FACTSHEET No. 24

FLOUR FORTIFICATION

Is all UK flour fortified?

The Bread and Flour Regulations lay down specific rules for bread and flour produced in Great Britain. Under these rules all wheat flour (except wholemeal flour) is required to have a specified quantity of folic acid calcium, niacin, iron and thiamin.

Nutrient	mg/100g flour
Calcium (calcium carbonate)	≥300 to 445
Iron	≥2.1
Thiamin (thiamin hydrochloride)	≥0.24
Niacin	≥2.4
Folic acid	0.25

Why is flour fortified?

White flour was first fortified with calcium in the UK in 1941. This was introduced to prevent rickets which had been found to be common in women joining the Land Army. Fortifying flour was a means of providing more calcium in the diet at a time when dairy products were scarce.

Around the same time, the Ministry of Food was charged with reducing the amount of wheat that was imported, while continuing to keep bread freely available (at this time bread-making wheat was mainly imported from North America and Canada). Their solution was to make the wheat go further by instructing millers to produce wheatmeal flour in place of white flour for bread making. This wheatmeal flour was roughly equivalent to today's brown flour and the bread that was produced was known as the National Loaf. Because more of the grain was used, it meant that there were more vitamins and minerals naturally present from the wheat grain.

In 1953 when controls on the milling of white flour were lifted, it was decided that the nutrients lost during milling of white and brown flours should be restored in order to maintain the nutritional value of our bread. Regulations were introduced to add iron, thiamin and niacin, and to continue the addition of calcium in all wheat flour (except wholemeal).

In 1991, a UK study (MRC Vitamin Study) showed that folic acid supplements could

reduce NTD risk by up to 70%. Following this, countries like the US, Canada and Australia began mandatory folic acid flour fortification leading to significant reductions in NTD cases. Scientific Advisory Committee on Nutrition (SACN) recommended mandatory fortification in 2006, 2009 and in a 2017 review, advising limits on voluntary fortification and supplement guidance. In December 2024, new legislation came into force requiring all non wholemeal wheat flour to be fortified with folic acid by December 2026. This is expected to prevent around 200 NTD cases annually and save the NHS £20 million over 10 years.

Is this still relevant today?

Recent NDNS (2019-2023) results show that, for adults aged 19–64 years, bread alone (including white, wholemeal, non-wheat, and sandwiches) contributes significantly to average daily nutrient intakes:

- 16% of niacin (out of 33% from all cereal products)
- 19% of thiamin (of 40% from cereal products)
- 18% of iron (of 43% from cereal products)
- 20% of calcium (of 35% from cereal products)

NDNS results have also consistently shown that a large percentage of women of childbearing age in the UK have blood folate levels below the recommended thresholds for minimising the risk of NTDs. The NDNS (2019-2023) indicated that 83% of women aged 16 to 49 had red blood cell (RBC) folate concentrations below 748 nmol/L, the level below which there is an increased risk.

References

SACN "Nutritional Implications of Repealing the UK Bread and Flour Regulations" June 2012

National Diet Nutrition Survey (2019 to 2023) - https://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-2019-to-2023

GOV.UK - https://www.gov.uk/government/news/birth-defects-prevented-by-fortifying-flour-with-folic-acid