

① bran 麸皮/种皮/糊粉层

② endosperm 胚乳

③ germ 胚芽



Refined or
processed rice:
no bran

精加工，去掉了
种皮
（仍然保留了部
分糊粉层）

籼米
粒长，不糯



When the hull of a seed is removed it is called
groats: 去掉谷壳的种子叫 ~粒 (米)

Example: Oat groats 燕麦粒 (米)



Not all grains have hulls: rice has a hull
不是所有谷物有谷外壳，稻子有外壳 (稻壳)

Refining: removal of bran and germ

精加工：去除麸皮和胚

Refining wheat creates fluffy flour that makes light, airy breads and pastries

精加工小麦可得到细腻蓬松的面粉，可制作蓬松的白面包和甜点

- Refining strips away more than half of wheat's B vitamins, 90 percent of vitamin E and nearly all of the fiber.

精加工去除了小麦

一多半V_B族、90% 维生素E，几乎所有的纤维

Whole grain foods 全谷物食品

- Foods that have whole grains as **the main or major or first listed ingredient on food label** 全谷物为主要原料或配料或组分的，要列在食品配料表首列，
- “Whole grain” “whole wheat flour”, “whole rye”, “whole oat” or “oatmeal”, “whole corn”, “whole barley”

Should appear first on the ingredient list.

譬如 “全谷物” “全小麦粉” “全黑麦” “全燕麦 或 麦片”
“全玉米”， “全大麦”

Whole wheat flour is the first ingredient
全小麦粉被列在配料表第一位



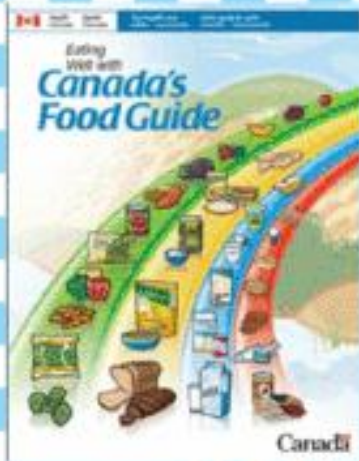
Whole grain wheat is the first ingredient listed



Canada and whole grains

加拿大的全谷物

- Canada has a **Canada's Food Guide**
 - developed by Health Canada (government agency)
加拿大有一个《加拿大居民膳食指南》
- In 2007 Health Canada updated **Canada Food Guide** 2007年 加拿大卫生部 更新了~
 - recommendation for increased whole grain consumption to promote adequate intakes of fibre and magnesium
增加了全谷物的推荐摄入量，已促进膳食纤维和镁的摄入



CANADA'S FOOD GUIDE



- History of the guide
- The food groups
- Recommended daily servings

What is a serving <http://www.hc-sc.gc.ca/food-guide-aliment/index-eng.php>



Healthy
Eating



Canada and whole grains

- Recommends that adults eat **six to eight servings (8 grams)** of grains daily with at least half of the servings coming from whole grains. 成人每日应吃6~8份谷物餐（每份8g）
 - bread, rice, bagels, quinoa, cereal and pasta
面包、大米、百吉饼、藜麦、谷类和面条
- Survey found that only about 15 % of Canadians eat the recommended amount of grains specified by Canada's Food Guide

调查发现，有15%的加拿大居民遵照《指南》量摄入谷物

Canada/ US Food Guide (servings of whole grain/day)

Age	Girls/women	Boys/men
2 - 3	*1.5 – 3**	*1.5 – 3**
4 - 8	2 - 4	2- 4
9 - 13	3 - 6	3- 6
14 - 18	3 - 6	3.5- 7
19 - 50	3 - 7	4 -8
51+	3 - 6	3.5 -7

*Minimum

**Total

加拿大和美国膳食指南
每日谷物推荐摄入量（份）

In Canada

- Since 2007, 1,148 products have been introduced into the Canadian market with whole grains on their labels
- 2007年，加拿大有1148种声称“全谷物”的食品上市场



Canada and whole grains

加拿大全谷物

- Whole grain **labelling** is expanding in Canada, but it is **voluntary**. 推荐性
- In Canada there are **no regulations** for using the term "whole grain" on product labels. 关于“全谷物标示”加拿大没有标准和规范
- That means the term "whole grain" does not guarantee that the product is a healthy choice. 这意味着“全谷物”不一定保证产品是健康的
- Many products labelled "whole grain" may be low in whole grains 很多声称“全谷物”的食品或许全谷物组分很低

Canada and whole grains

加拿大全谷物

- On average, breads with whole grain labels were higher in fibre and magnesium.

一般而言，全谷物面包，纤维和镁含量要高。

- Lower in sodium 钠含量则低
- More expensive 售价更贵
- Health Survey found that Canadian adults may not consume enough fibre, magnesium and zinc, which are found in whole grains

健康调查发现，加拿大成年居民纤维、镁、锌摄入可能不足，而这些在全谷物中丰富

USA 美国

- FDA is responsible for regulations and activities dealing with the proper labeling of foods, including their ingredients , nutrients and health claims.

美国食药局(FDA)负责监管 食品标签，包括配料表、
营养素 和 建设声称

- FDA also helps manufacturers understand what is appropriate for statements on food labels, including those related to whole-grain content

FDA 也帮助（指导）食品加工者如何在食品标签中
正确和合适地标识和声称

Food pyramid

Fats, Oils & Sweets
USE SPARINGLY

KEY
 ■ Fat (naturally occurring and added)
 ■ Sugars (added)
 These symbols show fats and added sugars in foods.

Milk, Yogurt & Cheese Group
2-3 SERVINGS

Meat, Poultry, Fish, Dry Beans, Eggs & Nuts Group
2-3 SERVINGS

Vegetable Group
3-5 SERVINGS

Fruit Group
2-4 SERVINGS

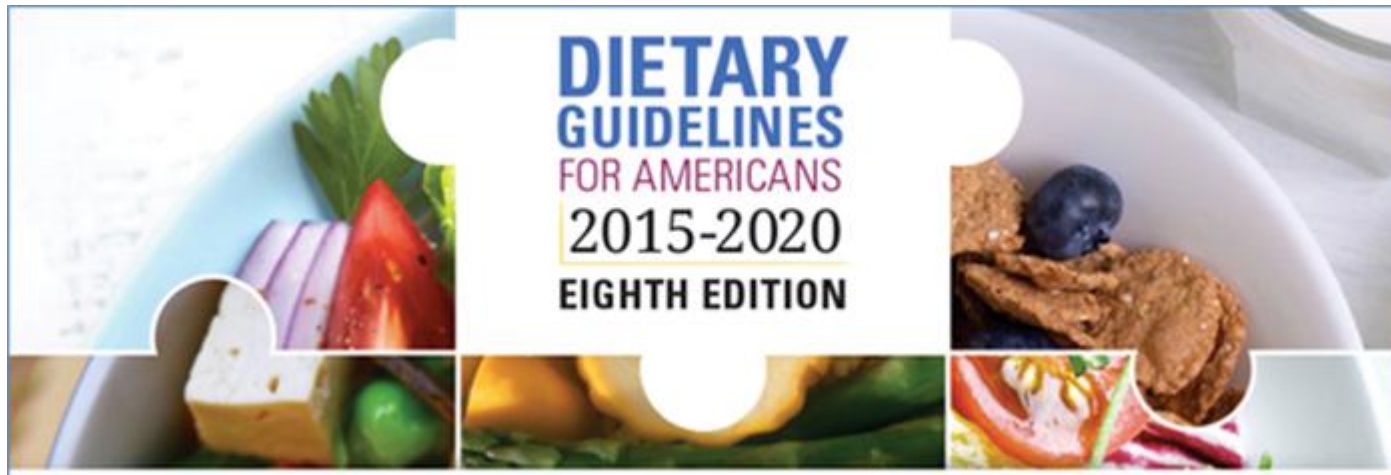
Bread, Cereal, Rice & Pasta Group
6-11 SERVINGS



健康中国、
营养先行

中国居民平衡膳食宝塔 (2016)





- Office of Disease Prevention and Health Promotion
 - U.S. Department of Health and Human Services
 - U.S. Department of Agriculture
- 2015 – 2020 Dietary Guidelines for Americans. 8th*
Edition. December 2015.

Available at

<http://health.gov/dietaryguidelines/2015/guidelines>

USA 美国

- The *Dietary Guidelines* is required under the 1990 National Nutrition Monitoring and Related Research Act

美国膳食指南，根据 1990年的《国家营养监测及相关研究法案》指定

- Every 5 years, the [U.S. Departments of Agriculture \(USDA\)](#) and Health and Human Services (HHS) jointly publish a report containing nutritional and dietary information and guidelines for the general public.

美国农业部（USDA）和人类健康服务部（HHS）每5年更新联合发表膳食信息（食物成分表）及指南

USA 美国

- The *Dietary Guidelines* is designed for nutrition and health professionals so that they can help people and their families eat a healthy, nutritional diet.

《指南》是由营养和健康专家们指定的，目的在于指导民众和家庭的健康饮食。

- The information in the *Dietary Guidelines* is used by policymakers in developing Federal food, nutrition, and health policies and programs. 《指南》也用于被政策制定者出台联邦食物、营养和健康政策和项目。

- Used for education purposes: schools
也用于教育目的：如在学校（营养健康教育）



USDA Food Composition Databases

美国农业部食物营养数据库

- USDA National Nutrient Database for Standard Reference: revised May 2016

最新的美国USDA 《食物营养成分标准参考数据库》
2016年5月出版

- Web site allows search of USDA Food Composition Databases

网址如下，

可以检索美国农业部的 《食物成分数据库》

- Ndb.nal.USDA.gov

Whole Grain Council

全谷物理事会/委员会

- A council consisting of **Nutritionists** and **Food Scientists** and people involved in preparing food. 营养学家、食品科学家和食品企业专家组成的专业委员会。
- Formed in January **2005** 2005年1月成立
- Helps consumers to identify whole grain foods
帮助消费者识别全谷物食品
- Helps consumers to understand benefits of whole grain foods
帮助消费者认识全谷物的益处
- Helps manufacturers and restaurants create delicious whole grain foods
帮助食品加工者、餐饮业开发美味可口的全谷物食品

Whole Grains Council Stamp

全谷物委员会标识（图章）

- A marker or stamp placed on products that can be easily seen

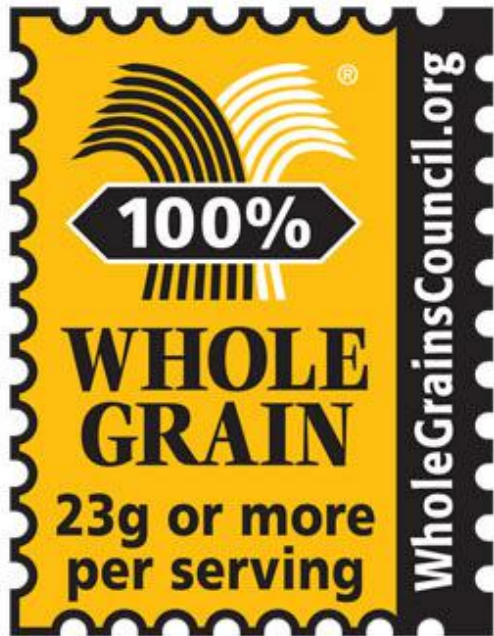
一个食品包装显著位置上标识的标志（图章）

- The stamp shows the consumer that the product contains significant amounts of whole grains 该标识表明该食物 足够高量的全谷物
- Every product that has the stamp must contain at least 8 grams of whole grain per serving
 - 8 grams equals one half of a [MyPyramid](#) serving标注该标识的产品，必须含有至少每餐份8g全谷物相当于膳食金字塔 每份产量的一半。

Whole Grains Council Stamp

全谷物委员会标识（图章）

- Products that bear the 100% Whole Grain Stamp contain at least 16 grams of whole grain per serving
标识 100%全谷物的，没餐份 至少含16g全谷物
 - a full MyPyramid serving as outlined by the USDA and does not contain any refined grains, 不含任何精加工谷物
 - 8 grams is considered a half serving



100% OF THE GRAIN IS WHOLE GRAIN

Contains
100% whole
grain



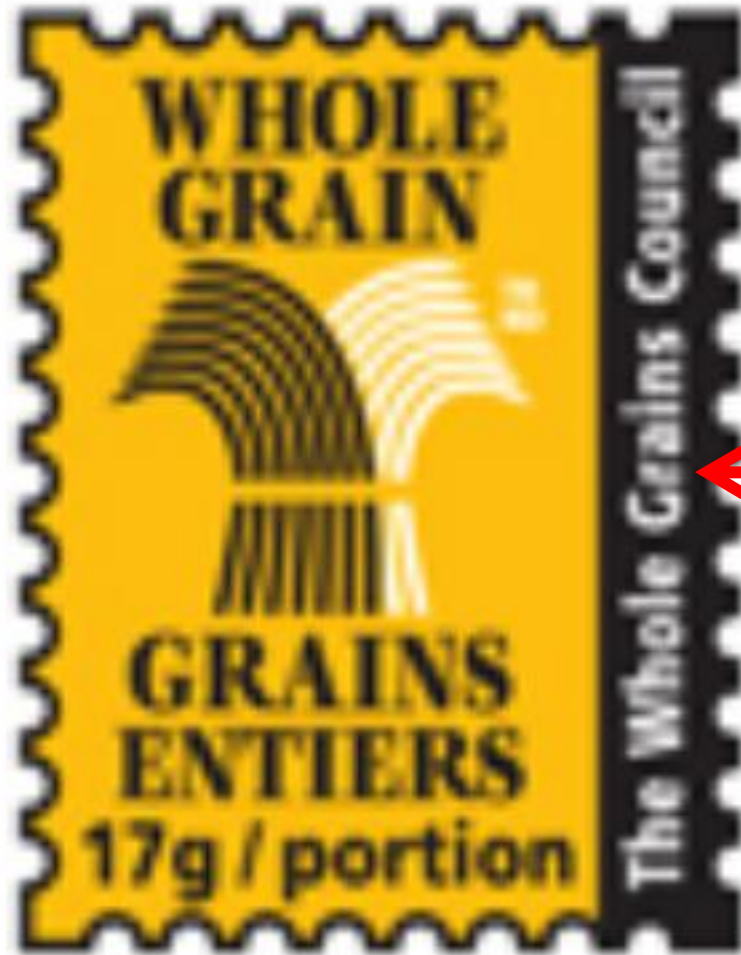
50% OR MORE OF THE GRAIN IS WHOLE GRAIN

Contains 50%
whole grain +
refined grain



EAT 48g OR MORE OF WHOLE GRAIN DAILY

Contains at least
8 grams of
whole grain



English
英文

French
法文

Bilingual Whole Grain Council Stamp
英法双语全谷物标识（图章）



Chinese whole grain stamp 中文的



100%
**WHOLE
GRAIN**
20g or more
per serving

WholeGrainsCouncil.org

EAT 48g OR MORE OF
WHOLE GRAINS DAILY

Whole Grain Council Stamp

As of April 2017, the Whole Grain Stamp is on over **11,000** different products in **56 countries**

截止 2017年4月，有56国家11000个产品标注了全谷物理事会的“全谷物食品图章”

Some examples of whole grains

一些全谷物

- Amaranth 南美白印第安食用的谷物
- Bulgar
- Millet 稷、小米
- Quinoa 藜麦
- Spelt 斯佩耳特小麦



Sometimes they are called **ancient grains** because they were used hundreds to thousands of year ago.

其中一些被成为 古谷物，因为几百、几千年前就人类就食用了。

Amaranth

- Tiny, circular grain
- Cream-coloured ; Central America



Bulgur

- Produced from Durham wheat 达勒姆小麦 (hull removed)
- Cream to brown color ; Turkey and Middle-East Has a mild nutty flavour ; sold parboiled

土耳其、中东有售，有轻微的坚果味儿，以半煮熟形态销售



Millet

- Tiny, circular granules
- Colour ranges from white to gray to yellow to red ; **north China** and Africa
- Slightly sweet, nut-like flavour



Quinoa 藜麦

- Small, circular granules
- Pale yellow in colour
- Slightly nutty flavour : South America



Spelt 斯佩耳特小麦

- Oval in appearance, yellow-brown
椭圆、梭形，黄棕色
- Deep nut-like flavour
- A distant cousin to wheat : Europe
小麦的近亲



Health Benefits of Eating Whole Grains

全谷物的健康益处



Lower mortality 降低死亡率

- A study from the Harvard School of Public Health reported that eating more whole grains can **lower mortality** by up to 15% – particularly when it comes to **cardiovascular** disease-related mortality

尤其显著降低心血管病死亡率

Whole Grain Council

- “Because of the **phytochemicals**（植物化合物） and **antioxidants**（抗氧化物）, people who eat three daily servings of whole grains have been shown to reduce their risk of:
 - heart disease by 25-36% 心脏病
 - stroke by 37% 中风、卒中
 - type II diabetes by 21-27% 二型糖尿病
 - digestive system cancers by 21-43% 消化系统癌
 - hormone-related cancers by 10-40%.”激素相关癌症

Health Benefits

- Whole grains contain bran and fiber, which slow the breakdown of starch into glucose. This maintains a steady level of sugar in the blood (**blood sugar**).

维持血糖的稳定

- **Does not cause** spikes or increases in blood sugar. 不会陡然升高血糖

- Fiber helps lower cholesterol as well as move waste through the digestive tract

膳食纤维 降低血液胆固醇，

促进肠道垃圾（肠毒）的排除

Type 2 Diabetes 二型糖尿病

- In a study of more than 160,000 women whose health and dietary habits were followed for up to 18 years, those who averaged 2 to 3 servings of whole grains a day were 30 % less likely to have developed type 2 diabetes than those who rarely ate whole grains.

Cancer 癌症

- The data on cancer are mixed, with some studies showing a protective effect and others showing none.
- A large, five-year study among nearly 500,000 men and women suggests that eating whole grains, but not dietary fiber, offers modest protection against colorectal cancer.

Digestive Health 消化系统健康

- By keeping the stool soft and bulky, the fiber in whole grains helps prevent constipation, a common problem.

膳食纤维防止便秘和增加粪便量

- It also helps prevent diverticulosis by decreasing pressure in the intestines

肠憩室病

Composition and nutritional value of wheat and rice brans

组成、小麦和稻米麸皮营养价值



Composition of Bran from different grains

Nutrients (%)	Wheat	Rye	Oat	Rice	Barley
<u>CHO</u>	45–50	50–70	16–34	18–23	70–80
<u>starch</u>	13–18	12–15	18–45	18–30	8–11
<u>protein</u>	15–18	8–9	13–20	15–18	11–15
<u>fats</u>	4–5	4–5	6–11	18–23	1–2

Major Chemical Components

Wheat Bran (%)

- Total carbohydrate: 71.0
- Fat: 16.0
- Protein: 13.0

Rice Bran (%)

- Total carbohydrate: 31.0
- Fat: 55.0
- Protein: 8.0

Nutritional Value of Brans (100 grams)

Wheat Bran

- Total fat: 4.3 g
 - saturated: 0.6 g
- Cholesterol: 0 mg
- Sodium: 2.0 mg
- Total CHO: 65.0 g
 - dietary fiber: 43.0 g
 - sugar: 0.4 g
- Protein: 16.0 g
- **216 calories**

Rice Bran

- Total fat: 21.0 g
 - Saturated : 4.3 g
- Cholesterol: 0 mg
- Sodium: 5.0 mg
- Total CHO: 50.0 g
 - dietary fiber: 21.0 g
 - sugar: 0.9 g
- Protein: 14.0 g
- **316 calories**

Daily value (%)
based
on a 2,000 calorie diet (USDA)

Wheat Bran (100 g)

- Total fat: 7.0 %
 - saturated: 3.0 %
- Cholesterol: 0 .0 %
- Sodium: 0.0 %
- Total CHO: 22.0%
 - dietary fiber: 171.0 %
- Ca: 7.0 %
- Fe: 59 %

Rice Bran (100 g)

- Total fat: 32.0 %
 - saturated: 21.0 %
- Cholesterol: 0 .0 %
- Sodium: 0.0 %
- Total CHO: 17.0 %
 - dietary fiber: 84.0.0 %
- Ca: 6.0 %
- Fe: 103.0 %

Vitamin Value of Brans (100g)

Wheat Bran

Choline: 74.0 mg (milligram)

Niacin: 13.6 mg

Pantothenic acid: 2.2 mg

Riboflavin: 0.6 mg

Thiamin: 0.5 mg

Vitamins:

A : 9.0 IU (international unit)

C: 0 mg

E: 1.4 mg

K: 1.6 mcg (microgram)

B₁₂ : 0.0 mg

B₆ : 1.3 mg

Rice Bran

Choline: 32.0 mg

Niacin: 34.0 mg

Pantothenic acid: 7.4 mg

Riboflavin: 0.28 mg

Thiamin: 2.7 mg

Vitamins:

A : 0.0 IU

C: 0 mg

E: 4.9 mg

K: 1.6 mcg

B₁₂ : 0.0 mg

B₆ : 4.0 mg

Mineral Value of Brans (100g)

Wheat Bran

- Ca: 73 mg (milligram)
- Cu: 0.99 mg
- Fe: 10.6 mg
- Mg: 611.0 mg
- Mn: 11.5 mg
- P: 1013.0 mg
- K: 1182.0 mg
- Se: 77.6 mcg (microgram)
- Na: 2.0 mg
- Zn: 7.27 mg

Rice Bran

- Ca: 57 mg (milligram)
- Cu: 0.73 mg
- Fe: 18.5 mg
- Mg: 781.0 mg
- Mn: 14.2 mg
- P: 1677.0 mg
- K: 1485 mg
- Se: 15.6 mcg (microgram)
- Na: 5.0 mg
- Zn: 6.04 mg

Thank you