Cereals and wholegrain foods

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.

Grains, whole grains and cereals

Grains include wheat, barley, oat, rye, corn, rice and triticale. Whole grains include wholemeal or wholegrain breads or crispbreads, dark 'seedy' breads, wholegrain breakfast cereals, wheatgerm, brown rice, puffed whole grains, bulgar, 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:

- **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).

Whole grains contain all three layers of the grain.

Wholegrain cereals

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

- Low in saturated fat but is a source of polyunsatured 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 complex 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.

A host of protective chemicals

Wholegrain cereals contain many different phytochemicals that have been linked to significant health benefits. These phytochemicals include:

- **Lignans** – can lower the risk of coronary heart disease, and regress or slow 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.

- **Phenolic compounds** – have antioxidant effects.

Refined cereals do not have the same benefits

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 66 per cent loss of fibre, 92 per cent loss of selenium, 62 per cent loss of folate and up to 99.8 per cent of 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.

Sometimes, the fibre that is added back is from vegetable fibre. Some breads contain 'Hi-maize', which is a resistant starch from corn. It is unknown whether these breads have similar beneficial properties to breads high in cereal fibres. For example, 'Hi-maize' does not have the same laxative effect as wheat fibre.

Refined cereals generally have a higher GI than their wholegrain counterparts. This means that eating refined cereals causes a sharp rise in blood sugars, demanding a strong response from the pancreas (not good!).

Whole grains help protect you from heart disease

Cereal fibre or wholegrains offer protection against heart disease. A study of postmenopausal women found that eating at least one serve of wholegrains daily reduced the risk of heart and blood vessel disease by almost 30 per cent.

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

Diabetes type 2

A study by Harvard researchers in 2000 showed that eating one serve of wholegrain cereal every day can reduce the risk of developing type 2 diabetes by as much as 34 per cent. Cereal fibre is shown to be particularly protective against this condition. People with diabetes also benefit from eating wholegrain cereals.

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. They take longer to digest and create a feeling of fullness, which discourages overeating. Whole grains are also naturally low in saturated fat and contain beneficial polyunsaturated fatty acids.

Bowel health

High fibre foods, such as wholegrain cereal products, increase movement of food through the digestive tract. The result is increased stool 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).

Cancer

Whole grains can reduce the risk of some cancers, including colon, stomach and other digestive tract cancers, gallbladder, bladder, kidney and breast cancer. A consistent protective effect has been observed when whole grains are eaten three to four times a week. A Norwegian study found that people who ate the highest amount of whole grains reduced their risk of death from cancer and heart disease by almost 25 per cent. A study by the Mayo Clinic in 2001 found that those who ate the highest amount of cereal fibre were less likely to develop cancer at the juncture between the oesophagus and the stomach.

Wholegrain cereals recommended for health

Wholegrain cereals of various kinds are recommended as part of a healthy diet. Nutrition experts recommend that you eat at least 4–5 cereal serves daily. At least half of these serves should be whole grain.

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:

- 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 added.
- 'Wholemeal wholegrain' bread is made with wholemeal flour plus whole grains and has more fibre and nutrients and a lower GI than wholemeal, wholegrain or white breads.
- Sourdough breads have a lower GI, especially dark rye. These breads contain 'wild' yeast whereas other breads have specially cultured baker's yeast.

Where to get help

- Your doctor
- An accredited practising dietitian, Dietitians Association of Australia

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.

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