
Cereals and wholegrain foods

Summary

- Cereals and wholegrain foods can reduce the risk of developing diseases such as coronary heart disease, cancer, diabetes and diverticular disease.
 - A high intake of refined cereals has been linked to diabetes and some types of cancer.
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Cereals and wholegrain foods can reduce the risk of developing certain diseases, including coronary heart disease, colon cancer, diabetes and diverticular disease. Common cereal foods include bread, breakfast cereals and pasta.

Types of grains, wholegrains and cereals

Grains include wheat, barley, oat, rye, corn, rice, millet and triticale. Wholegrains include wholemeal or wholegrain breads or crispbreads, dark 'seedy' breads, wholegrain breakfast cereals, wheatgerm, brown rice, puffed whole grains, bulgur, quinoa, couscous, popcorn and oatmeal.

Refined cereals include cake, desserts, white bread, pasta, muffins, sweet or savoury biscuits, refined grain breakfast cereals, white rice, pancakes, waffles and pizza.

Nutritional content of wholegrain cereals

Grains consist of three major parts, including:

- bran – the outer layer of the grain (fibre, omega-3 fatty acids, vitamins and dietary minerals)
- endosperm – the main part of the grain (mainly starch)
- germ – the smallest part of the grain (vitamin E, folate, thiamine, phosphorus, magnesium).

Wholegrains contain all three layers of the grain.

Benefits of wholegrain cereals

Wholegrain cereals are a rich source of many essential vitamins, minerals and phytochemicals. The typical wholegrain cereal food is:

- low in saturated fat, but is a source of polyunsaturated fats, including omega-3 linolenic acid
- cholesterol-free
- high in both soluble and insoluble fibre, and resistant starch
- an excellent source of carbohydrates
- a significant source of protein
- a good source of B group vitamins, including folate
- a good source of many minerals, such as iron, magnesium, copper, phosphorus and zinc
- a good source of antioxidants and phytochemicals that can help lower blood cholesterol levels.

Protective chemicals in wholegrains

Wholegrain cereals contain many different phytochemicals, which are compounds found in plant foods that have been linked to significant health benefits. These phytochemicals include:

- lignans – can lower the risk of coronary heart disease, and slow or turn back cancers in animals
 - phytic acid – reduces the glycaemic index (GI) of food, which is important for people with diabetes, and helps protect against the development of cancer cells in the colon
 - saponins, phytosterols, squalene, oryzanol and tocotrienols – have been found to lower blood cholesterol
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- phenolic compounds – have antioxidant effects.

When wholegrains are refined

When grains are refined (for example, to produce white flour), the bran and germ layers are generally removed, leaving only the endosperm. This process can cause significant losses of fibre, vitamins, minerals, antioxidants and phytochemicals from the grains.

Some fibre, vitamins and minerals may be added back into refined cereal products (such as white bread), which compensates for losses, but it is impossible to add the mix of phytochemicals that is lost in the processing. In Australia, it is mandatory for wheat flour used in breadmaking to be fortified with folic acid and thiamine, and for the salt to be iodised.

Refined cereals often have high levels of added sugar, fat or salt, and generally have a higher GI than their wholegrain equivalents. Eating refined cereals causes a sharp rise in blood sugars and a strong response from the pancreas, which is not good.

Wholegrains help protect against heart disease

Eating cereal foods (especially wholegrains and those with fibre from oats or barley) is associated with protective effects against heart disease in adults. It has been shown that a high intake of wholegrains (at least 2.5 serves per day) is associated with 21 per cent lower risk of cardiovascular events. Also, a study of postmenopausal women found that six or more servings of wholegrain foods per week protected against the effects of cardiovascular disease.

Heart disease is often caused by high blood cholesterol levels. Regularly eating cereals that are rich in soluble fibre, such as oats (containing beta-glucans) and psyllium, has been found to significantly reduce the amount of cholesterol in the bloodstream.

Wholegrains and type 2 diabetes

Results from the Nurses Health Studies I and II showed that two serves of wholegrain foods daily can reduce the risk of developing type 2 diabetes by 21 per cent. Cereal fibre in particular protects against this condition. People with diabetes also benefit from eating wholegrain cereals, which have been linked to improvements in insulin sensitivity.

Wholegrains and weight management

People who are obese tend to have energy-dense diets. High-fibre foods, such as wholegrain breads and cereals, can be an effective part of any weight loss program as they tend to have a lower energy density, which means they provide fewer kilojoules per gram of food. High-fibre foods take longer to digest and create a feeling of fullness, which discourages overeating. Wholegrains are also naturally low in saturated fat and contain good polyunsaturated fatty acids

Wholegrains, cereals and bowel health

High-fibre foods such as wholegrain cereal products increase movement of food through the digestive tract. The result is increased stool (faeces or poo) bulk, softer and larger stools, and more frequent bowel action. This provides a good environment for beneficial bacteria, while decreasing levels of destructive bacteria and the build-up of carcinogenic compounds. Wheat fibre can bind certain toxins and remove them from the large bowel.

A high-fibre diet, especially one high in insoluble fibre, has been associated with decreased risk of developing colon cancer and diverticular disease (a condition where 'pouches' form in the wall of the intestine).

Wholegrain cereals and cancer

Consumption of one to three serves per day of wholegrain cereals high in dietary fibre is associated with a reduced risk of colorectal cancer in adults. A recent review showed that three servings of wholegrains daily (about 90 g) equals about a 20 per cent reduction in the risk of colorectal cancer – and further reductions are possible with higher intakes.

Wholegrain cereals are recommended for health

Wholegrain cereals are recommended as part of a healthy diet. The Australian Guide to Healthy Eating

recommends adults aged 19-50 years eat at least six serves approximately 4 to 6 serves of cereal foods daily, most of which should be wholegrain. In older adults aged 51-70 years, men and women should consume at least six serves and four serves of cereal foods respectively.

In adults aged 70 years and over, men and women should consume at least 4.5 serves and three serves of cereal foods respectively. Amounts recommended for children and adolescents depend on their age and sex.

Check food labels carefully

The new food standards code introduced in 2002 does not have composition standards for breads. This means manufacturers can make bread with whatever percentage of the relevant flour they want. In the past, 'wholemeal bread' had to have 90 per cent wholemeal flour and rye bread 30 per cent rye flour. This is no longer the case. However, you can look at the percentage labelling to find out how much wholemeal or rye flour is used.

Choosing bread

Tips when buying bread include:

- When you buy wholegrain products, look for words like 'wholegrain' or 'wholemeal'.
- Grainy and seedy breads are more nutritious and have a lower GI than more refined breads.
- Some 'multigrain' breads are made with white flour and various whole grains are added. Wholemeal wholegrain bread is made with wholemeal flour plus whole grains. It has more fibre and nutrients, and a lower GI than wholemeal, wholegrain or white breads.
- Sourdough breads have a lower GI (especially dark rye), as they contain 'wild' yeast. This causes sourdough bread to rise more slowly and therefore have more health benefits, whereas other breads have specially cultured baker's yeast, which causes bread to rise very quickly.

Where to get help

- Your doctor
- Dietitians Association of Australia Tel. 1800 812 942

Things to remember

- Cereals and wholegrain foods can reduce the risk of developing diseases such as coronary heart disease, cancer, diabetes and diverticular disease.
- A high intake of refined cereals has been linked to diabetes and some types of cancer.

This page has been produced in consultation with and approved by:

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