

## Bread: A nutritious staple

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Bread has been part of the human diet for thirty thousand years. It provides energy in the form of carbohydrates and essential nutrients, dietary fibre and phytochemicals. Yet there are many misconceptions around bread.

### Composition of bread

Bread is made from cereal grains such as wheat, rye, oats, so its nutrient content is largely determined by the content of the grains. The nutritional composition of bread depends on whether the flour used to produce the bread is white or wholemeal flour, as well as the addition of ingredients like seeds or fat.<sup>1</sup>

Table: Nutrient content of different types of breads, per 100 g\*.<sup>2</sup>

	Wheat bread	Wheat bread, wholemeal	Rye bread	Rye bread, wholemeal
Carbohydrates, g (% of energy)	49 (82)	41 (81)	41 (83)	39 (80)
Protein, g (% of energy)	8 (14)	8 (15)	5 (11)	7 (15)
Fat, g (% of energy)	1 (4)	1 (4)	1 (6)	1 (5)
Dietary fibre, g	3	7	7	8
Vitamins				
Vitamin B <sub>1</sub> (Thiamine), µg	86	150	180	180
Vitamin B <sub>2</sub> (Riboflavin), µg	60	150	51	150
Vitamin B <sub>3</sub> (Niacin), mg	2.2	5.0	1.8	1.6
Vitamin B <sub>6</sub> (pyridoxine), µg	17	79	80	150
Vitamin B <sub>9</sub> (Folate), µg	22	29	16	14

Minerals				
Iron, mg	0.7	2.0	1.6	2.0
Zinc, mg	0.7	1.5	1.5	1.5
Magnesium, mg	24	60	46	55
Sodium (salt), g	0.5 (1.4)	0.5 (1.2)	0.5 (1.1)	0.5 (1.3)

\*Varies between bakeries and countries. Check nutritional information on pre-packed product labels.

About half of our daily energy should come from carbohydrates, mainly from starch.<sup>3</sup> Therefore, together with potatoes, pasta and rice, bread is a major component of a healthy and balanced diet. Bread also contains proteins, and only small amounts of fat (unless added during production).<sup>1</sup>

Cereal grains are rich in dietary fibre and provide essential micronutrients, including B vitamins (e.g. thiamin, niacin and folate) and minerals (e.g. iron, zinc and magnesium), mostly located in the bran, the outer layer of the grain. The amount of these components in bread depends on the flour (see Table); wholemeal flour is richer than white flour. Therefore, wholemeal breads not only contain more fibre, but also more vitamins and minerals (unless these are added back to white flour after milling, as is the case in the UK for example).<sup>1</sup>

Around two thirds of the fibre in cereal grains is insoluble and a third soluble; when the bran is removed, mainly insoluble fibre is lost. Fibre is associated with several health benefits, in particular improved gut health and bowel function, but also reduced risk of coronary heart disease and type 2 diabetes and improved weight maintenance.<sup>1,3</sup>

## Contribution to Europeans' diets

On average, EU citizens consume 50 kg of bread per person per year, or around 137 g per day (3-4 slices of white bread). However, consumption varies: German and Austrian citizens consume the most (80 kg per person per year) and people in Ireland and the UK the least (less than 50 kg).<sup>4</sup> A slow but steady decline in bread consumption is observed in the UK and Germany (1-2% per year).<sup>4</sup>

## Consumer misconceptions towards bread

An increasingly common belief is that starchy foods, including bread, cause weight gain. This belief stems from an increasing popularity of high-protein/low carbohydrate diets which are often successful for short-term weight loss. However, it is the overall lower energy intake, rather than the avoidance of carbohydrates per se, that leads to weight loss.<sup>5</sup> A recent comprehensive review found that whole grain (such as wholemeal) bread consumption was not associated with weight gain. This study also found an association between dietary patterns including refined bread and excess abdominal fat (although consumption of mainly white bread could reflect an overall less healthy diet).<sup>6</sup>

Another common misconception is that bread causes bloating. In healthy people, there is no scientific evidence to support this.<sup>7</sup> However, in conditions like coeliac disease or wheat allergy, consumption of bread (and other foods containing gluten or wheat) can lead to gastrointestinal damage and discomfort. The proportion of people who perceive they are allergic to wheat (and other foods) is higher than the actual prevalence.<sup>7</sup> If an allergy or intolerance is suspected, it is important to seek medical advice and be tested. Simply cutting out foods can lead to lower intakes of essential nutrients.<sup>8</sup>

## Improving the nutritional quality of breads

Bread also contains salt, which is added for taste and various functional properties. Salt is important for dough handling, taste, texture and shelf-life. As a staple food in most European countries, bread is therefore one of the main contributors to total salt intake.<sup>9,10</sup> There are initiatives to reduce salt levels in bread across several European countries, ranging from a 10-15% reduction target in Austria and Italy, and up to 30% in Croatia.<sup>9</sup>

Other product innovations have contributed to improved nutritional profiles of bread, such as the addition of fibre, whole grains, seeds and omega 3 fatty acids, and these innovations are expected to continue.<sup>4</sup>

## References

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