

# Breakfast cereals

## Introduction:

The growing demand for cereals and cereal products offers a great opportunity for manufacturers in high-potential, in urban areas to enhance their livelihoods through increased production to meet the market needs. Breakfast provides energy for the brain. Breakfast skipping impairs attention & memory. So breakfast cereals gaining importance day by day like US and UK. We must remember grains are a good source of carbohydrates and fiber.

This episode deals with different types of Poisonous seeds special reference to **importance of Breakfast, Breakfast cereal and health benefits**, etc. The following topics are highlighted

Breakfast:

Breakfast is the first meal of the day that people usually take. The word “Breakfast” means breaking the fast after one has not eaten since the night before.

Starting the day with a well-balanced meal that supplies adequate, protein, carbohydrate and fiber. “Breakfast” means breaking the fast, it is considered as a most important meal.

1: Importance of Breakfast

2: Different breakfast cereals:

3: Importance of Whole Grains

4: Breakfast cereals Industry in India

5: Conclusion

## 1: Importance of Breakfast

- Several problems are associated with skipping breakfast:
- Breakfast skippers have higher mean BMI than breakfast eaters

- Breakfast skipping associated with high BMI in adolescents and adults
- Nutrients missed at breakfast are rarely made up for during the day
- Breakfast provides energy for the brain
- Breakfast skipping impairs attention & memory
- Missing breakfast interferes with cognition and learning
- Evidence of low intake is proven with inadequate intakes
  - Antioxidant vitamins A, C, and E
  - Fiber

## **2.:Different breakfast cereals:**

### **True Cereal Grains**

There are a number of different types of grains found family 'Poaceae' which including Oats,wheat,rice,corn ,barley,sourgum,rye as well as millet. Within these groups there are also varieties such as farro, freekeh, emmer and spelt.

Farro is a food composed of the grains of certain wheat species. The exact definition is debated. It is sold dried and is prepared by cooking in water until soft, but still crunchy. It may be eaten plain, though it is often used as an ingredient in dishes such as salads and soups.

In short, freekeh is wheat, nothing else. That's it. Well, there's a bit more. Freekeh is young green wheat that has been toasted and cracked. It's a healthy whole .

Emmer wheat, also known as farro especially in Italy, or hulled wheat, is a type of wheat.

Spelt (*Triticum spelta*), also known as dinkel wheat, or hulled wheat, is a species of wheat cultivated since 5000 BCE.

### **Pseudo-Cereal Grains**

Rye contains less gluten than wheat flour, and this makes rye bread significantly denser. Traditional rye breads are made with a sourdough method so have a slightly

sour taste when compared to wheat bread. Rye is unique among grains for having a high level of fibre in its endosperm.

Amaranth is not a 'true' grain, but classified as a 'pseudo-cereal', as it's not part of the Poaceae botanical family. However it is listed with other grains as its nutritional profile and uses are similar to 'true' cereal grains. Amaranth is not grown in large quantities in Australia so most amaranth is imported.

## **Quinoa**

As for amaranth and buckwheat, quinoa (pronounced 'keen-wah') fits within the 'pseudo-cereal' group as it is not part of the Poaceae family, in which 'true' grains belong. To help ward off insects and birds, quinoa has a bitter residue of saponins, a natural occurring plant-defence. Like other pseudo-cereals, quinoa contains significant amounts of all the essential amino acids.

### **Pseudo-Cereal Grains**

The 'pseudo-cereal' group are not part of the Poaceae botanical family, in which 'true' grains belong, however they are nutritionally similar and used in similar ways to 'true' grains. Many of these, such as amaranth, buckwheat, and quinoa are not actually grains but are in fact seeds from a number of different plant species external to the Poaceae family.

Pseudo-cereals are increasingly being used in the manufacture of niche breads, flatbreads, crispbreads, pasta, breakfast cereals and snack bars as well as on their own as alternatives to rice, pasta.

1. Barley
2. Corn
3. Oats
4. Rice.
5. Wheat

The word *cereal* derives from Ceres, the name of the Roman goddess of harvest and agriculture. A **cereal** is an edible components of its grain composed of the endosperm, and bran. Cereal grains are grown in greater quantities and provide more food energy

worldwide than any other type of crop they are therefore important staple crops.

**Nutritional facts:** Some grains are deficient in the essential amino acid lysine.

Many legumes, on the other hand, are deficient in the essential amino acid methionine, which grains contain. The amount of crude protein found in grain is measured as the grain crude protein concentration.

#### Other grain products,

- Cornmeal -made from ground white or yellow corn.
- Hominy- a popular food in the South, it is corn minus the hull and germ.
- Cornstarch -refined starch obtained from the endosperm of corn. Used as a thickener.
- Bulgur-a popular side dish in the Middle East-Wheat kernels that have been steamed, dried, and crushed

**Breakfast cereal** :-Some cereals mainly used for breakfast, they are called breakfast cereals. Breakfast cereal is a food made from processed grains that is often eaten as the first meal of the day. It is eaten hot or cold, usually mixed with milk, or fruits or yogurt.

Some companies promote their products for the health benefits with high-fiber cereals.. The breakfast cereal industry has gross profit margins of 40-45%, 90% penetration in some markets.

**Cornflakes:** Abundant in carbohydrates, iron and Vitamin B complex, cornflakes work very well for school kids and elders too and it is a particularly good breakfast in the rainy months .Corn flakes are a popular Breakfast cereal originally manufactured by Kellogg's through the treatment of corn. Kellogg's products are manufactured in 18 countries and marketed in over 180 countries. Kellogg's holds a Royal Warrant from Queen Elizabeth II.

**Wheat flakes:** It is a modification of wheat porridge and is a nice change from run-of-the-mill breakfast cereals. But unless fortified with extra calcium, it is not much use having just wheat flakes for breakfast.

**Oatmeal:**A bowl of oats in the morning is great for those suffering high cholesterol and diabetes, provided you don't add extra sugar to it. The high fibre content in oats

balances the blood sugar, and relieves people prone to depression.

**Muesli:** Muesli is a great breakfast choice as it has raisins, almonds and four different grains. The comparatively high sugar content in muesli keeps growing children and those into sports, energetic.

**Flattened rice** (also called **beaten rice**) is a dehusked rice which is flattened into flat light dry flakes. They are most famously known as "Pohe" in malwa region.

These flakes of rice swell when added to liquid, whether hot or cold, as they absorb water, milk or any other liquids. *Flattened rice* can be eaten raw by immersing it in plain water or milk, with salt and sugar to taste, or lightly fried in oil with nuts, raisins, cardamoms, and other spices. The lightly fried variety is a standard breakfast in many states,. It can be reconstituted with hot water to make a porridge or paste, depending on the proportion of water added.

**Red River Cereal** is a porridge, or hot cereal, made of wheat, rye and flax, produced in USA (since 2012), with some availability elsewhere. It was first created in 1924 in Manitoba. The cereal takes its name from the **Red River of North**, more specifically the valley around Winnipeg.

### **Wheat:**

Wheat the main protein it contains, gluten — has been cited as a cause of weight gain, “brain fog,” skin rashes, joint pain, headaches, tiredness, allergies, gas, intestinal distress, irritable bowel syndrome, depression and, in the case of celiac disease — where the immune system goes haywire and attacks the body — even death. Yet wheat, which is found not only in bread and pasta, but also in beer and numerous processed foods, makes up one-fifth of all food eaten worldwide and is the number-one source of protein in developing countries. Humans have been eating wheat for around 10,000 years, starting with domestication of wild grasses in the Near East, at the dawn of agriculture

Most warm cereals can be classified as porridges, in that they consist of cereal grains which are soaked and/or boiled to soften them and make them palatable. Sweeteners, such as brown sugar, honey, or maple syrup, are often added either by the manufacturer, during cooking, or before eating.

### **3: Importance of Whole Grains**

Whole grains provide essential vitamins, minerals, protein and fibre and cereals based on these are the best choice. Many cereals these days are fortified with vitamins and minerals, but based on refined grains. Whilst these are better options than unfortified varieties, it is always best to go with a whole grain option if you can.

There are a huge number of ready to eat cereals available in the US, with new varieties hitting the shelves every day. To choose the best option for you it is important to read nutrition labels and compare brands. Below we have listed ten cereals that are high in fiber, as well as low in sugar, fat and calories.

#### **Health benefits:**

##### **Rye**

- High in carbohydrate (mainly starch), with a lower GI than most other grains.
- Relatively high protein content (around 15%), with a higher lysine content than most other cereals.
- Contains a protein complex which forms gluten.
- Low in fat (most of which is unsaturated).
- High in potassium and low in sodium.
- Excellent source of dietary fiber.
- Rye has more soluble fiber than wheat, however, less is known about the effect of dietary fiber found in rye.
- Contains B-group vitamins such as thiamin, riboflavin, niacin, vitamin B6 (pyridoxine), folate and pantothenic acid.
- Contains vitamin E.
- Contains iron, zinc, magnesium, phosphorus and selenium (depending on the soil content of selenium).
- Contains small amounts of copper, manganese and calcium.
- Contains phytochemicals including lignans, phenolic acids, phytic acid, plant sterols and saponins.

## **Oats:**

Oat bran is the outer casing of the oat. Its daily consumption over weeks lowers LDL ("bad") and total cholesterol possibly reducing the risk of heart disease. Oats contain more soluble fiber than any other grain, resulting in slower digestion and soluble fiber, beta-glucans, has been proven to lower cholesterol.

## **Millet:**

1. Low in fat (which is mostly unsaturated) and high in carbohydrate (mainly starch).
2. A good source of dietary fiber.
3. High in potassium and low in sodium.
4. Gluten free.
5. Contains B-group vitamins such as thiamin, riboflavin, niacin, vitamin B6 (pyridoxine), folate and pantothenic acid
6. Contains vitamin E.
7. Contains iron, zinc, magnesium, phosphorus and selenium (depending on the soil content of selenium).
8. Contains small amounts of copper, manganese and calcium.
9. Contains phytochemicals including lignans, phenolic acids, phytic acid, plant sterols and saponins.

## **Amaranth:**

1. High protein content (13-14%) and a carrier of lysine, an amino acid that's missing or negligible in many other grains.
2. Consists of 6 to 9% of oil which is higher than most other cereals. Amaranth oil contains approximately 77% unsaturated fatty acids and is high in linoleic acid.
3. High in dietary fiber.
4. Gluten free.
5. High in iron, magnesium, phosphorus, potassium and appreciable amounts of calcium.
6. A rich dietary source of phytosterols, with cholesterol-lowering properties.
7. Contains a lunasin-like peptide and other bioactive peptides which are thought to have cancer-preventive and antihypertensive properties.

## **Quinoa:**

1. Rich in carbohydrates, with a low glycemic index of 53.
2. High protein content (15%), providing all essential amino acids, including lysine.

3. Has an usually high ratio of protein to carbohydrate, since the germ makes up about 60% of the grain.
4. Relatively low in fat, most of which is omega-6 polyunsaturated fat.
5. In terms of minerals, provides notable quantities manganese, magnesium, iron, copper, phosphorus and potassium.
6. In terms of vitamins, contains notable amounts of Vitamin E and B-group vitamins.
7. High in dietary fibre.
8. Contains polyphenols, phytosterols and flavonoids.
9. Gluten free.

#### **4:Breakfast cereals Industry in India**

Breakfast cereals consumption is rising upward due to changing habits of Indian households. It secured USD 157 million in 2013 and promises the double-digit growth over the next five years. Indian consumers are moving towards convenient and healthier life style thus making the breakfast cereal as important category in food and beverage industry.

- Breakfast cereals witnessed growth of 25% in 2014.
- Growing demand is witnessed due to changing lifestyle and preferences of Indian consumers.
- Success of breakfast cereals is riding on wheels of health and convenience.
- Products like Flakes have enjoyed popularity among majority households, followed by oats. New entrants in this category are ready-made mixes.
- Other products like muesli, are also received well and is foretasted to grow in coming years by CAGR of 17% at constant 2014 prices.
- Barring few weaknesses, this category is observing enormous product innovations and improvements.
- Challenges like product awareness, consumer's usage and attitude and reach need to be overcome.



### **Classification of breakfast cereals**

**Ready to eat cereals:** This category consists of cereals that can be consumed without cooking. They can be consumed solely or along with accompaniments like milk, fruits and water. It includes Cornflakes, wheat flakes, multi-grain flakes, granola bars, puffed and pulverized cereals like murmura and popcorn, cereals made from soy or bran, and squeezed-type cereals made from grain flour or powder.

**Ready to cook:** Cereals that have to be cooked in milk, water or oil belong to this category. It includes instant and quick cooking oats, oatmeal, farina, porridge and muesli. Depending upon the taste preferences, one can add sugar, salt, dried vegetables, fruits and spices to enhance taste of this cereal meal.

**Precooked/Processed cereals:** The consumption level of these cereals is maximum among breakfast cereals. They again can be divided into ready to cook and ready to eat subcategories. Ready to eat food here include cereal-/malt-based food/beverage and/or pulse and crisp snacks, and dessert-type cereals products. Ready to cook cereals include fermented/ non fermented products, enriched products.

**Ready-made/ Breakfast Mixes:** These are dry or liquid mixes of other whole, flaked or ground cereal or grain with other ingredients. Idli or dosa batter, upma or poha mix are some examples. Instant mixes can be prepared with minimal effort and don't require a further addition of ingredients.

### **Types of cornmeal:**

**Cornmeal** is a meal ground from dried maize or corn. It is a common staple food and is ground to fine, medium, and coarse consistencies, but not as fine as wheat flour.

A: Blue cornmeal is light blue or violet in color. It is ground from whole blue corn and has a sweet flavor. The cornmeal consists of dried corn kernels that have been ground into a fine or medium texture.

B: Steel-ground yellow cornmeal, which is common mostly in the United States, has the husk and germ of the maize kernel almost completely removed

C:Stone-ground cornmeal retains some of the hull and germ, lending a little more flavor. It is more perishable, but will store longer if refrigerated.

D:White cornmeal made from white corn, is more common in parts of Africa. It is also popular in the US for making corn bread.

**E: Chocapic** is a chocolate-flavoured whole-grain , distributed by Nestle in most of Europe and Latin America. The cereal consists of cocoa flavored wheat flakes and also that Chocapic has a strong chocolate flavour.A new product related to this cereal, Chocapic Duo, has been recently created, which features the usual chocolate petals with white chocolate one, creating a new product

Wheat and the main protein it contains, gluten – has been cited as a cause of weight gain, “brain fog,” skin rashes, joint pain, headaches, tiredness, allergies, gas, intestinal distress, irritable bowel syndrome, depression and, in the case of celiac disease – where the immune system goes haywire and attacks the body – even death. Yet wheat, which is found not only in bread and pasta, but also in beer and numerous processed foods, makes up one-fifth of all food eaten worldwide and is the number-one source of protein in developing countries. Humans have been eating wheat for around 10,000 years, starting with domestication of wild grasses in the Near East, at the dawn of agriculture

## **5: Conclusion:**

. The growing demand for cereals and cereal products offers a great opportunity for manufacturers in high-potential, in urban areas to enhance their livelihoods through increased production to meet the market needs. Breakfast provides energy for the brain. Breakfast is the first meal of the day the word “Breakfast” means breaking the fast

. Whole grains provide essential vitamins, minerals, protein and fibre and cereals based on these are the best choice. Many cereals these days are fortified with vitamins and minerals, but based on refined grains. Whilst these are better options than unfortified varieties, it is always best to go with a whole grain option if you can.

The breakfast cereal market is a very dynamic one with a variety of products being available and which aim to target different market segment. Flakes have already captured half a market share in this category and oats along with muesli have also received a warm welcome due to ease in their preparation and these breakfast cereals are high in nutrient content.