

Whole grain dietary recommendations, Definitions & regulations: Harmonization in Southeast Asia

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Outline

- **Nutritional aspects** of whole grains
 - ❖ loss of vital nutrients from grains during refining
 - ❖ **whole grains are more nutritious**
- **Regulatory status** of whole grains in SEA
 - ❖ definition of whole grains, labeling requirements
 - ❖ **lack of regulations on whole grains** in SEA
- **Dietary guidelines** on whole grains in SEA
 - ❖ to promote consumption due to health benefits
 - ❖ **lack of dietary guidelines** for whole grains in SEA
- **Lack of data on consumption** of whole grains
- **Promotion of whole grain** consumption – eg Malaysia
- **Concluding thoughts** –
 - ❖ greater emphasis on promotion of whole grains consumption



Nutritional aspects of whole grains

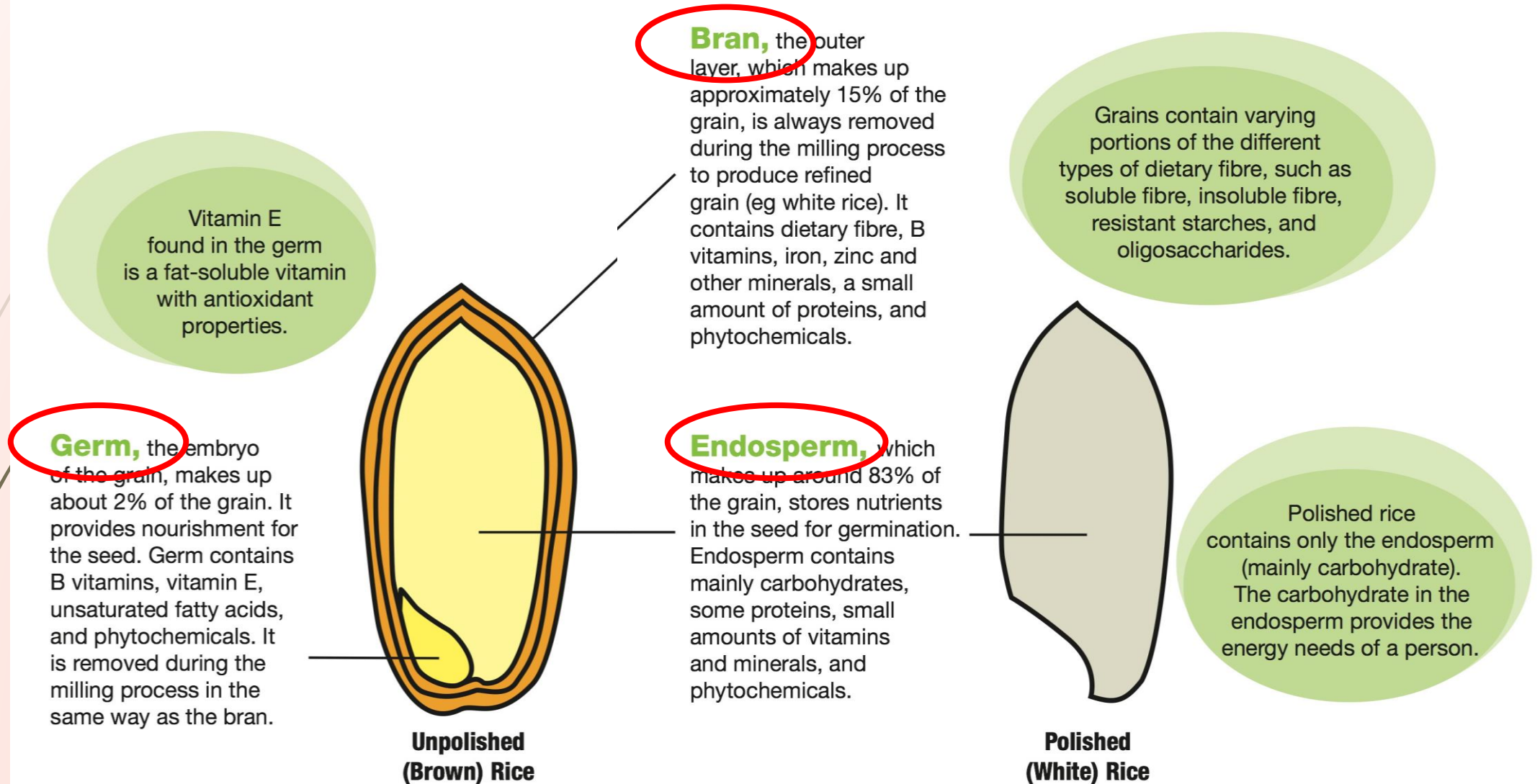
... whole grains retain the macronutrients, vitamins and minerals, dietary fibre and phytonutrients

- For the last 3000 to 4000 years, a majority of the world's population has **relied upon whole grains** as a main proportion of the diet
- Cereals are an excellent choice to serve as the **main source of energy**
 - ❖ providing more than 55% of daily total energy needs
 - ❖ as a major source of protein
 - ❖ **source of other nutrients such as fibre, several B vitamins and several minerals**
 - ❖ **and phytonutrients**

- Within the past 100 years, a majority of the population has **changed to consuming refined grain grains and products**
- **Eight types of cereals** provide more than half of the energy and protein consumed by the world population
 - ❖ wheat, maize, rice, barley, sorghum, oats, rye and millet
- Within the Southeast Asian region
 - ❖ **Rice is the main cereal**, together with a wide variety of **rice products**
 - ❖ **wheat and products are also of importance**

- The various steps involved in the process of **refining grains remove** the valuable outer layers
 - ❖ **bran and germ** of the grains
- **Majority of the nutrients** such as vitamins, minerals, phytonutrients and dietary fibre in the bran and germ **are lost**
- **Whole grains are therefore more wholesome**
 - ❖ serving as a rich sources of vitamins B, E
 - ❖ minerals (eg magnesium, zinc and selenium)
 - ❖ dietary fibre
 - ❖ **and numerous phytonutrients**
- The nutritional superiority of whole grains is more than just dietary fibre

Whole Grains Are More Nutritious



Regulations on whole grains in SEA

**... definition, labelling,
nutrition and health claims**

What are whole grains

- **Whole grains include the entire grain seed (the kernel) which consists of three components**
 - ❖ **bran, germ, and endosperm**
- **If the kernel has been cracked, crushed, or flaked, then, to be called a “whole grain”, a food must retain the same relative proportions of these components as they exist in the intact grain**
- **Several definitions of whole grains have been proposed by various authorities**
 - ❖ **no global consensus**
 - ❖ **but general agreement based on the above general description**

- In Southeast Asia, **only Singapore and Indonesia have regulations related to whole grains**
- Malaysia process of enacting regulations
 - ❖ a **definition** of whole grains and the requirement for whole grain declaration
 - ❖ the term “wholegrain” is qualified immediately by words indicating **% of wholegrain** ingredients
- Only Singapore allows a **specific health claim on diet rich in whole grains**, fruits and vegetables and reducing risk to heart disease and some cancers
- No country in the region has regulations for content claim on whole grains
 - ❖ **no claim for “high” or “rich in” whole grains**

➤ Malaysia has drafted a regulation on whole grains definition and labeling requirements

75A (1) For the purpose of this regulation, a reference to 'wholegrain' shall be defined as cereal grains that consist of the intact, ground, milled, cracked or flaked kernel after the removal of inedible parts such as the hull and husk where the constituents contains the starchy endosperm, germ and bran that present in the same relative proportions as they exist in the intact kernel.

(2) No label which describes any food shall include the word 'wholegrain' or any other words of the same significance unless, calculated on dry matter, the food contains the specified percent or more of whole grain for each category –

(a) 100% for wheat flour, rice flour, rice, grains

(b) 60% for bread

(c) 30% for prepared cereal food, pasta, flour confections

(3) There shall be written in the label the word 'wholegrain' and the percent of the 'wholegrain' in not less than 10 point lettering."

Dietary guidelines on whole grain in South East Asia

**... and data on whole grain
consumption**

**(Brownlee et al 2018: recent review
of whole grains regulations,
recommendations and research in
SEA)**

An Overview of Whole Grain Regulations, Recommendations and Research across Southeast Asia

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- Numerous **health benefits of whole grains** have long been recognised
 - ❖ may **reduce the risk of several chronic diseases** such as cardiovascular disease, cancer and diabetes.
 - ❖ helping to **improve bowel health**,
 - ❖ may assist in **weight management** and
- Some countries (eg Singapore) have even permitted health claims related to whole grain consumption

In view of these health benefits

**.... some country dietary
guidelines promote the
consumption of whole grains**

- Survey of dietary guidelines **in 6 SEA countries**
- All FBDGs recommend the consumption of rice and other cereal grains
 - ❖ to provide the most daily energy needs
- Four countries included **suggestions for whole grain intake**
 - ❖ Indonesia, Philippines, Malaysia, Singapore
- **Only Malaysia and Singapore have provided clear key messages** that encourage the consumption of whole grains
 - ❖ provide detailed information on **nutritional benefits** of whole grains
 - ❖ suggested **choosing at least half of the grain products from whole grains**



Mal J Nutr 22 (Supplement): S1 - S47, 2016

Food-Based Dietary Guidelines of Southeast Asian Countries: Part 1- A Compilation and Analysis of Key Messages

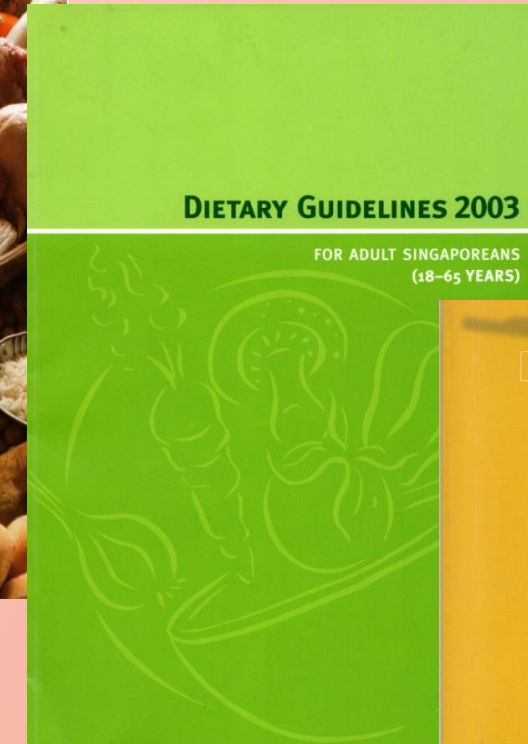
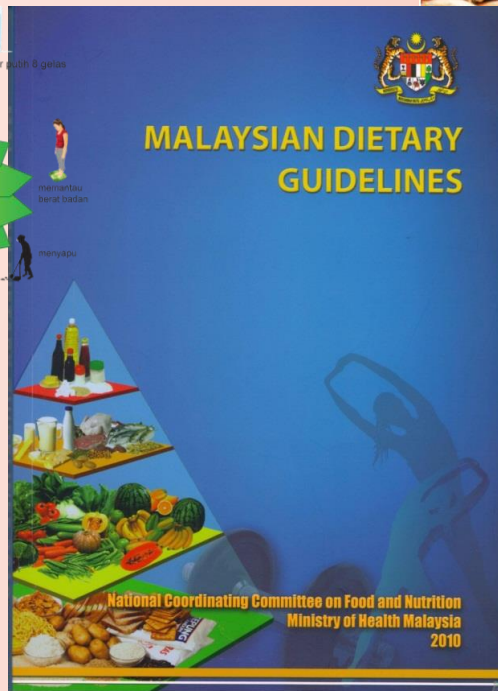
Tee ES^{1*}, Hardinsyah R², Florentino RF³, Ismail MN⁴, Suthutvoravut U⁵ & Hop LT⁶

Mal J Nutr 22 (Supplement): S49- S65, 2016

Food-Based Dietary Guidelines of Southeast Asian Countries: Part 2 - Analysis of Pictorial Food Guides

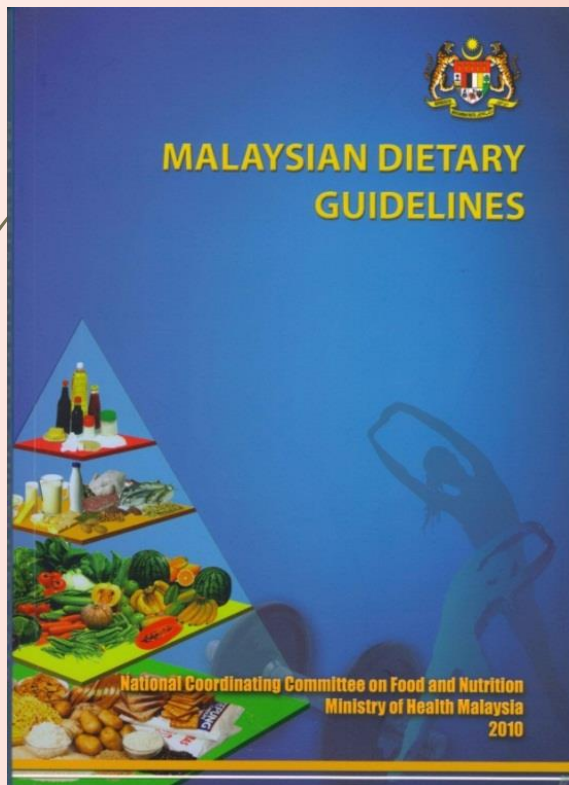
Florentino RF^{1*}, Tee ES², Hardinsyah R³, Ismail MN⁴, Suthutvoravut U⁵ & Hop LT⁶

FBDG from Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam studied



Key Message 4

Eat adequate amount of rice, other cereal products (preferably whole grain) and tubers



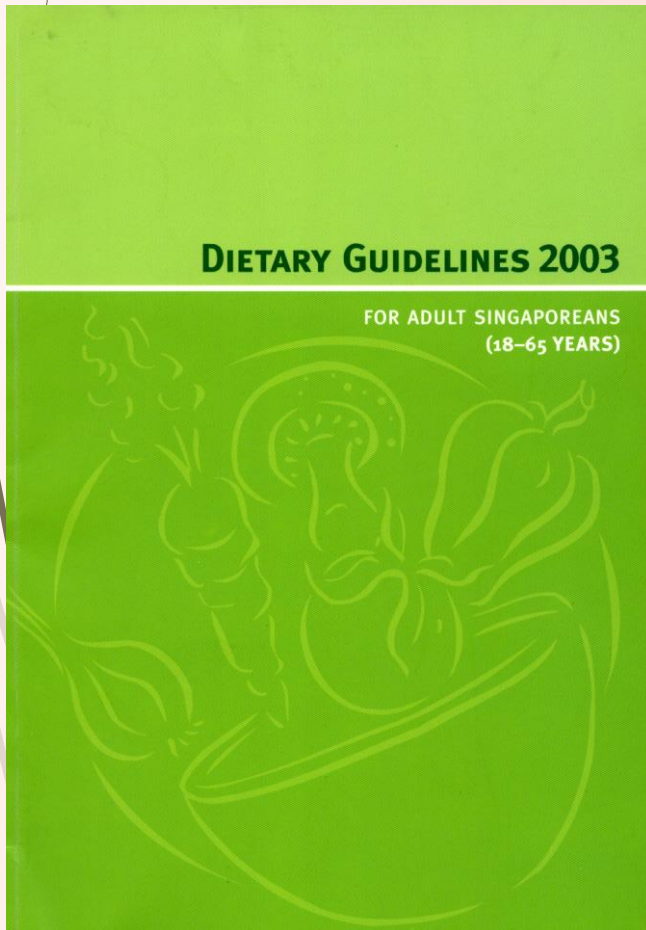
Key recommendation 2

Choose at least half of your grain products from whole grains.

How to achieve

1. Cook white rice mixed with brown rice.
2. Choose whole grain alternatives for bread, biscuits and cereal products.
3. Use whole grains such as oats and barley as extenders to soups.
4. Read food labels for whole grain content.

Singapore dietary guidelines (2003)



Eat sufficient amount of grains, especially wholegrains

Rice, wheat, corn, barley and oat are examples of grains. Grains are eaten whole or as products made from flour such as noodles, bread, roti prata, chapati, thosai and biscuits.

Encourage more grains

Grains and grain products belong to the rice and alternatives food group that is found at the base of the Healthy Diet Pyramid. Individuals are encouraged to include these food as the bulk of the diet.

Food items made from grains provide carbohydrates (starch), dietary fibre, vitamins, minerals and phytochemicals that are important for good health. These food choices also provide the main source of energy for our daily activities.

To get the right portion from each food group, individuals are encouraged to follow the number of servings recommended for each food group. Inactive individuals should aim for the lower number of servings.

- Rice and alternatives should be the main component of a healthy diet. They are good sources of carbohydrates (starches), dietary fibre and vitamins B and E. Individuals are encouraged to eat 5–7 servings a day, of which at least one should be a wholegrain product such as wholemeal bread or brown rice.

- Review of the availability of data in SEA on whole grain showed that only **16% were on human intervention and observational studies**
- Only **3 countries had recent estimates** on wholegrain food intake
 - ❖ Malaysia, Singapore, Philippines
 - ❖ Longitudinal data only for adults in Singapore
- Lack of whole grain intake data due to **challenges in measurement**
 - ❖ lack of detailed food intake data at the brand level to enable identification of whole grain foods;
 - ❖ no clear ingredient labelling and declaration of percent whole grain;
 - ❖ lack of a database on wholegrain composition

- **MyBreakfast study by NSM** among over 8,000 primary and secondary school children throughout Malaysia
 - ❖ only 25% of children and 19% of adolescents were wholegrain consumers
 - ❖ **mean daily intake was very low, about 2 g/d**
 - ❖ **< 3% of the children and adolescents reached the US quantitative whole grain recommendation of 48g/day**
 - ❖ Wheat was the main grain source of whole grain while cereals were the main food contributors

Promotion of whole grain consumption by **Nutrition Society of Malaysia and Nutrition Month Malaysia**

➤ through various publications



Wonders of Whole Grains



Keajaiban Biji-biji Penuh

全谷类的奥妙



FOR LUM, SUNDAY 27 MARCH 2011

food & health 9



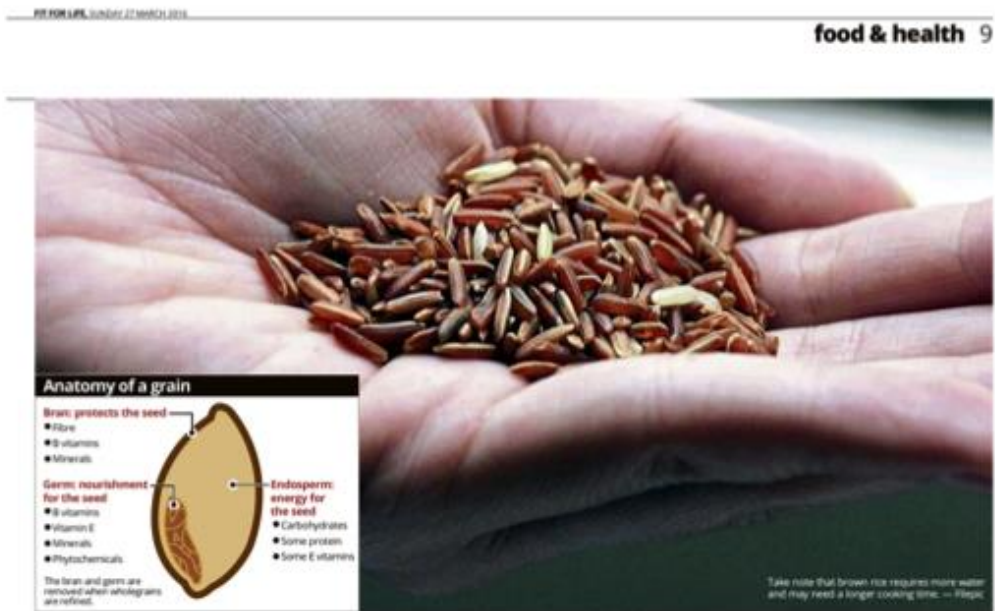
By Dr ZULHITHI AZUAN MAT DAUD

YOU may have heard about wholegrains or wholemeal, but do you know anything about them? Well, it may come as a surprise that all the refined grains that you find in the market actually start out as wholegrains.

Wholegrains are complete grains that include these components: endosperm, bran, germ, and seed coat.

Get the 'whole' grain

Wholegrains have all three of their edible parts intact, and are definitely more nutritious and healthier than refined grains.



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Ketahui Kebaikan Bijirin Penuh

Bijirin penuh merupakan makanan yang mengandungi karbohidrat kompleks yang membekalkan pelbagai manfaat termasuk pengurangan risiko terhadap beberapa penyakit kronik seperti diabetes, penyakit jantung kardiovaskular dan kanser. Jumlah pengambilan bijirin harian harus mengandungi 50% bijirin penuh.

Bijirin penuh merupakan seluruh biji bijirin, biasanya dipanggil isirong. Isirong terdiri daripada tiga komponen.

Germa: Embrio bijirin membentuk sekitar 2% daripada bijirin. Germa mengandungi vitamin B, vitamin E, asid lemak tak tepu dan fitonutrien. Germa selalunya dibuang ketika proses pengisaran, maka kesemua nutrien tersebut juga dibuang.

Endosperma: Kandungan utama endosperma ialah karbohidrat, sedikit protein, sedikit vitamin, mineral, dan fitonutrien.

Bran: Lapisan luar; mengandungi serat, vitamin B, zat besi, zink, dan mineral lain, sedikit protein dan fitonutrien. Bran biasa dibuang ketika proses pengisaran untuk menghasilkan bijirin kilang (contohnya, beras putih).

Contoh bijirin penuh termasuk beras perang, oat, gandum penuh, tepung gandum penuh, jagung, barli bijirin penuh, rai dan buckwheat.

Contoh produk bijirin penuh termasuk roti mil penuh, bijirin sarapan pagi yang diperbuat dengan bijirin penuh, pasta bijirin penuh, bertih jagung, dan kraker gandum penuh/ bijirin penuh.

Bijirin penuh vs Bijirin dikilang (proses)

Proses mengilang bijirin lazimnya melibatkan pembuangan bran dan germa, meninggalkan hanya endosperma. Ini bermakna suku daripada kandungan protein, bersama-sama beberapa vitamin utama, mineral dan fitonutrien turut terbuang.

Oleh itu, bijirin penuh dan produk bijirin penuh adalah lebih berkhasiat daripada bijirin dikilang (tepung putih, beras putih, roti putih) kerana ia membekalkan lebih banyak protein, serat, dan banyak vitamin dan mineral yang penting. Bijirin penuh dan produk bijirin penuh mengambil lebih lama untuk dihadam, bermakna paras glukosa darah meningkat secara beransur-ansur tetapi tetap dan dipadankan dengan peningkatan penghasilan insulin secara perlahan-lahan dan tetap.

Tanpa nutrien yang bermanfaat, terutamanya serat, karbohidrat di dalam bijirin dikilang terurai menjadi gula ringkas dengan cepat, maka membolehkan tubuh memprosesnya dengan lebih cepat, dan seterusnya menyebabkan peningkatan paras gula dalam darah anda.

Perlu diketahui:

Teliti senarai ramuan untuk memastikan bijirin penuh disenaraikan sebagai ramuan. Produk bijirin penuh tidak semestinya diperbuat daripada 100% bijirin penuh. Peratusan bijirin penuh di dalam produk mungkin dinyatakan pada label makanan. Pilih produk yang mempunyai peratusan bijirin penuh yang lebih tinggi.

eat SMART get FIT & feel GREAT

An Infographic Kit



Go Whole Grains

Whole grains became part of our diet over 10,000 years ago when man first discovered agriculture.

What is Whole Grain?

Whole grains are the entire grain that contains all the three natural parts – the fibre-rich bran, the nutrient-packed germ and the starchy endosperm. They are more nutritious because they contain more dietary fibre and several other nutrients and phytonutrients.

Bran contains:

dietary fibre, B vitamins, iron, zinc, and other minerals

Endosperm contains:

mainly carbohydrates, some proteins, small amounts of vitamins and minerals, and phytonutrients

Germ contains:

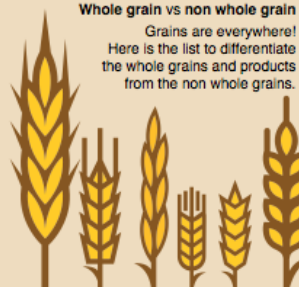
B vitamins, vitamin E, unsaturated fatty acids and phytonutrients

Refined

When grains are made into white rice, white flour, the bran is removed, leaving the endosperm. These products contain as much as 80% less fibre and other nutrients.

Whole grain vs non whole grain

Grains are everywhere! Here is the list to differentiate the whole grains and products from the non whole grains.



Whole grains & products

Wholegrain cereals
Brown rice
Whole wheat
Whole oats
Corn
Rye
Buckwheat
Hulled barley
Wholemeal bread
Popcorn
Wholemeal cracker
Millet
Sorghum

Non whole grain

Bran
Pearled barley
White rice
Brown bread
Wheat bran/germ
Chickpeas
Multi-grain bread
Sunflower seed
Soya bean products
Foods made with refined grains

How to Look for Wholegrain Products?

1

Product name

- Look for words like 'whole grain', 'wholemeal' or 'whole' that comes before the grain's name.
- Words like 'multi-grain', 'enriched', '7 grains' do not necessarily mean the product contains whole grains.

2

Ingredient list

- On the ingredients list, look for the term 'whole grain' or a specific whole grain (such as whole oats) listed as an ingredient.
- Whole grain ingredient(s) should ideally be listed as the first or second item in the list.
- Some wholegrain products are not necessarily made up of 100% whole grain. The percentage of whole grains may be stated on the food label. Opt for those with higher percentage of whole grains.

INGREDIENTS:

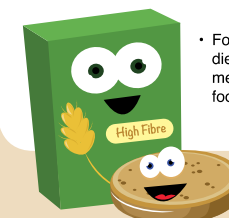
Wholemeal Flour, Wheat Flour, Non-Hydrogenated Vegetable Oil (Palm), Sugar, Malt Extract, Salt, Vitamins & Minerals (A, B1, B2, B6, E)

Whole grain logo

3

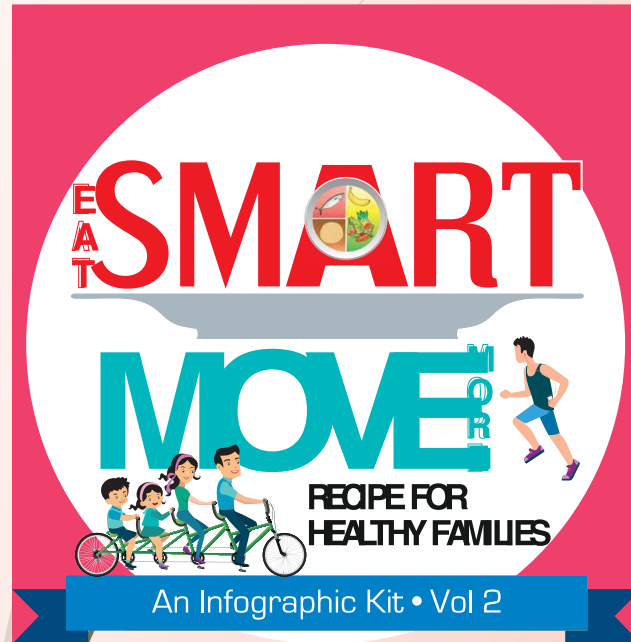
- Some products have a logo that indicates that they are wholegrain foods.

These aren't Wholegrain Products



- Food products that are high in dietary fibre do not necessarily mean that they are wholegrain foods.

- Foods with brown or dark colours do not necessarily mean that these foods are made with whole grains.



Whole Grains are Wholesome!

Experts Recommendation:
Half of your grain intake should be WHOLE grains

3 simple steps for more whole grains in your diet

- 1 Start small.** Substitute ½ your grains with whole grains
- 2 Gradually** replace all refined grains to whole grains
- 3 Add whole** grains in your meal with other foods

<3% of children and adolescents meet the whole grain recommendation of **48 g per day**

Understanding whole grains

Whole grains are made up of three parts: bran, germ and endosperm. These parts together provide a package of important nutrients

- Endosperm:** carbohydrates, some protein, small amounts of vitamins & minerals
- Bran:** dietary fibre, B vitamins, iron, zinc
- Germ:** B vitamins, vitamin E, phytonutrients, unsaturated fatty acids

Sources of whole grains

- Brown rice
- Oats
- Corn
- Whole wheat
- Hulled barley

Sources of wholegrain products

- Wholemeal bread
- Wholemeal cracker
- Wholemeal pasta
- Wholemeal rice noodle
- Whole grain breakfast cereals

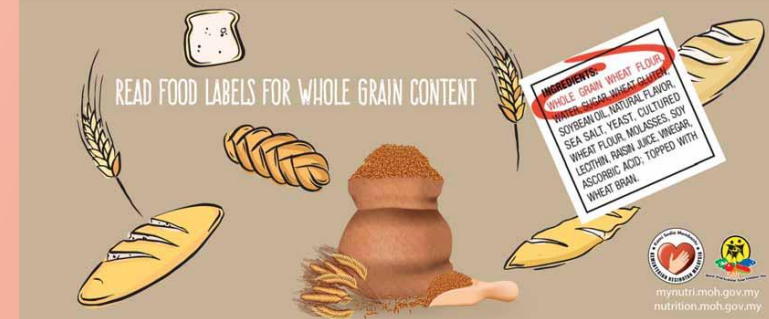
Benefits of whole grain!

Eating more whole grains instead of refined grains help to:

- Reduce risk of stroke
- Reduce risk of heart disease
- Reduce risk of diabetes
- Reduce risk of cancers
- Maintain a healthy body weight
- Promote gut health

READ FOOD LABELS FOR WHOLE GRAIN CONTENT

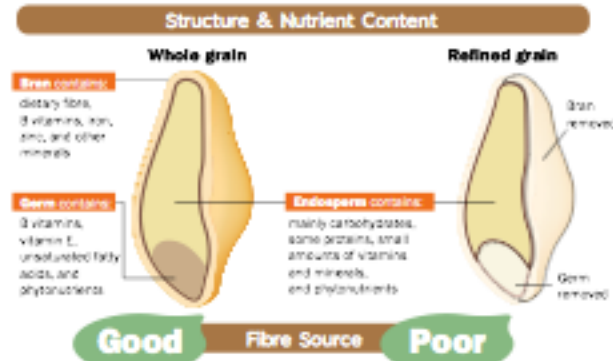
Ingredients: WHOLE GRAIN WHEAT FLOUR, WATER, SALT, YEAST, CULTURED SOYBEAN OIL, NATURAL FLAVOR, WHEAT FLOUR, MOLASSES, SOY LECTHIN, RAISIN JUICE, WHEAT ASCORBIC ACID, TOPPED WITH WHEAT BRAN.





Whole grain VS Refined grain

Know the differences!



Examples of food sources

Whole grains:

- brown rice
- oats
- whole wheat
- corn
- hulled barley

Wholegrain products:

- wholegrain bread
- wholemeal rice noodle or pasta
- wholegrain cereals
- whole wheat flour

Refined grains & products:

- white rice/bread/buns
- white flour
- degermed cornmeal
- refined wheat pasta
- mee-hoon/noodles
- cornflakes

Whole grains for better health

Eating more whole grains is good for your health



heart diseases



cancers



stroke



diabetes



Tips to help you eat more whole grains

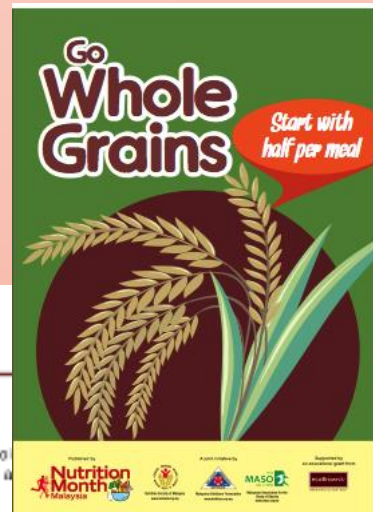
Mix brown rice with white rice in your meal

Use whole grains in your cooking (e.g. add barley in vegetable soups)

Try whole wheat pasta instead of refined wheat spaghetti or macaroni

Bake whole wheat muffin, bread, or buns, or incorporate whole grains in your pancake or waffle mix

Make sandwiches from wholegrain bread or bun



Concluding thoughts ...

- Whole grains are wholesome
 - ❖ **scientific support for the health benefits** of whole grains has been accumulating
 - ❖ especially through epidemiological data
- **Consumption** of whole grain foods **is low** in many countries
- Lack of research on whole grains
 - ❖ including consumption data by various groups
- Greater efforts needed to **promote consumption**
 - ❖ **all stakeholders** need to play a role
 - ❖ including health authorities, professional bodies, consumer bodies and the food industry

- Important to **facilitate the promotion and marketing** of wholegrain foods
- Firstly important for countries to **enact appropriate regulations**
 - ❖ include a clear definition of whole grains
 - ❖ minimum amount of whole grains in wholegrain foods
 - ❖ labeling requirements
 - ❖ criteria for health claims
- Secondly countries to include **science-based whole grain recommendations** in dietary guidelines
 - ❖ to explain health benefits
 - ❖ provide guidance on how to obtain wholegrain foods

- Make greater efforts to **promote the dietary guidelines** for whole grain consumption
 - ❖ efforts are needed to understand the barriers to whole grain consumption
 - ❖ clarify misconception about whole grains
- **Availability** of whole grain products need to be increased
- A **harmonised approach** in SEA region on whole grains would facilitate promotional activities
 - ❖ **harmonised regulations and dietary guidelines**
- **Networking** among stakeholders in SEA would be beneficial as it **enables sharing of experiences**
 - ❖ such as through this seminar

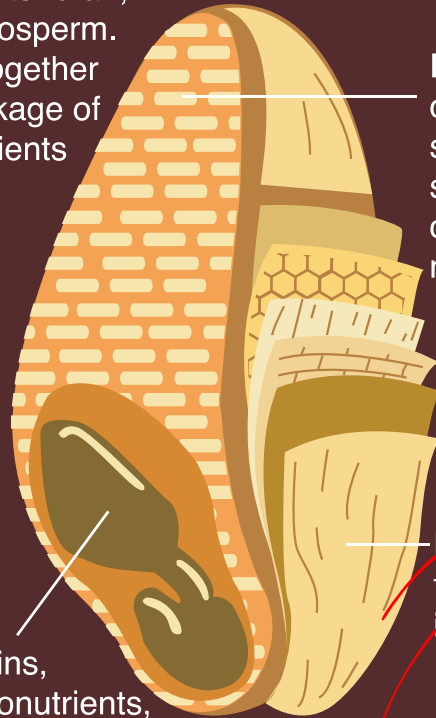
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Thank you!